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Notes about Installation and Configuration of WN using Torque and GLEXEC

- These notes are provided by site admins on a best effort base as a contribution to the IGI communities and **MUST not be considered as a substitute of the Official IGI documentation** .
- This document is addressed to site administrators responsible for middleware installation and configuration.
- The goal of this page is to provide some hints and examples on how to install and configure an **EMI WN + gLExec** service based on EMI middleware using **TORQUE** as batch system

References

1. About IGI - Italian Grid infrastructure
2. About IGI Release
3. IGI Official Installation and Configuration guide
4. Generic Installation & Configuration for EMI 1
5. Yaim Guide
6. site-info.def yaim variables
7. GLEXEC_wn yaim variables
8. WN yaim variables
9. TORQUE Yaim variables
10. EMI-WN v.1.0.0
11. gLExec v.0.8.10
12. Troubleshooting Guide for Operational Errors on EGI Sites
13. Grid Administration FAQs page

Service installation

O.S. and Repos  O.S. and Repos 

O.S. and Repos

- Starts from a fresh installation of Scientific Linux 5.x (x86_64).

```
# cat /etc/redhat-release
Scientific Linux SL release 5.7 (Boron)
```

* Install the additional repositories: EPEL, Certification Authority, UMD

```
# yum install yum-priorities yum-protectbase
# cd /etc/yum.repos.d/
# rpm -ivh http://mirror.switch.ch/ftp/mirror/epel//5/x86_64/epel-release-5-4.noarch.rpm
# wget http://repo-pd.italiangrid.it/mrepo/repos/egi-trustanchors.repo
# rpm -ivh http://repo-pd.italiangrid.it/mrepo/EMI/1/sl5/x86_64/updates/emi-release-1.0.1-1.sl5.n
```

- Be sure that SELINUX is disabled (or permissive). Details on how to disable SELINUX are here :

```
# getenforce
Disabled
```

- Check the repos list (sl-*.repo are the repos of the O.S. and they should be present by default).

```
# ls /etc/yum.repos.d/
egi-trustanchors.repo
```

```
emil-third-party.repo emil-base.repo emil-updates.repo  
epel.repo epel-testing.repo  
sl-contrib.repo sl-fastbugs.repo sl-security.repo sl-testing.repo sl-debuginfo.repo sl.repo sl-sr
```

IMPORTANT: remove the dag repository if present

yum install [yum install](#)

yum install

```
# yum clean all  
Loaded plugins: downloadonly, kernel-module, priorities, protect-packages, protectbase, security,  
Cleaning up Everything  
  
# yum install ca-policy-egi-core  
# yum install emi-wn emi-torque-client emi-glexec_wn  
# yum install tcsh openldap-clients  
# yum install nfs-utils
```

see here for details

Service configuration

You have to copy the configuration files in another path, for example root, and set them properly (see later):

```
# ls /opt/glite/yaim/examples/siteinfo/  
services site-info.def  
  
# ls /opt/glite/yaim/examples/siteinfo/services/  
glite-glexec_wn glite-vobox glite-wn glite-wn_tar  
  
# cp -r /opt/glite/yaim/examples/siteinfo/* .
```

vo.d directory [vo.d directory](#)

vo.d directory

Create the vo.d directory for the VO configuration file (you can decide if keep the VO information in the site.def or putting them in the vo.d directory)

```
# mkdir vo.d
```

here an example for some VOs.

Information about the several VOs are available at the [CENTRAL OPERATIONS PORTAL](#) .

users and groups configuration [users and groups configuration](#)

users and groups configuration

here an example on how to define pool accounts (ig-users.conf) and groups (ig-groups.conf) for several VOs

site-info.def [site-info.def](#)

site-info.def

SUGGESTION: use the same site-info.def for CREAM and WNs: for this reason in this example file there are yaim variable used by CREAM, TORQUE or emi-WN.

