

Installation of GLite 3.0.2 middleware on Scientific Linux 3.0.8 and 4.4 for the UCY certification testbed

On `plethon.grid.ucy.ac.cy:/data1/others/certificationtestbed` there is an NFS shared directory which contains config files, vmware ready and configured machines, ssh keys and other usefull stuff.

The hardware setup

The following hardware were used:

- 2 x IBM xSeries 335 (2x Intel Xeon 2.8GHz CPUs, 3GB RAM, 40GB HDD)
- 1 x Dell PowerEdge (2x Intel P3 800MHz CPUs, 768MB RAM, 2x35GB 1x70GB SCSI HDD)
- 1 x Dell Precision 330 (1x Intel P4 1.5GHz, CPU, 512MD RAM, 40GB HDD)
- 1 x Generic PC (1x Intel P4 1.7GHz, CPU, 256MD RAM, 40GB HDD)
- 1 x Generic PC (1x Intel P3 800MHz, CPU, 384MD RAM, 40GB HDD)

Hardware setup:

Network interface: eth0

IP address prefix: 194.42.27

DNS name suffix: grid.ucy.ac.cy

Machines used static IP addresses

sysId	Name	IP	MAC	Mem	HDD
odin (IBM)	ce201	239		768MB	7GB
odin (IBM)	wn202	228		768MB	7GB
odin (IBM)	wn201	231		768MB	5GB
tor (IBM)	wmslb201	235		768MB	5GB
tor (IBM)	mon201	237		768MB	5GB
tor (IBM)	bdi201	234		768MB	5GB
Dell	se201	238		768MB	120GB
Gen P3	lfc201	232		256MB	40GB
Gen P4	amga201	233		384MB	40GB
Dell Prec.330	ui201	236		512MB	40GB

The software installed

Operating system: Scientific Linux 3.0.8 and CentOS 4.4

GLite middleware version: 3.0.2

Documentation used

The following documents were used:

Generic Installation and Configuration (LCG-GIS-MI), V3.0.0

Installation and Configuration Guide, V3.0(rev.2)

GLite 3.0 User Guide Manuals Series (CERN-LCG-GDEIS-722398) V0.1

<http://wiki.egee-see.org/index.php/GLite30>

The installation procedure

Installed the Linux operating system (SL3.0.8)

Installed Java version 1.4.2_13

Installed GLite version 3.0.2

Environments that had to be changed

The different settings had to be changed for all the machines.

Changing the path

By default the PATH environment variable does not include the directory /usr/sbin, which means that the yaim configuration scripts fails when it tries to add the user account useradd program

In the file .bashrc add the following line

```
PATH=$PATH:/usr/sbin:/sbin
```

Setting the IP address

Since the machines uses static IP addresses the following changes must be done to the file /etc/hosts

Modify the first line in the file from

```
127.0.0.1 machineName localhost.localdomain localhost
```

to

```
127.0.0.1 localhost.localdomain localhost
```

where machineName is the name of the machine (like ce201). Basically remove the machine name.

Add as the first line in the file (FQDN = Fully Qualified Domain Name):

```
MachineIP Machine FQDN Machine short name
```

Example :

```
194.42.27.239 ce201.grid.ucy.ac.cy ce201
```

Setting the hostname

When the program hostname is called it must return the FQDN, which it does not by default. In the file /etc/sysconfig/network make sure that the FQDN name is set for the HOSTNAME.

Example:

```
HOSTNAME=ce201.grid.ucy.ac.cy
```

The change will not occur until the machine is restarted. To test that the hostname is updated use the program /bin/hostname

Example:

```
[root@ce201 root]# /bin/hostname  
ce201.grid.ucy.ac.cy
```

Setting the time server for the machines

Every machine has to be synchronized with a time server to avoid problems. It is a very important thing for the functionality of the middleware.

The site-info.def file

Here are some things to keep in mind when making a site-info.def file.

Do not use a ?@? symbol for any of the passwords.

The DPM_DB_PASSWORD should be in double quotes like this: "passwd"

For a glite CE its BDII_CE_URL should be like this:

```
BDII_CE_URL="ldap://CE_HOST:2170/mds-vo-name=resource,o=grid"
```

Especially note the 2170 instead of 2135 and resource instead of local.

For a glite DPM its BDII_SE_URL should be like this:

```
BDII_SE_URL="ldap://SE_HOST:2170/mds-vo-name=resource,o=grid"
```

The example file values for CE_OS, CE_OS_RELEASE, and CE_OS_VERSION are wrong.

For CE_DATADIR in the example file it is set to ??. This will not work due to a bug and should be set to unset without any quotes.

