

[TWiki](#) > [ReleaseDocumentation](#)

[Web](#) > [ReleaseDocumentationSiteAdminsWorkshopAug09Sessions?](#) > [ComputingElementHandsOn](#)

(10 Aug 2010, [SuchandraThapa](#))

Computing Element Hands On

- ↓ [Introduction](#)
- ↓ [Requirements](#)
 - ↓ [Preliminaries](#)
 - ↓ [Installing pacman](#)
 - ↓ [Creating directories](#)
 - ↓ [Installing worker node software](#)
 - ↓ [Installing CE software](#)
 - ↓ [Configure CE](#)
 - ↓ [Modify config.ini](#)
 - ↓ [Run configure-osg](#)
 - ↓ [Turn on software](#)
 - ↓ [Verification](#)
- ↓ [Presentation](#)
- ↓ [References](#)
- ↓ [Comments](#)

Introduction

This is a tutorial to demonstrate how to install and setup a basic CE installation. It will guide users through a basic CE installation step by step. At the completion of this guide, you should have a simple CE available.

Requirements

You'll need a server with the following:

- Using a rhel 4/5 based distribution or debian 4/5
- root access
- ~5 GB of free space
- internet access
- Server, http, and rsv certificates

You'll also need the following:

- Personal grid certificate

Preliminaries

Installing pacman

- Download pacman from bu site

```
wget http://atlas.bu.edu/~youssef/pacman/sample_cache/tarballs/pacman-latest.tar.gz
```

- Untar and source pacman setup

```
tar xzf pacman-latest.tar.gz
cd pacman-3.29/
source setup.sh
```

Creating directories

- Create osg directory

```
mkdir /opt/osg-1.2
```

- Create data directory

```
mkdir /opt/data
```

- Create app directory with correct permissions

```
mkdir -p /opt/app/etc
chmod 1777 /opt/app/etc
```

- Create osg wn client directory

```
mkdir /opt/wn-1.2
```

- Create grid security directory

```
mkdir /etc/grid-security
mkdir /etc/grid-security/http
```

- Copy http cert and key to /etc/grid-security/http
- Copy host cert and key to /etc/grid-security
- Copy rsv cert and key to /etc/grid-security

Installing worker node software

- Install WN stack

```
cd /opt/wn-1.2/
pacman -allow trust-all-caches -get http://software.grid.iu.edu/osg-1.2:wn-client
```

Installing CE software

- Install CE stack

```
cd /opt/osg-1.2/
pacman -allow trust-all-caches -get http://software.grid.iu.edu/osg-1.2:ce
```

You should get the following output:

```
Beginning VDT prerequisite checking script vdt-common/vdt-prereq-check...

All prerequisite checks are satisfied.

===== IMPORTANT =====
Most of the software installed by the VDT *will not work* until you install
certificates. To complete your CA certificate installation, see the notes
in the post-install/README file.

Pacman Installation of OSG-1.2.0 Complete
```

- Install managed fork

```
pacman -allow trust-all-caches -get http://software.grid.iu.edu/osg-1.2:ManagedFork
```

- Install jobmanager setup package

```
pacman -allow trust-all-caches -get http://software.grid.iu.edu/osg-1.2:Globus-Condc
```

Configure CE

- Run post-install script

```
source setup.sh
vdt-post-install
```

You should get the following output:

```
Starting...
Configuring PRIMA... Done.
Configuring EDG-Make-Gridmap... Done.
Configuring PRIMA-GT4... Done.
Completed all configuration.
```

- Setup CA certificates

```
vdt-ca-manage setupca --location local --url osg
```

You should get the following output:

```
Setting CA Certificates for VDT installation at '/opt/osg-1.2'  
  
Setup completed successfully.
```

Modify config.ini

NOTE

This assumes that you are using Condor as your batch manager. If this isn't the case, you should fill in the appropriate section for your job manager, e.g. PBS, SGE, etc, instead of filling in the `Condor` section.

