

**EGI Training for AEGIS Site Administrators
Institute of Physics Belgrade**

SE Installation & configuration

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- Storage Element
- SE Types
- SURL, GUID, LFN
- OS (SL5) preparations
- SE DPM Installation
- SE DPM Configuration
- Checking configured system

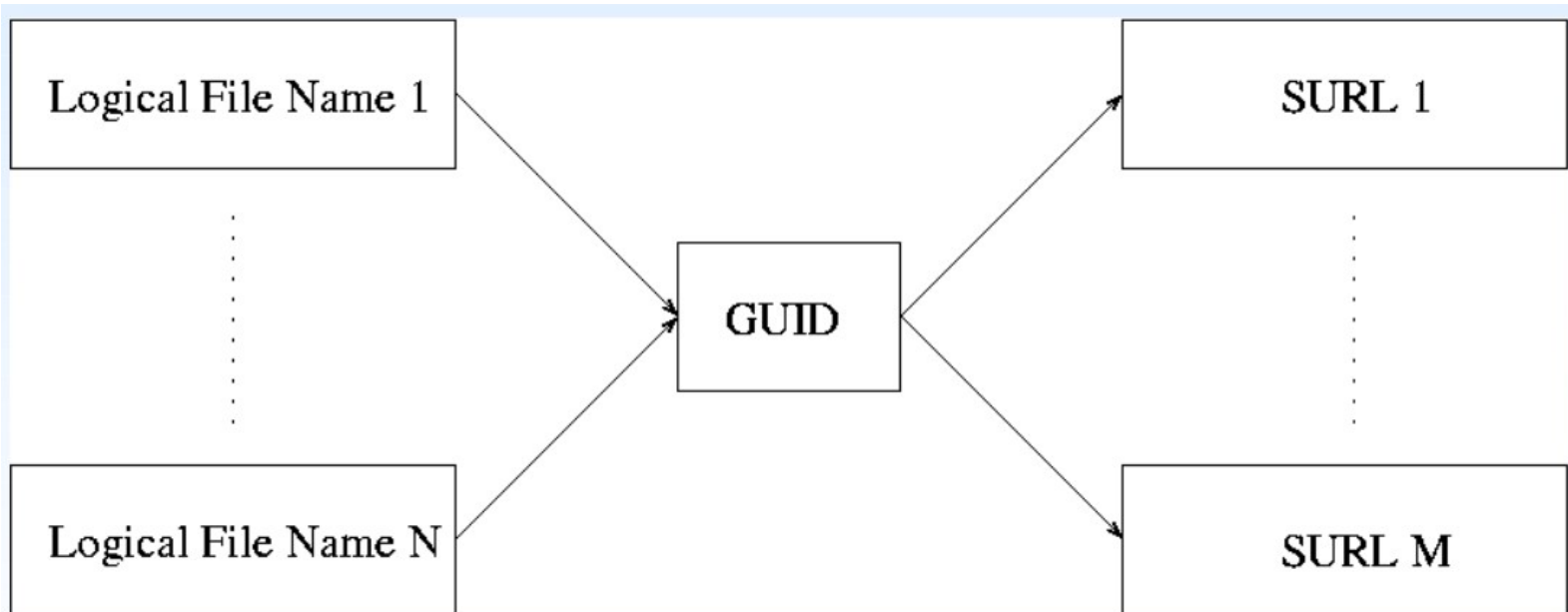
- **A Storage Element (SE)** is a service which allows a user or an application to store data for future retrieval
- All data on SE must be considered *read-only*
- The SE may control simple disk servers, large disk arrays or tape-based Mass Storage Systems (MSS)
- Most sites provide **at least one SE**