It is also included the settings of some VOs

For your convenience there is an explanation of each yaim variable. For more details look at [6, 7, 8, 9]

services/glite-glexec_wn ▢ services/glite-glexec_wn ▾

services/glite-glexec_wn

```
#####
# Copyright (c) Members of the EGEE Collaboration. 2004.
# See http://www.eu-egee.org/partners/ for details on the copyright
# holders.
#
# Licensed under the Apache License, Version 2.0 (the "License");
# you may not use this file except in compliance with the License.
# You may obtain a copy of the License at
#
#   http://www.apache.org/licenses/LICENSE-2.0
#
# Unless required by applicable law or agreed to in writing, software
# distributed under the License is distributed on an "AS IS" BASIS,
# WITHOUT WARRANTIES OR CONDITIONS
# OF ANY KIND, either express or implied.
# See the License for the specific language governing permissions and
# limitations under the License.
#####
#
# NAME :          glite-glexec_wn
#
# DESCRIPTION :  This configuration file contains the variables needed to configure the
#                glexec for the WN. Sys admins must define these variables.
#
# AUTHORS :      yaim-contact@cern.ch
#
# NOTES :
#
# YAIM MODULE:   glite-yaim-clients
#
#####

# Define this variable to configure glexec to work with SCAS.
# - yes : means you want to use a SCAS server and therefore you need to define:
# SCAS_ENDPOINTS="https://scas1.site.com:8443 https://scas2.site.com:8443"
# Alternatively, the old style variables can be used as well:
#     - SCAS_HOST="scas server hostname"
#     - SCAS_PORT="scas server port"
# - no  : means you don't want to use any SCAS server.
GLEXEC_WN_SCAS_ENABLED="no"

# Define this variable to configure glexec to use the ARGUS authorization framework.
# - yes : means you want to use ARGUS and therefore you need to define:
# ARGUS_PEPD_ENDPOINTS="http://argus1.site.com:8154/authz http://argus2.site.com:8154/authz"
# A list of endpoints for the pepc plugin to try.
# - no  : means you don't want to use ARGUS.
GLEXEC_WN_ARGUS_ENABLED="yes"

# Note that if both GLEXEC_WN_SCAS_ENABLED = yes and GLEXEC_WN_ARGUS_ENABLED = yes then
# the policy is to use ARGUS first, then SCAS. This may be useful if e.g. you use
# ARGUS for global banning and SCAS for account mapping, but typically you want just
# one or the other, not both.

# Define this variable to configure the operation mode of glexec in your WN.
# The possibilities are:
# - setuid    : it will actually enable glexec to do the identity change
# - log-only  : it won't do any identity change. If you select log-only, it
#                doesn't matter whether SCAS is enabled or not. It isn't used.
```

```
GLEXEC_WN_OPMODE="setuid"

# Optional variable to tell glxexec where to send the glxexec logging information.
# There are two values: 'syslog' and 'file'. The default is 'syslog'
# The value 'syslog' puts all messages in the syslog
# and 'file' puts the messages in a file.
# Define this variable if you want to specify a file.
# For value 'file' the variable GLEXEC_WN_LOG_FILE defines the location
# of the log file.
# REMEMBER that for log-only mode, 'syslog' should be used !
# GLEXEC_WN_LOG_DESTINATION=file

# Optional variable to add additional users to the glxexec white list,
# e.g. for local testing purposes. Syntax is comma separated user and/or
# pool names.
# GLEXEC_EXTRA_WHITELIST="john,fred,.pvier"
GLEXEC_EXTRA_WHITELIST="misva"

# Glxexec user home dir; this optional variable is passed to the adduser
# call only if it is set.
# GLEXEC_USER_HOME=/var/lib/glxexec

# Variables to set the locking mechanism used by glxexec, for
# the input proxies and the target proxy
# Allowed values are flock, fcntl, disabled.
# GLEXEC_WN_INPUT_LOCK=flock
# GLEXEC_WN_TARGET_LOCK=flock
```

munge configuration ▾ munge configuration ▾ munge configuration

IMPORTANT: The updated EPEL5 build of torque-2.5.7-1 as compared to previous versions enables munge as an inter node authentication method.