Commands to run after installing the machines

These commands have to be run after every machine installation:

```
root@machine# apt-get update
```

```
root@machine# apt-get install ca_BitFace ctb-vomscerts
```

Can install this one on the UI ONLY to submit SAM tests from

```
root@machine# apt-get install lcg-sam-client-sensors-ctb
```

Installation of the different type

The following procedures were followed to install the different components on the different machines.

Copying configuration files : groups.conf, users.conf, wn-list.conf, site-info.def

into:

```
/opt/glite/yaim/etc
```

copy the directory vo.d containing a config file for each supported VOs into: /opt/glite/yaim/etc

After configuration need to copy certificates for supported VOs into: /etc/grid-security/vomsdir/

SEE (voms.grid.auth.gr) VO: from <http://www.grid.auth.gr/pki/hellasgrid-ca-2002/cacert/>

geclipse VO: from <https://dgrid-voms.fzk.de:8443/voms/geclipse/>

Adding the host keys and certificates for some nodes

For the CE, MON, WMSLB, SE, LFC first do the install_node or ./bin/yaim -i -s before continuing to the configure_node or ./bin/yaim -c -s you have to add the certificates to these machines. This is done by adding the hostcert.pem and hostkey.pem files to the following directory: /etc/grid-security/

Configuration of the CE

The following commands was issued to configure the CE

```
[root@ce201 root]# ./bin/yaim -i -s etc/site-info.def -m glite-CE glite-torque-server-config
```

OR

```
./install_node site-info.def glite-CE glite-torque-server-config
```

Setting the hostname

Change the following file /var/spool/maui/maui.cfg, set both SERVERHOST and ADMINHOST to the FQDN of the machine of the CE and add edguser tomcat4 to the line ADMIN3. If the line does not exist just add it.

Example:

```
SERVERHOST ce201.grid.ucy.ac.cy
ADMIN1 root
ADMINHOST ce201.grid.ucy.ac.cy
ADMIN3 edginfo rgma edguser tomcat4
```

```
[root@ce201 root]# ./bin/yaim -c -s etc/site-info.def -n gliteCE TORQUE_server BDII_site
OR
./configure_node site-info.def gliteCE TORQUE_server BDII_site
```

Last line of file /opt/lcg/etc/lcg-info-dynamic-scheduler.conf has the ?h in from of the CE hostname like this: /opt/lcg/libexec/vomaxjobs-maui -h ce201.grid.ucy.ac.cy. If the line does not exist, run:

```
[root@ce201 root]# ./bin/yaim -c -s etc/site-info.def -n gliteCE TORQUE_server
[root@ce201 root]# ./bin/yaim -c -s etc/site-info.def -n BDII_site
And check the last line of the file again.
```

Fix this file /var/spool/maui/maui.cfg again.

Then restart the maui server:

```
[root@ce201 root]# service maui restart
```

```
[root@ce201 root]# touch /opt/globus/var/log/xferlog
```

NOT NEEDED ANYMORE: Start the log parser (HAVE TO BE DONE EVERY TIME IT REBOOTS):

```
[root@ce201 root]# /opt/glite/bin/BLParserPBS -s /var/spool/pbs -p 33332&
```

After Every reconfigure (Fix the maui config file):

```
[root@ce201 root]# nano /var/spool/maui/maui.cfg
(add edguser tomcat4 to the line ADMIN3)
ADMIN3 edginfo rgma edguser tomcat4
```

After reinstalling the CE in a new machine, you have to follow this

<https://wiki.ege.eu/wiki/Tools/Manuals/TS60>

for every workernode. This has to be done because the CE's ssh key changes and the workernode cannot communicate with it.

Configuration of the WMSLB

The following commands was issued to configure the WMSLB

```
[root@wmslb201 root]# ./bin/yaim -i -s etc/site-info.def -m glite-WMSLB
OR
./install_node site-info.def glite-WMSLB
[root@wmslb201 root]# ./bin/yaim -c -s etc/site-info.def -n WMSLB
OR
./configure_node site-info.def WMSLB
[root@wmslb201 root]# touch /var/log/glite/lcmaps.log
[root@wmslb201 root]# chown glite.glite /var/log/glite/lcmaps.log
[root@wmslb201 root]# touch /opt/glite/var/log/xferlog
```

Configuration of the CE

The GLITE_LOCATION environment is not defined for some of the services. The solution is to modify /opt/glite/etc/init.d/* to set some default value to /opt/glite for GLITE_LOCATION. Currently it is set to /home/glbuid/GLITE_3_0_0/stage/.