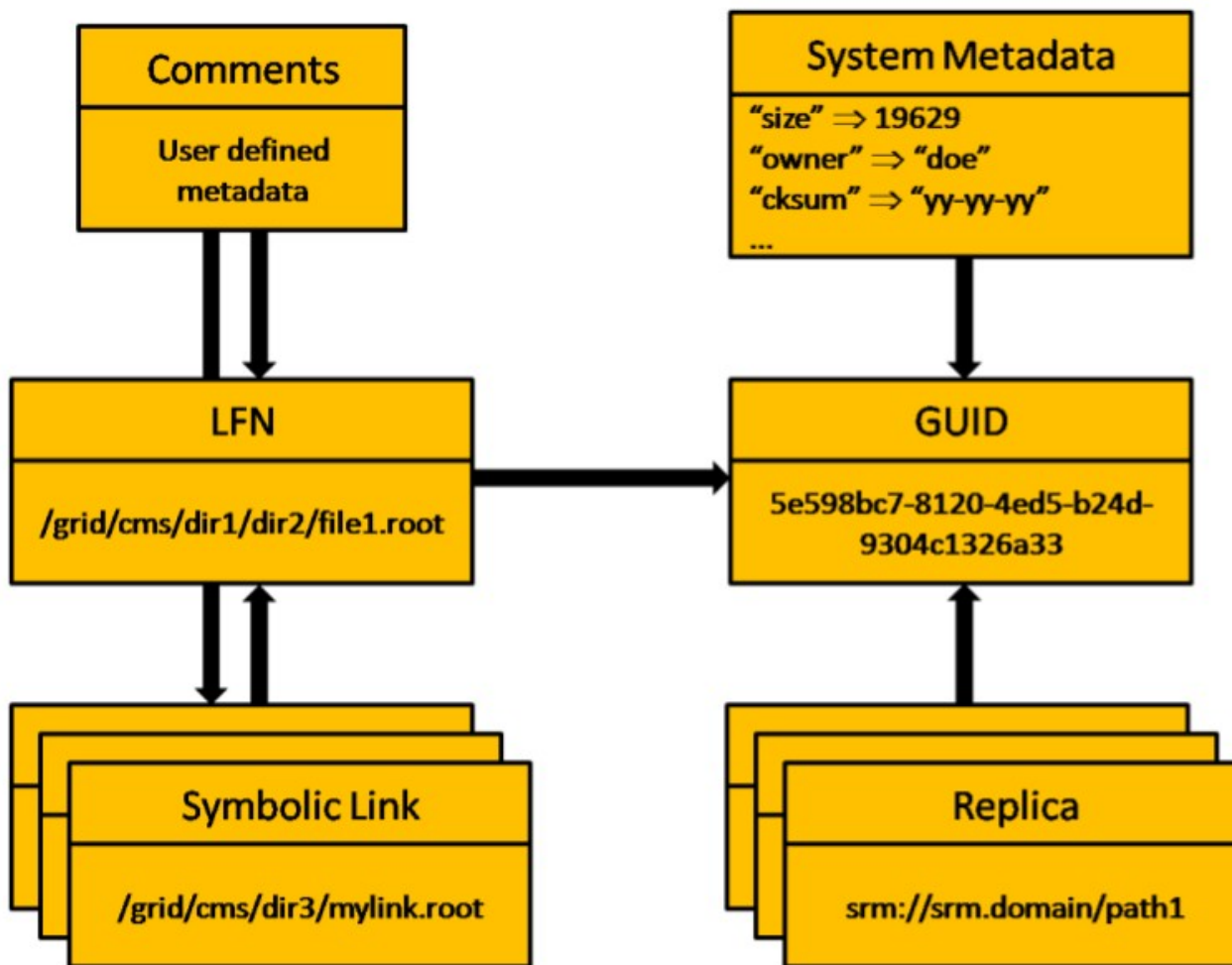
Protocol	Type	GSI secure	Description	Optional
GSIFTP	File Transfer	Yes	FTP-like	No
gsidcap	File I/O	Yes	Remote file access	Yes
insecure RFIO	File I/O	No	Remote file access	Yes
secure RFIO (gsirfio)	File I/O	Yes	Remote file access	Yes
file	File I/O	No	Remote file access	Yes

