



Enabling Grids for E-scienceE

Worker Node & Torque Client Installation



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- **What is a Worker Node (WN) ?**
- **How to install a Worker Node and a Torque Client.**
- **How to configure the WN and the Torque Client.**

- **The WN is a set of clients required to run jobs sent by the CE via the Local Resource Management System.**
- **It currently includes the gLite I/O Client, the Logging and Bookkeeping Client, the R-GMA Client and the WMS Checkpointing library.**

Installing WN + Torque Client



- **Start from a fresh install of SLC 3.0.4**
- **Installation via**
 - **Installer script** (<http://glite.web.cern.ch/glite/packages>)
 - **APT** <http://glite.web.cern.ch/glite/packages/APT.asp>
- **Installation will install all dependencies, including**
 - other necessary gLite modules
 - external dependencies
- **JAVA is not included in distribution. Install it separately ($\geq 1.4.2_06$)**
<http://java.sun.com/j2se/1.4.2/download.html>

- If planning to use certificates released by unsupported EGEE CA's, be sure that their public key and CRLs (usually distributed with an rpm) are installed.
 - The CRL of the VO GILDA are available from https://gilda.ct.infn.it/RPMS/ca_GILDA-0.28.1.i386.rpm

- The **Resource Management System** must be installed on WN node, or on a separate dedicate node, before installing and configuring the WN module.
- This release of the WN module supports PBS, Torque and LSF.

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 this line in a file (e.g. glite.list) inside the /etc/apt/sources.list.d directory (R 1.4)
- rpm http://glitesoft.cern.ch/EGEE/gLite/APT/R1.4/rhel30 externals Release1.4 updates
- apt-get update
- apt-get upgrade

3. Install Torque Client + WN:

- apt-get install glite-torque-client-config
- apt-get install glite-wn-config

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

- If the installation is performed successfully, the following components are installed:
 - *gLite in /opt/glite*
 - *gLite I/O Client in /opt/glite*
 - *gLite LB Client in /opt/glite*
 - *gLite R-GMA Client in /opt/glite*
 - *gLite WMS Checkpointing in /opt/glite*
 - *Globus in /opt/globus*
 - *Torque Client in /var/spool/pbs*

- Configuration comes through the execution of python scripts, which takes as input XML files.
- So services have to be configured by editing these XML files.
- Attributes in XML file are well commented and self-explaining.
- XML files are provided as templates, under **/opt/glite/etc/config/templates**
- Copy templates file to **/opt/glite/etc/config**
- Edit each of them separately.
- Then we could launch the configurator scripts for Torque Client and WN.

- **List of XML files to configure:**

`glite-global.cfg.xml`

`glite-security-utils.cfg.xml`

`glite-torque-client.cfg.xml`

`glite-rgma-common.cfg.xml`

`glite-rgma.client.cfg.xml`

`glite-io-client.cfg.xml`

`glite-dgas-client.cfg.xml`

`glite-file-transfer-service-client.cfg.xml`

`glite-service-discovery.cfg.xml`

`glite-service-discovery.file-based-example.cfg.xml`

`glite-wn.cfg.xml`

```
<JAVA_HOME description="Environment variable  
pointing to the SUN Java JRE or J2SE package for  
example '/usr/java/j2re1.4.2_08/' or '$JAVA_HOME' (if  
it is defined as an environment variable)"  
value="/usr/java/j2re-1.4.2_06"/>
```



Check your java package installed.



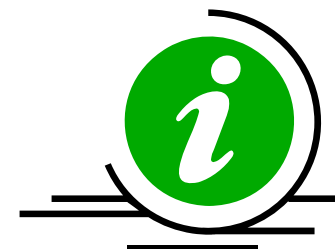
- Set the parameters to correctly build files needed by GSI.
- Enable fetch-crl cron-job

`<install.fetch-crl.cron`

`description="Install the glite-fetch-crl cron job.`

`Possible values are 'true' (install the cron job) or 'false' (do not install the cron job)"`

`value="true"/>`



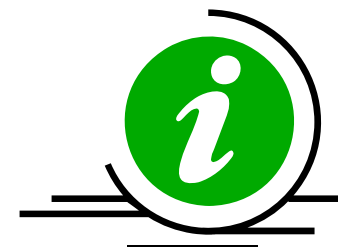
- Enable glite-mkgridmap cron-job.

```
<install.mkgridmap.cron
```

```
  description="Install the glite-mkgridmap cron job and  
  run it once.
```

```
  Possible values are 'true' (install the cron job) or 'false'  
  (do not install the cron job)"
```

```
  value="false"/>
```



<torque-server.name

description="Torque-server name. It will usually be the Computing Element hostname"

value="glite-ce.ct.infn.it"/> 

<mom-server.logevent

description="Sets the mask that determines which event types are logged by pbs_mom"

value = "511"/> 



<rgma.server.hostname

description="Host name of the R-GMA server.