ReReStarting the gLite service (HAVE TO BE DONE EVERY TIME IT REBOOTS OR CONFIGURED) also have to be done every time the CE is restarted or reconfigured.

```
[root@wmslb201 root]#service gLite stop ; service gLite stop ; service gLite start
```

Configuration of the BDII

The following commands was issued to configure the BDII

```
[root@bdii201 root]# ./bin/yaim -i -s etc/site-info.def -m glite-BDII  
OR
```

```
./install_node site-info.def glite-BDII
```

```
[root@bdii201 root]# ./bin/yaim -c -s etc/site-info.def -n BDII
```

```
OR
```

```
./configure_node site-info.def BDII
```

[// For unregistered sites, i.e. it does not have a top level BDII

If the site is not registered, then in order for the WMSLB to find the local CE the following has to be done. In the file /opt/bdii/etc/bdii.conf change the BDII_AUTO_UPDATE to BDII_AUTO_UPDATE=nov

In the file /opt/bdii/etc/bdii-update.conf add the BDII ldap information for the local CE.

Example:

```
CY-02-CYGRID-CERT ldap://ce201.grid.ucy.ac.cy:2170/mds-vo-name=CY-02-CYGRID-CERT,o=grid
```

Then restart the BDII service:

```
[root@bdii201 root]# service bdii restart
```

```
OR ... [root@bdii201 root]# service BDII restart
```

After the service is restarted wait for some time, like 10 minutes, for the information to be propagated.]

Configuration of the SE

The following commands was issued to configure the SE

In order to use DPM the disk must have a separate partition for the storage. Make two partitions and mount it to /dpm1 and dpm2, then change the permission on them:

```
chmod 770 /dpm1/
```

```
chmod 770 /dpm2/
```

Make sure that you have the following entry in users.conf:

```
151:dpmmgr:151:dpmmgr:x:dpm:
```

```
[root@se201 root]# ./bin/yaim -i -s etc/site-info.def -m glite-SE_dpm_mysql
```

```
OR
```

```
./install_node site-info.def glite-SE_dpm_mysql
```

```
[root@se201 root]# ./bin/yaim -c -s etc/site-info.def -n SE_dpm_mysql
```

```
OR
```

```
./configure_node site-info.def SE_dpm_mysql
```

```
[root@se201 root]# touch /var/log/dpm-gsiftp/gridftp.log
```

Configuration of the LFC

The following commands was issued to configure the LFC

```
[root@lfc201 root]# ./bin/yaim -i -s site-info.def -m glite-LFC_mysql
OR
./install_node site-info.def glite-LFC_mysql
[root@lfc201 root]# ./bin/yaim -c -s etc/site-info.def -n LFC_mysql
OR
./configure_node site-info.def LFC_mysql
```

Configuration of the WN (SL 3.0.8)

The following commands was issued to configure the WN

```
[root@wn201 root]# ./bin/yaim -i -s etc/site-info.def -m glite-WN glite-torque-client-config
OR
./install_node site-info.def glite-WN glite-torque-client-config
[root@wn201 root]# ./bin/yaim -c -s etc/site-info.def -n WN_torque
OR
./configure_node site-info.def WN_torque
Edit the two following files and change the /usr/java/j2sdk1.4.2_08 to whichever version of java is installed.
/opt/edg/etc/profile.d/edg-wl-ui-gui-env.csh
/opt/edg/etc/profile.d/edg-wl-ui-gui-env.sh
```

Configuration of the MON

The following commands were issued to configure them.

```
[root@mon201 root]# ./bin/yaim -i -s site-info.def -m glite-MON
OR
./install_node site-info.def glite-MON
[root@mon201 root]# ./bin/yaim -c -s etc/site-info.def -n MON
OR
./configure_node site-info.def MON
```

Configuration of the UI

The following commands were issued to configure them.

```
[root@ui201 root]# ./bin/yaim -i -s site-info.def -m glite-UI
OR
./install_node site-info.def glite-UI
[root@ui201 root]# ./bin/yaim -c -s etc/site-info.def -n UI
OR
./configure_node site-info.def UI
```

Edit the four following files and change the /usr/java/j2sdk1.4.2_08 to whichever version of java is installed.

```
/opt/edg/etc/profile.d/edg-wl-ui-gui-env.csh
/opt/edg/etc/profile.d/edg-wl-ui-gui-env.sh
/opt/edg/var/etc/profile.d/edg-wl-ui-gui-env.csh
/opt/edg/var/etc/profile.d/edg-wl-ui-gui-env.sh
```

To set the default VO for all the users, modify the file /opt/glite/etc/glite_wmsui_cmd_var.conf and set the variable DefaultVo = "yourDefaultVO" ;

Set the default LFC for the users, so that they don't need to specify it:

```
[root@ui201 root]# echo "export LFC_HOST=lfc201.grid.ucy.ac.cy" > /etc/profile.d/dteam.sh
```

```
[root@ui201 root]# echo "export LCG_CATALOG_TYPE=lfc" >> /etc/profile.d/dteam.sh
```

```
[root@ui201 root]# chown root:root /etc/profile.d/dteam.sh
```

```
[root@ui201 root]# chmod 755 /etc/profile.d/dteam.sh
```

Do the same for the each VO that you support, by changing from dteam.sh to see.sh for instance.