- **GSIFTP** – Grid Security Infrastructure File Transfer Protocol
- **RFIO** – Remote File IO
- **Gsidcap** - GSI dCache Access Protocol
- **SRM** – Storage Resource Manager

Type	Resources	File transfer	File I/O	SRM
Classic SE	Disk server	GSIFTP	insecure RFIO	No
DPM	Disk pool	GSIFTP	secure RFIO	Yes
dCache	Disk pool/MSS	GSIFTP	gsidcap	Yes
CASTOR	MSS	GSIFTP	insecure RFIO	Yes

- LFN – Logical File Name
- GUID - Grid Unique Identifier
- SURL – Storage URL





- SL5 x86_64, separate **/data** partition, properly updated
- Host certificate obtained
- NTP up and running
- **glite-SE_dpm_mysql** & **glite-SE_dpm_disk** on the same host
- lcg-CA package installed using the appropriate repository


```
# Scientific Computing Laboratory - Institute of Physics Belgrade
# YUM repository string for the glite 3.2 SE_dpm_mysql

[scl-glite-SE_dpm_mysql]
name=gLite 3.2 SE_dpm_mysql

baseurl=http://rpm.scl.rs/gLite/R3.2/glite-SE_dpm_mysql/sl5/x86_64/RPMS.release/,
http://rpm.scl.rs/gLite/R3.2/glite-GENERIC/sl5/x86_64/RPMS.release/

enabled=1

[scl-glite-SE_dpm_mysql_updates]
name=gLite 3.2 SE_dpm_mysql updates

baseurl=http://rpm.scl.rs/gLite/R3.2/glite-SE_dpm_mysql/sl5/x86_64/RPMS.updates/,
http://rpm.scl.rs/gLite/R3.2/glite-GENERIC/sl5/x86_64/RPMS.updates/

enabled=1

[scl-glite-SE_dpm_mysql_ext]
name=gLite 3.2 SE_dpm_mysql external

baseurl=http://rpm.scl.rs/gLite/R3.2/glite-SE_dpm_mysql/sl5/x86_64/RPMS.externals/,
http://rpm.scl.rs/gLite/R3.2/glite-GENERIC/sl5/x86_64/RPMS.externals/

enabled=1
```

```
# Scientific Computing Laboratory - Institute of Physics Belgrade
# YUM repository string for the glite 3.2 glite-SE_dpm_disk

[scl-glite-SE_dpm_disk]
name=gLite 3.2 glite-SE_dpm_disk
baseurl=http://rpm.scl.rs/gLite/R3.2/glite-SE_dpm_disk/sl5/x86_64/RPMS.release/
enabled=1

[scl-glite-SE_dpm_disk_updates]
name=gLite 3.2 glite-SE_dpm_disk
baseurl=http://rpm.scl.rs/gLite/R3.2/glite-SE_dpm_disk/sl5/x86_64/RPMS.updates/
enabled=1

[scl-glite-SE_dpm_disk_ext]
name=gLite 3.2 glite-SE_dpm_disk
baseurl=http://rpm.scl.rs/gLite/R3.2/glite-SE_dpm_disk/sl5/x86_64/RPMS.externals/
enabled=1
```

