



Enabling Grids for E-science

# DPM Server Installation

Gianni M. Ricciardi  
INFN – Catania

EMBRACE-EGEE Tutorial  
Clermont-Ferrand, 9 October – 13 October 2006

[www.eu-egee.org](http://www.eu-egee.org)



- **Disk Pool Manager Overview**
- **How to install a DPM Server**
- **DPM testing**

- **The Disk Pool Manager (DPM) is a lightweight solution for disk storage management, which offers the SRM (*Storage Resource Manager*) interfaces.**
- **The DPM head node has to have one filesystem in this pool, and then an arbitrary number of disk servers can be added by YAIM.**
- **The DPM disk servers can have multiple filesystems in the pool.**
- **The DPM head node also hosts the DPM and DPNS databases, as well as the SRM web service interfaces.**

# Installing DPM

- Start from a machine with **Scientific Linux CERN 3.0.X** installed.
- Verify that these packages are installed and properly configured:
  - **Java SDK**
  - **NTP daemon**
  - **ca\_GILDA** (<https://gilda.ct.infn.it/RPMS/>)
  - **edg-voms-vo-gilda** (<https://gilda.ct.infn.it/RPMS/>)
  - **glite-yaim-3.0.0-\*** (<http://www.cern.ch/grid-deployment/gis/yaim/>)
  - **gilda\_ig-yaim-3.0.0-\*** ([http://grid018.ct.infn.it/apt/gilda\\_app-i386/utils/](http://grid018.ct.infn.it/apt/gilda_app-i386/utils/))
- Also check that your host certificates are present in **/etc/grid-security** and have proper permissions:

```

-rw-r--r--      1 root root  1127   Jun 14 12:27 hostcert.pem
-r-----      1 root root   887   Jun 14 12:28 hostkey.pem

```

- **Copy /opt/glite/yaim/examples/gilda\_ig-site-info.def into /root/my-site-info.def and edit these fields:**

```
MY_DOMAIN=your_domain
MON_HOST=mon_box_hostname
JAVA_LOCATION="/usr/java/j2sdk1.4.2_XX"
DPM_HOST=your_DPM_hostname.$MY_DOMAIN
DPMPOOL=Permanent
DPM_FILESYSTEMS="$DPM_HOST:/storage"
DPM_DB_USER=dpmdbuser
DPM_DB_PASSWORD=dpmdbpassword
DPM_DB_HOST=$DPM_HOST
MYSQL_PASSWORD=your_passwd
SE_LIST="$DPM_HOST"
```

- OS\_REPOSITORY="rpm http://grid018.ct.infn.it/rep slc306-i386 os updates extras"
- LCG\_REPOSITORY="rpm http://grid018.ct.infn.it/rep glite\_sl3-i386 3\_0\_0 3\_0\_0 externals 3\_0\_0 updates"
- IG\_REPOSITORY="rpm http://grid018.ct.infn.it/rep ig\_sl3-i386 3\_0\_0 utils"
- GILDA\_REPOSITORY="rpm http://grid018.ct.infn.it/rep gilda\_app-i386 app 3\_0\_0"
- CA\_REPOSITORY="rpm http://grid018.ct.infn.it/rep glite\_sl3-i386 security"

- We need to create one or more partitions for DPM.
- In this example installation we will create the `/storage` directory, specified into the `DPM_FILESYSTEM` configuration variable:
  - `mkdir /storage`
- Add this row (if not exist) to `/opt/glite/yaim/examples/gilda_ig-users.conf`:
  - `151:dpmmgr:151:dpmmgr:x:dpm:`



- **We are ready to install the DPM Server:**

```
/opt/glite/bin/gilda_ig_install_node /root/my-site-  
info.def GILDA_ig_SE_dpm_mysql GILDA_ig_SE_dpm_disk
```

- **This command will download and install all the needed packages for the DPM Head Node and the Disk Server.**

- **Now we can configure the node:**

```
/opt/glite/bin/gilda_ig_configure_node /root/my-site-  
info.def GILDA_ig_SE_dpm_mysql
```

```
/opt/glite/bin/gilda_ig_configure_node /root/my-site-  
info.def GILDA_ig_SE_dpm_disk
```