Configuration of the AMGA

Add the following to this file /opt/glite/yaim/script/node-info.def to add a AMGA node

```
AMGA_FUNCTIONS="${BASE1_FUNCTIONS} ${BASE2_FUNCTIONS}
```

```
config_lcmaps
```

```
config_lcas"
```

Starting the AMGA server when rebooted:

```
/etc/init.d/rhdb start
```

```
/etc/init.d/mdservice start
```

Configuration of 4.4 (might also apply for SL44) Workernode

Preparation

Download the Java 1.5 and install it.

Download yaim and install it.

Copy the gLite.repo and dag.repo to to /etc/yum/repos.d.(see bottom of the page)

Copy everything from SA3_site_info/general/site_config/etc to /opt/glite/yaim/etc

Make sure that time is synchronized, use: ntpdate -u 1.gr.pool.ntp.org

In the /opt/glite/yaim/etc/site-info.def file:

change the JAVA_LOCATION to the java path you installed, for

example:JAVA_LOCATION="/usr/java/jdk1.5.0_11"

Installation - Configuration

```
yum update
```

```
yum install glite-WN_sl4compat
```

```
yum install edg* glite* torque*
```

```
./configure_node ../etc/site-info.def WN_torque
```

After Installation

AFTER 5 MINUTES: Edit the two following files and change the /usr/java/j2sdk... to whichever version of java is installed.

```
/opt/edg/etc/profile.d/j2.csh
```

```
/opt/edg/etc/profile.d/j2.sh
```

Install missing packages

```
[root@wn202 yaim]# yum install apt-get
```

```
[root@wn202 yaim]# apt-get update
```

```
[root@wn202 yaim]# apt-get install lcg-profile edg-profile globus-config
```

Send some jobs to the WN

If the jobs enter the RUN state and after some seconds get back to QUEUED state run the following:

On the WN : [root@wn202]# /opt/edg/sbin/edg-pbs-knownhosts

Configuration of the UI

On the CE: [root@ce201]# /opt/edg/sbin/edg-pbs-knownhosts; /opt/edg/sbin/edg-pbs-shostsequiv
 This happens after a full reinstallation of a machine, because host key of the WN changes.

The new yaim 3.0.1-x configuration

VO specific files in the vo.d folder

The new yaim uses a different way of defining VO specific values. There has to be created a vo.d folder in /opt/glite/yaim/etc/.

There, has to be files that define a VO. Every file has to have the name of the vo.

For example:

```
[root@ce201 root]# cat /opt/glite/yaim/etc/vo.d/see
```

```
SW_DIR=$VO_SW_DIR/see
```

```
DEFAULT_SE=$DPM_HOST
```

```
STORAGE_DIR=$DPM_STORAGE_DIR/see
```

```
QUEUES="see"
```

```
VOMS_SERVERS="vomss://voms.grid.auth.gr:8443/edg-voms-admin/see?/see"
```

```
VOMSES="see voms.grid.auth.gr 15010 /C=GR/O=HellasGrid/OU=grid.auth.gr/CN=voms.grid.auth.gr see"
```

Note that the variables \$(vo)_GROUP_ENABLE=\$(vo) have to be defined in the site-info.def file

Appendix

gLite.repo:

```
[glite-base]
```

```
name=Glite
```

```
baseurl=http://grid-deployment.web.cern.ch/grid-deployment/glite/apt/cert/3.1/glite-WN/sl4/i386/
```

```
enabled=1
```

```
[torque-base]
```

```
name=Torque
```

```
baseurl=http://grid-deployment.web.cern.ch/grid-deployment/glite/apt/cert/3.1/glite-TORQUE_client/sl4/i386/
```

```
enabled=1
```

```
name=CAs
```

```
baseurl=http://linuxsoft.cern.ch/LCG-CAs/current
```

```
enabled=1
```

```
protect=1
```

```
[jpackage]
```

```
name=jpackage
```

```
baseurl=http://linuxsoft.cern.ch/jpackage/1.6/redhat-el-4.0/free
```

```
enabled=1
```

```
[jpackage-generic]
```

```
name=jpackage
```

```
baseurl=http://linuxsoft.cern.ch/jpackage/1.6/generic/free
```

```
enabled=1
```

dag.repo:

```
[dag]
```

```
name=DAG rpms
```

```
baseurl=ftp://ftp.scientificlinux.org/linux/extra/dag/redhat/el4/en/$basearch/dag/
```

```
enabled=1
```


-- LouisPoncet - 15 May 2007

This topic: EGEE > CertTestCentOs

Topic revision: r3 - 2011-06-20 - AndresAeschlimann



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