\$ yum install glite-SE_dpm_disk glite-SE_dpm_mysql

```
#####  
# DPM configuration variables #  
#####  
# The name of the DPM head node  
# Adjust according to your site  
DPM_HOST="(se-name).$MY_DOMAIN"  
# The DPM pool name (max 15 character long name)  
# Adjust according to your site  
DPMPOOL="pool-all"  
# The filesystems/partitions parts of the pool  
# Adjust according to your site  
DPM_FILESYSTEMS="$DPM_HOST:/data"  
# The database user  
# Adjust according to your site  
DPM_DB_USER="*****"  
# The database user password  
# Adjust according to your site  
DPM_DB_PASSWORD="*****"
```

```
# The DPM database host
# Adjust according to your site
DPM_DB_HOST=$DPM_HOST
# The DPM db name. Default is dpm_db
DPM_DB=dpm_db
# The DPNS db name. Default is cns_db
DPNS_DB=cns_db
# The DPM infosystem user name
# Adjust according to your site
DPM_INFO_USER=*****
# The DPM infosystem user password
# Adjust according to your site
DPM_INFO_PASS=*****

Specifies the default amount of space reserved for a file
DPMFSIZE=200M

# Variable for the port range - Optional, default value is shown
RFIO_PORT_RANGE="20000 25000"

#The DPNS server base dir. Default value is home , i.e. the DPNS server is serving the
#/dpm/domain/home name space. If you have multiple DPNS server under the same domain use
#for example home2 or data for this value.
DPNS_BASEDIR=home
```

```
$ yaim -c -s <siteinfo.def> -n SE_dpm_disk -n SE_dpm_mysql
```

- **dpm-qryconf**

```
POOL pool-all DEFSIZE 200.00M GC_START_THRESH 0
GC_STOP_THRESH 0 DEF_LIFETIME 7.0d DEFPINTIME 2.0h
MAX_LIFETIME 1.0m MAXPINTIME 12.0h FSS_POLICY
maxfreespace GC_POLICY lru RS_POLICY fifo GIDS 0 S_TYPE -
MIG_POLICY none RET_POLICY R
```

```
CAPACITY 447.50G FREE 408.10G ( 91.2%)
```

```
se.csk.kg.ac.rs /data CAPACITY 447.50G FREE 408.10G ( 91.2%)
```

- **export DPNS_HOST=se.csk.kg.ac.rs; dpns-ls /dpm/csk.kg.ac.rs**
home

- `lfc-chmod` Change access mode of a LFC file/directory.
- `lfc-chown` Change owner and group of a LFC file/directory.
- `lfc-delcomment` Delete the comment associated with a file/directory.
- `lfc-getacl` Get file/directory access control lists.
- `lfc-ln` Make a symbolic link to a file/directory.
- `lfc-ls` List file/directory entries in a directory.
- `lfc-mkdir` Create directory.
- `lfc-rename` Rename a file/directory.
- `lfc-rm` Remove a file/directory.
- `lfc-setacl` Set file/directory access control lists.
- `lfc-setcomment` Add/replace a comment.
- `lfc-entergrpmap` Defines a new group entry in the Virtual ID table.
- `lfc-enterusrmap` Defines a new user entry in Virtual ID table.
- `lfc-modifygrpmap` Modifies a group entry corresponding to a given virtual gid.
- `lfc-modifyusrmap` Modifies a user entry corresponding to a given virtual uid.
- `lfc-rmgrpmap` Suppresses group entry corresponding to a given virtual gid or group name
- `lfc-rmusrmap` Suppresses user entry corresponding to a given virtual uid or user name.

- lcg-cp Copies a Grid file to a local destination (download)
- lcg-cr Copies a file to a SE and registers the file in the catalog (LFC or LRC) (upload)
- lcg-del Deletes one file (either one replica or all replicas)
- lcg-rep Copies a file from one SE to another SE and registers it in the catalog (LFC or LRC) (replicate)
- lcg-gt Gets the TURL for a given SURL and transfer protocol
- lcg-sd Sets file status to "Done" for a given SURL in an SRM's request
- lcg-aa Adds an alias in the catalog (LFC or RMC) for a given GUID.
- lcg-ra Removes an alias in the catalog (LFC or RMC) for a given GUID.
- lcg-rf Registers in the the catalog (LFC or LRC/RMC), a file residing on an SE.
- lcg-uf Unregisters in the the catalog (LFC or LRC) a file residing on an SE.
- lcg-la Lists the aliases for a given LFN, GUID or SURL.
- lcg-lg Gets the GUID for a given LFN or SURL.
- lcg-lr Lists the replicas for a given LFN, GUID or SURL.