

Worker Nodes Installation&Configuration

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★ Main reference guide:

<https://twiki.cern.ch/twiki/bin/view/EMI/>

GenericInstallationConfigurationEMI3

★ Other documentation:

★ EMI

<https://twiki.cern.ch/twiki/pub/EMI/EMIwn/>

EMI_WN_v_3_0_0-1.pdf

★ EGI-UMD

<http://repository.egi.eu/2013/05/14/torque-wn-config-1-0-0-3/>

Prerequisites: OS

Required: a standard

★ 64 bit SL(C)5

★ 64 bit SL(C)6

Linux distribution properly installed.

Check OS version installed with
`cat /etc/redhat-release`

★ The DAG repository must be removed or deactivated:

```
rm /etc/yum.repos.d/dag.repo or
```

```
mv /etc/yum.repos.d/dag.repo /etc/yum.repos.d/dag.repo.remove
```

```
or enabled=0 in /etc/yum.repos.d/dag.repo
```

★ The EPEL repository must be installed

```
wget \
```

```
http://fedora-mirror01.rbc.ru/pub/epel/6/x86_64/epel-release-6-8.noarch.rpm \
```

```
--no-check-certificate
```

```
yum install epel-release-6-8.noarch.rpm --nogpgcheck -y
```

(* Use `--nogpgcheck` to avoid to import the epel gpg key

EMI repositories can be installed

- ★ manually (configuring yum .repo files and giving EMI repositories precedence over EPEL. Check guide)
- ★ through emi-release package (suggested):

```
wget \
```

```
http://emisoft.web.cern.ch/emisoft/dist/EMI/3/sl6/x86\_64/base/emi-release-3.0.0-2.el6.noarch.rpm \
```

```
--no-check-certificate
```

```
yum install ./emi-release-3.0.0-2.el6.noarch.rpm
```

Complete information on Certification Authorities distribution:
https://wiki.egi.eu/wiki/EGI_IGTF_Release

We need:

```
wget \
```

```
http://repository.egi.eu/sw/production/cas/1/current/repo-files/EGI-trustanchors.repo -O \
```

```
/etc/yum.repos.d/EGI-trustanchors.repo
```

CA certificates installation:

```
yum install ca-policy-egi-core --nogpgcheck -y
```

(*) To install gpg key (so not needed `--nogpgcheck`):

```
http://repository.egi.eu/sw/production/cas/1/GPG-KEY-EUGridPMA-RPM-3
```

Torque client installation:

```
yum install emi-torque-client -y
```


Worker Node installation:

```
yum install emi-wn -y
```

Install the WN:

- ★ `wget \`
`http://repository.egi.eu/sw/production/cas/1/current/repo-files/EGI-trustanchors.repo \`
`-O /etc/yum.repos.d/EGI-trustanchors.repo`
- ★ `yum install ca-policy-egi-core --nogpgcheck -y`
- ★ `wget`
`http://fedora-mirror01.rbc.ru/pub/epel/6/x86_64/epel-release-6-8.noarch.rpm \`
`--no-check-certificate`
- ★ `yum install epel-release-6-8.noarch.rpm --nogpgcheck -y`
- ★ `wget \`
`http://emisoft.web.cern.ch/emisoft/dist/EMI/3/sl6/x86_64/base/emi-release-3.0.0-2.el6.noarch.rpm`
`--no-check-certificate`
- ★ `yum localinstall emi-release-3.0.0-2.el6.noarch.rpm --nogpgcheck -y`
- ★ `yum install emi-wn`
- ★ `yum install emi-torque-client -y`

Relevant files:

https://wiki.scc.kit.edu/gridkaschool/index.php/Exercise_6:_Worker_Node_%2B_Torque_Installation

Enable munge (1)

MUNGE is an authentication service for creating and validating credentials. It is designed to be highly scalable for use in an HPC cluster environment.

★ Check that munge is installed:

```
rpm -qa |grep munge
```

```
munge-libs-x.y.z
```

```
munge-x.y.z
```

Enable munge (2)

★ Enable munge on your torque cluster:

★ Install the munge package (if it is not installed) on your pbs_server, submission hosts and all worker node hosts in your cluster.

★ On one host generate a key with `/usr/sbin/create-munge-key`

★ Copy the key, `/etc/munge/munge.key` to your pbs_server, submission hosts and all worker node hosts on your cluster.

★ Pay attention the ownership of that file must be:

```
-r----- 1 munge munge 1024 Jan 03 09:57 munge.key
```

if needed:

```
chown munge:munge /etc/munge/munge.key
```

```
chmod 400 /etc/munge/munge.key
```

★ Start the munge daemon on these nodes

```
service munge start
```

```
chkconfig munge on
```

Install the Batch System:

```
yum install emi-torque-server
```

```
yum install emi-torque-utils
```

```
/usr/sbin/create-munge-key
```

```
chown munge:munge /etc/munge/munge.key
```

```
chmod 400 /etc/munge/munge.key
```

```
service munge start
```

```
chkconfig munge on
```

```
scp /etc/munge/munge.key <in WNs>
```

Relevant files:

<http://wiki.scc.kit.edu/gridkaschool/index.php/>

Exercise_2:_Torque_Batch_System_Installation

Sara Bertocco - gLite Middleware Administration

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- ★ Configuration tool: YAIM
The YAIM modules needed to configure are automatically installed with the middleware.

- ★ Relevant configuration files (an example in `/opt/glite/yaim/examples`):
 - ★ `users.conf`
 - ★ `groups.conf`
 - ★ `wn-list.conf`
 - ★ `site-info.def`
 - ★ `vo.d`
 - ★ `services/glite-wn`

★ The WN can be configured using exactly the same

- ★ siteinfo/site-info.def
- ★ vo.d/*
- ★ users.conf (described in users.conf.README)
- ★ groups.conf (described in groups.conf.README)
- ★ wn-list.conf (described in wn-list.conf.README)

used to configure the cream ce

★ Only the module specific configuration file must be checked and customized (if needed)

★ services/glite-wn

make an archive (tar -cvf) of CE configuration files

copy it in a safe path in the WN (/root/siteinfo_dir) and open it (tar -xvf)

Copy the example file

/opt/glite/yaim/examples/siteinfo/services/glite-wn

in the safe path /root/siteinfo_dir/services

Edit and customize services/glite-wn if needed

Configure:

```
/opt/glite/yaim/bin/yaim -c -s /root/siteinfo_dir/site-info.def \  
-n WN -n TORQUE_client
```

Relevant files:

http://wiki.scc.kit.edu/gridkaschool/index.php/Exercise_7:_Worker_Node_%2B_Torque_Configuration

Check the batch system:

- Try a `pbsnodes` to check node status
- Try a job submission to the batch system logging as a pool account user

Relevant files:

http://wiki.scc.kit.edu/gridkaschool/index.php/Exercise_8:_Cluster_CE%2BWN_verification

Important on automatic updates

An update of an RPM not followed by configuration can cause problems.

STRONG RECOMMENDATION:

NOT TO USE AUTOMATIC UPDATE PROCEDURE OF ANY KIND.

Suggestion: Run the script^(*) available at http://forge.cnaf.infn.it/frs/download.php/101/disable_yum.sh to disable yum autoupdate.

(*) Script by Giuseppe Platania (INFN Catania)

Questions ?