[Example: lxb1420.cern.ch] [Type: 'string']"

value="rgmasrv.ct.infn.it"/> 

<rgma.schema.hostname

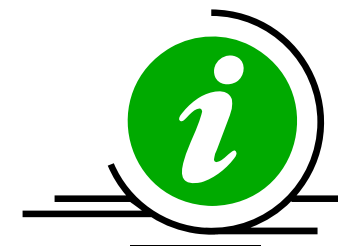
description="Host name of the R-GMA schema service.

(See also configuration parameter 'rgma.server.run_schema_service'

in the R-GMA server configuration file in case you install a server).

[Example: lxb1420.cern.ch] [Type: 'string']" 

value="rgmasrv.ct.infn.it"/>



<rgma.registry.hostname

description="Host name of the R-GMA registry service.

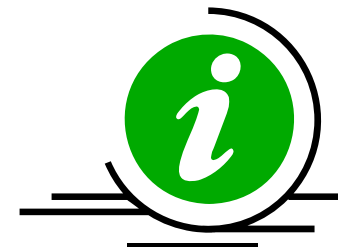
You must specify at least one hostname and you can specify several if you want to use several registries.

(See also configuration parameter 'rgma.server.run_registry_service' in the R-GMA server configuration file in case you install a server).

[Example: lxb2029.cern.ch] [Type: string]

<value>rgmasrv.ct.infn.it</value>

</rgma.registry.hostname>



<service-discovery.file.service_name

description="The globally unique name of the service.

The convention is

serviceHostName_voName_serviceType (for serviceType see parameter service-discovery.file.service_type)."

value="gildav-ioserver_gildav_org.glite.GliteIO"/>

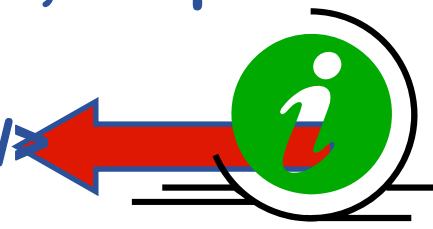


<service-discovery.file.url_endpoint

description="URL endpoint of the service.

The host name is the name of your io server, the port depends on your vo."

value="gliteio://egee015.cnaf.infn.it:9999"/>

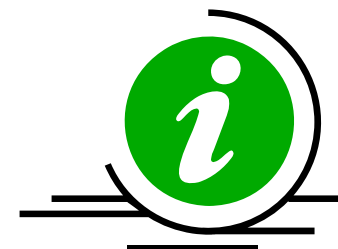


<dgas-client.atmClient.resource.PA.id

description="Specifies the contact string of the PA where the Computing Element is registered

(i.e. the PA that is responsible for setting the CE's price).The PA contact string is formed as: PA host name:port:subject of host cert"

value="grid-demo1.ct.infn.it:56567:/C=IT/O=GILDA/OU=Host/L=INFN Catania/CN=grid-demo1.ct.infn.it/emailAddress=gilda-ca@ct.infn.it"/>

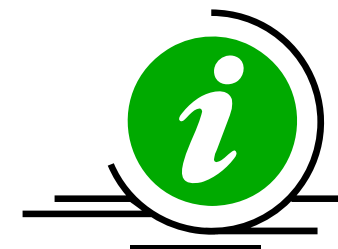


<dgas-client.atmClient.resource.Bank.id

description="Specifies the contact string of the site HLR where the Computing Element is registered (i.e. the HLR that manages the CE's account).

The HLR contact string is formed as: HLR host name:port:subject of host cert"

value="grid-demo1.ct.infn.it:56568:/C=IT/O=GILDA/OU=Host/L=INFN Catania/CN=grid-demo1.ct.infn.it/emailAddress=gilda-ca@ct.infn.it"/>



```
<instance name="FileTransferService for gildav"
  service="service-discovery.file">
```

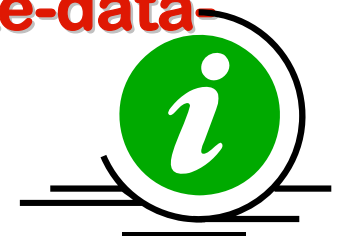
```
<parameters>
```

```
<service-discovery.file.service_name
  description="The globally unique name of the
  service."
```

```
value="gildaFts"/>
```

```
<service-discovery.file.url_endpoint
  description="URL endpoint of the service."
```

```
value="https://fts.ct.infn.it:8443/gildav/glite-data-
transfer-fts/services/FileTransfer"/>
```



<service-discovery.type

description="Service discovery implementation to be used. Possible values are:

file use (static) file base service discovery

rgma use (dynamic) R-GMA based service discovery

bdii use (dynamic) BDII based service discovery">

<value>file</value>



</service-discovery.type>



```
<service-discovery.bdii.provider
```

```
  description="Host and port of the BDII service for  
  service discovery.
```

Leave empty or remove parameter if you do not use
BDII as information provider.