- verify that munge is correctly installed:

```
# rpm -qa | grep munge
munge-libs-0.5.8-8.el5
munge-0.5.8-8.el5
```

- On one host (for example the batch server) generate a key by launching:

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

# ls -ltr /etc/munge/
total 4
-r----- 1 munge munge 1024 Jan 13 14:32 munge.key
```

- Copy the key, /etc/munge/munge.key to every host of your cluster, adjusting the permissions:

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

- Start the munge daemon on each node:

```
# service munge start
Starting MUNGE: [ OK ]

# chkconfig munge on
```

software area settings ▾ software area settings ▾

software area settings

you have to import the software area from CE.

- Edit the file `/etc/fstab` by adding a line like the following:

```
cremino.cnaf.infn.it:/opt/exp_soft/ /opt/exp_soft/ nfs rw,defaults 0 0
```

- check nfs and portmap status

```
# service nfs status
rpc.mountd is stopped
nfsd is stopped

# service portmap status
portmap is stopped

# service portmap start
Starting portmap: [ OK ]

# service nfs start
Starting NFS services: [ OK ]
Starting NFS daemon: [ OK ]
Starting NFS mountd: [ OK ]
Starting RPC idmapd: [ OK ]

# chkconfig nfs on
# chkconfig portmap on
```

- after any modification in `/etc/fstab` launch

```
mount -a
```

- verify the mount:

```
# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/sda3        65G   1.9G   59G   4% /
/dev/sda1        99M   18M   76M  19% /boot
tmpfs            2.0G     0   2.0G   0% /dev/shm
cremino.cnaf.infn.it:/opt/exp_soft/
                65G   4.4G   57G   8% /opt/exp_soft
```

yaim check  **yaim check** 

yaim check

Verify to have set all the yaim variables by launching:

```
# /opt/glite/yaim/bin/yaim -v -s site-info_cremino.def -n WN -n TORQUE_client -n GLEXEC_wn
```

see details

yaim config  **yaim config** 

yaim config

```
# /opt/glite/yaim/bin/yaim -c -s site-info_cremino.def -n WN -n TORQUE_client -n GLEXEC_wn
```

see details

Service checks

software area ▢ software area ▾

verify that the ownership and permissions of the software area are properly set

```
# ls -ltr /opt/exp_soft/
total 28
drwxrwxr-x 2 sgmops001      sgmops      4096 Jan 16 10:26 ops
drwxrwxr-x 2 sgminfngrid001 sgminfngrid 4096 Jan 16 10:26 infngrid
drwxrwxr-x 2 sgmgridit001  sgmgridit  4096 Jan 16 10:26 gridit
drwxr-xr-x 2 sgmglast      glast       4096 Jan 16 10:26 glast
drwxrwxr-x 2 sgmenmr001   sgmenmr     4096 Jan 16 10:26 enmr
drwxrwxr-x 2 sgmteam001   sgmteam     4096 Jan 16 10:26 dteam
drwxrwxr-x 2 sgmcomputer001 sgmcomputer 4096 Jan 16 10:26 computer
```

ssh communication ▢ ssh communication ▾

ssh has to work without using password from WN to CE:

- on a WN:

```
[root@wn01 ~]# su - dteam002
[dteam002@wn01 ~]$ ssh cremino
Last login: Tue Jan 17 20:50:02 2012 from vwn-tf-24.cnaf.infn.it

|_|_| \_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_|
|_|_| \_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_|
|_|_| \_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_|
|_|_| \_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_| |_|_|
[dteam002@cremino ~]$
```

Revisions

Date	Comment	By
2012-02-02	modified software area settings	Alessandro Paolini
2012-01-25	installation notes completed	Alessandro Paolini
2012-01-20	First draft	Alessandro Paolini

-- AlessandroPaolini - 2012-02-02

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