- **The following ports have to be open:**
  - DPM server: port 5015/tcp must be open locally at your site at least (can be incoming access as well),
  - DPNS server: port 5010/tcp must be open locally at your site at least (can be incoming access as well),
  - SRM servers: ports 8443/tcp (SRMv1) and 8444/tcp (SRMv2) must be opened to the outside world (incoming access),
  - RFIO server: port 5001/tcp must be open to the outside world (incoming access), in the case your site wants to allow direct RFIO access from outside,
  - Gridftp server: control port 2811/tcp and data ports 20000-25000/tcp (or any range specified by GLOBUS\_TCP\_PORT\_RANGE) must be opened to the outside world (incoming access).

# DPM Server Testing

- A simple test for checking if the DPM server is correctly exporting the filesystem is:

- `/opt/lcg/bin/dpm-qryconf`

```
POOL Permanent DEFSIZE 200.00M GC_START_THRESH 0
GC_STOP_THRESH 0 DEFPINTIME 0 PUT_RETENP 86400
FSS_POLICY maxfreespace GC_POLICY lru RS_POLICY
fifo GID 0 S_TYPE -
CAPACITY 55.81G FREE 51.89G ( 93.0%)
<SE_FQDN> /storage CAPACITY 55.81G FREE 51.89G (
93.0%)
```

- Check and eventually fix ownership of :
  - **/etc/grid-security/gridmapdir**

```
# ls -ld /etc/grid-security/gridmapdir
drwxrwxr-x    2 root      dpmmgr      12288 Jun  1 14:25 /etc/grid-
security/gridmapdir
```

- Try a simple directories browsing :

```
[root@your_SE]# dpns-ls /
dpm
[root@your_SE]# dpns-ls /dpm/
ct.infn.it
[root@your_SE]# dpns-ls /dpm/ct.infn.it
home
[...]
```

- Check if your SE is correctly publishing on Information System :

```
[your_account@UI]$ ldapsearch -x -h iceage-se-01.ct.infn.it -p 2135
-b "mds-vo-name=local, o=grid" | grep GlueSAStateAvailableSpace
```

```
GlueSAStateAvailableSpace: 55020000
[...]
```

```
[your_account@UI]$ ldapsearch -x -h iceage-se-01.ct.infn.it -p 2135
-b "mds-vo-name=local, o=grid" | grep GlueSAStateUsedSpace
```

```
GlueSAStateUsedSpace: 2980000
[...]
```

- Try a globus-url-copy:

```
[your_account@UI]$ globus-url-copy file://`pwd`/your_file  
gsiftp://<your_SE_FQDN>/dpm/ct.infn.it/home/gilda/your_file
```

```
[your_account@UI]$ globus-url-copy  
gsiftp://<your_SE_FQDN>/dpm/ct.infn.it/home/gilda/your_file  
file://`pwd`/your_file
```



- Once your DPM is on a BDII, you can try some *lcg-\** commands:

```
[your_account@UI]$ lcg-infosites --vo gilda se | grep <your_SE>
55020000          2980000          n.a          <SE_FQDN>
```

```
[your_account@UI]$ lcg-cr --vo gilda -d <your_SE_FQDN>
file:/home/your_account/your_file
guid:d8cba123-1df6-4ba3-8d91-c28e0a0fb17f
```

```
[your_account@UI]$ lcg-cp --vo gilda guid:d8cba123-1df6-4ba3-8d91-
c28e0a0fb17f file:/home/your_accunt/your_file_copy
```

- **DPM YAIM Install**

- [http://wiki.gridpp.ac.uk/wiki/DPM\\_Yaim\\_Install](http://wiki.gridpp.ac.uk/wiki/DPM_Yaim_Install)

- **GILDA gLite3.0 Wiki**

- <https://grid.ct.infn.it/twiki/bin/view/GILDA/GliteElementsInstallation>

- **DPM Administrator Guide**

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