Example: lxb1386.cern.ch:2170

```
[Type: 'string']"
```

```
value="grid004.ct.infn.it:2170"/>
```



```
<instance name="FileTransferService for gildav"
  service="service-discovery.file">
```



```
<parameters>
```

```
<service-discovery.file.service_name
```

```
description="The globally unique name of the service.
The convention is serviceHost_voName_serviceType.
serviceType is the value defined in the parameter
service-discovery.file.service_type."
```

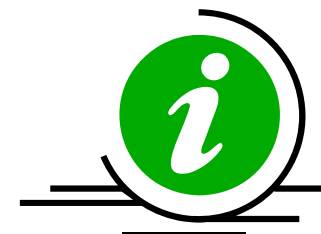
```
value="gildaFts"/>
```




```
<service-discovery.file.url_endpoint  
description="URL endpoint of the service.
```

```
Example:https://your.serviceHostname.com:8443/your  
_service [Type: 'string']"
```

```
value="https://fts.ct.infn.it:8443/gildav/glite-data-  
transfer-fts/services/FileTransfer" ←
```



<voms.voname

description="The names of the VOs that this WN node can serve. Example: EGEE [Type: 'string']">

<value>gildav</value>



<value>gilda</value>



</voms.voname>

<pool.account.basename

description="The prefix of the set of pool accounts to be created for each VO. [Type: 'string']">

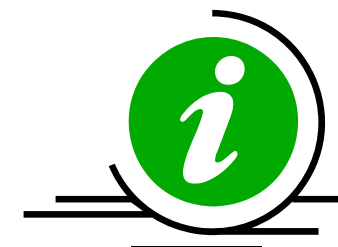
<value>gildav</value>



<value>gilda</value>



</pool.account.basename>



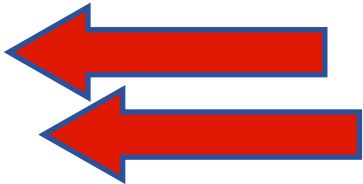
<pool.account.group

description="The group name of the pool accounts to be used for each VO. [Type: 'string']">

<value>gildavusers</value>

<value>gildausers</value>

</pool.account.group>



<pool.account.number

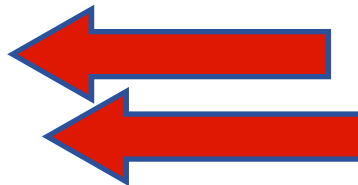
description="The number of pool accounts to create for each VO. Each account will be created with a username of the form prefixXXX where prefix is the value of the pool.account.basename parameter. If matching pool accounts already exist, they are not recreated. The range of values for this parameter is from 1 to 999.

[Type: 'integer']">

<value>50</value>

<value>50</value>

</pool.account.number>



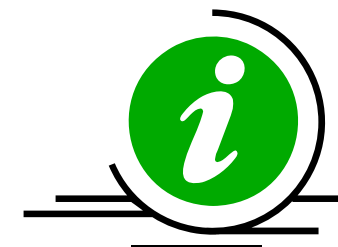
```
<instance name="gildav-fireman" service="service-  
discovery.file">
```



```
<service-discovery.file.service_name  
value="gildav-fireman_gilda_org.glite.FiremanCatalog"/>
```



```
<service-discovery.file.url_endpoint  
value="https://grid017.ct.infn.it:8443/gilda/glite-data-  
catalog-service-fr-mysql/services/FiremanCatalog"/>
```

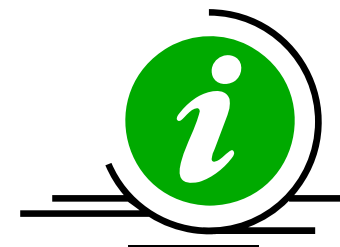
```
<instance name="gildav-seindex" service="service-  
discovery.file">
```



```
<service-discovery.file.service_name  
value="gildav-seindex_gilda_org.glite.SEIndex"/>
```



```
<service-discovery.file.url_endpoint  
value="https://grid017.ct.infn.it:8443/gilda/glite-data-  
catalog-service-fr-mysql/services/SEIndex"/>
```



- In order to commit configuration, execute

```
python /opt/glite/etc/config/script/glite-  
torque-client-config.py --configure
```

```
python /opt/glite/etc/config/script/glite-  
torque-client-config.py --start
```

```
python /opt/glite/etc/config/script/glite-wn-  
config.py --configure
```

Now your WN should be capable to receive jobs coming for the CE.