- Edit `osg/etc/config.ini`
- In `[Default]` section
 - Set `localhost` to the correct dns name for your CE (e.g. `localhost = your.domain`)
 - Set `admin_email` to your email address
- In the `[Site Information]` section
 - Set `group` to OSG
 - Set `site_name` to your site's name
 - `sponsor` For this workshop, use 'osg'
 - `site_policy` A url to your site's usage policy. Example: <http://www.mwt2.org/policy.html>
 - `contact`, set this to your email address
 - `city`
 - `country`
 - `latitude` You can set this to 0 if you do not know your latitude
 - `longitude` Like latitude
- In the `[Condor]` section
 - `enabled`, change the `%(unavailable)s` to `%(enable)s`
 - `home`, set this to `/opt/osg-1.2/condor`
 - `wsgram`, change the `%(unavailable)s` to `%(enable)s`
- In the `[ManagedFork]` section
 - `enabled`, change the `%(unavailable)s` to `%(enable)s`
 - `condor_location`, change the `%(unavailable)s` to `/opt/osg-1.2/condor`
- In the `[Misc Services]` section
 - `use_cert_updater`, change the `%(unavailable)s` to `%(enable)s`
 - `authorization_method`, change the `%(unavailable)s` to `gridmap`
- In the `[Storage]` section
 - `grid_dir`, change the `%(unavailable)s` to `/opt/wn-client`
 - `app_dir`, change the `%(unavailable)s` to `/opt/app`
 - `data_dir`, change the `%(unavailable)s` to `/opt/data`
 - `worker_node_temp`, change the `%(unavailable)s` to `/tmp`
 - `site_read`, change the `%(unavailable)s` to `/opt/data`
 - `site_write`, change the `%(unavailable)s` to `/opt/data`
- In the `[GIP]` section
 - Remove the `%(unavailable)s` and replace it with the correct values for the variables listed below
 - `batch`, change the `%(unavailable)s` to `condor`
- In the `[Subcluster CHANGEME]` section
 - Change name to `[Subcluster Main]`
 - `name`, change to `Main`

- `node_count` , change the `NUMBER_OF_NODE` to the number of worker nodes your cluster has. For this tutorial, enter 1
- `ram_mb` , change the `MB_OF_RAM` to the ram that your cluster has in MB (hint: `cat /proc/meminfo`)
- `cpu_module` , change the `CPU_MODEL_FROM` to the model of your cluster's cpus (hint: `cat /proc/cpuinfo`)
- `cpu_vendor` , change the `VENDOR_AMD_OR_INTEL` to the vendor of your cluster's cpus (e.g. Intel, AMD)
- `cpu_speed_mhz` , change the `CLOCK_SPEED_MHZ` to the clock speed of your cluster's cpus in MHz. For example, a 2.83GHz cpue runs at 2830 MHz.
- `cpus_per_node` , change `#_PHYSICAL_CHIPS_PER_NODE` to number of chips per node (e.g. 1)
- `cores_per_node` , change `#_CORES_PER_NODE` to number of cores total in the node (e.g. 8 for a dual socket, quad core node)
- In the `[RSV]` section
 - `enabled` , change the `%(unavailable)s` to `%(enable)s`
 - `rsv_user` , change the `%(unavailable)s` to name of the account that has been created for rsv (`rsv_user`)
 - `enable_ce_probes` , change the `%(unavailable)s` to `%(enable)s`
 - `ce_hosts` , change the `%(unavailable)s` to `%(localhost)s`
 - `enable_gridftp_probes` , change the `%(unavailable)s` to `%(enable)s`
 - `gridftp_hosts` , change the `%(unavailable)s` to `%(localhost)s`
 - `use_service_cert` , change the `%(unavailable)s` to `%(enable)s`
 - `rsv_cert_file` , change the `%(unavailable)s` to `/etc/grid-security/rsv/rsvcert.pem`
 - `rsv_key_file` , change the `%(unavailable)s` to `/etc/grid-security/rsv/rsvkey.pem`
 - `setup_for_apache` , change the `%(disable)s` to `%(enable)s`

Run configure-osg

- Verify configuration

```
configure-osg -v
```

You should get the following output:

```
Using /opt/osg-1.2/osg/etc/config.ini for configuration information
Configuration verified successfully
```

- Configure system

```
configure-osg -c
```

You should get the following output:

```
Using /opt/osg-1.2/osg/etc/config.ini for configuration information
running 'vdt-register-service --name fetch-crl --enable'... ok
Running /opt/osg-1.2/fetch-crl/share/doc/fetch-crl-2.6.6/fetch-crl.cron, this process
running 'vdt-register-service --name vdt-update-certs --enable'... ok
```

```
running 'vdt-register-service --name edg-mkgridmap --enable'... ok
running 'vdt-register-service --name gums-host-cron --disable'... ok
PRIMA for GT4 web services has been disabled
You will now be using a grid-mapfile for authorization.
Modifications to the /etc/sudoers file are still required.
You will need to restart the /etc/init.d/globus-ws container
to effect the changes.
Running /opt/osg-1.2/edg/sbin/edg-mkgridmap, this process make take some time to que
The following consumer subscription has been installed:
    HOST:      https://osg-ress-4.fnal.gov:8443/ig/services/CEInfoCollector
    TOPIC:     OSG_CE
    DIALECT:   OLD_CLASSAD

running 'vdt-register-service --name tomcat-55 --enable'... ok
The following consumer subscription has been installed:
    HOST:      http://is-itb.grid.iu.edu:14001
    TOPIC:     OSG_CE
    DIALECT:   RAW

running 'vdt-register-service --name tomcat-55 --enable'... ok
running 'vdt-register-service --name mysql5 --enable'... ok
running 'vdt-register-service --name gsiftp --enable'... ok
Not defined: PER_JOB_HISTORY_DIR
running 'vdt-register-service --name gratia-condor --enable'... ok
INFO: Attempting to install latest RSV package from release repository.
INFO: Attempting to install RSV consumers.
INFO: Attempting to install RSV probes on appropriate URI(s).
INFO: Creating .sub files for RSV probes of type OSG-Local-Monitor
      for URI: uct3-edge5.uchicago.edu (host: uct3-edge5.uchicago.edu)
INFO: Creating .sub files for RSV probes of type OSG-CE
      for URI: uct3-edge5.uchicago.edu (host: uct3-edge5.uchicago.edu)
INFO: Re-using metrics config file for uct3-edge5.uchicago.edu
      /opt/osg-1.2/osg-rsv/config/uct3-edge5.uchicago.edu_metrics.conf
Existing settings like on/off and metric intervals will be re-used.
Any new metrics found in probe set will be added with their default settings.

INFO: Creating .sub files for RSV probes of type OSG-GridFTP
      for URI: uct3-edge5.uchicago.edu (host: uct3-edge5.uchicago.edu)
INFO: Re-using metrics config file for uct3-edge5.uchicago.edu
      /opt/osg-1.2/osg-rsv/config/uct3-edge5.uchicago.edu_metrics.conf
Existing settings like on/off and metric intervals will be re-used.
Any new metrics found in probe set will be added with their default settings.

running 'vdt-register-service --name condor-cron --enable'... ok
running 'vdt-register-service --name condor --enable'... ok
running 'vdt-register-service --name vdt-rotate-logs --enable'... ok
running 'vdt-register-service --name apache --enable'... ok
running 'vdt-register-service --name globus-gatekeeper --enable'... ok
running 'vdt-register-service --name globus-ws --enable'... ok
Configure-osg completed successfully
```

- Add your grid certificate DN to `/etc/grid-security/gridmap` if it's not there. E.g.

```
echo "/DC=org/DC=doe grids/OU=People/CN=Suchandra Thapa 757586" sthapa > /etc/grid-se
```

Turn on software

- Run `vdt-control`

```
vdt-control --on
```

You should get the following output:

```
enabling cron service fetch-crl... ok
enabling cron service vdt-rotate-logs... ok
enabling cron service vdt-update-certs... ok
skipping init service 'gris' -- marked as disabled
enabling inetd service globus-gatekeeper... ok
enabling inetd service gsiftp... ok
enabling init service mysql5... ok
enabling init service globus-ws... ok
skipping cron service 'gums-host-cron' -- marked as disabled
skipping init service 'MLD' -- marked as disabled
enabling init service condor-cron... ok
enabling init service apache... ok
enabling init service tomcat-55... ok
enabling init service condor... ok
enabling cron service gratia-condor... ok
enabling cron service edg-mkgridmap... ok
enabling init service osg-rsv... ok
```

Verification

- Run `site_verify`

```
cd /opt/osg-1.2/verify
./site_verify.pl
```

You should get something similar to the following output:

```
=====
Info: Site verification initiated at Wed Aug  5 20:21:00 2009 GMT.
=====
----- Begin uct3-edge5.uchicago.edu at Wed Aug  5 20:21:00 2009 GMT -----
-----
Checking prerequisites needed for testing: PASS
Checking for a valid proxy for sthapa@uct3-edge5.uchicago.edu: PASS
Checking if remote host is reachable: PASS
```

```
Checking for a running gatekeeper: YES; port 2119
Checking authentication: PASS
Checking 'Hello, World' application: PASS
Checking remote host uptime: PASS
    15:21:03 up 15 days,  2:50,  2 users,  load average: 0.53, 0.36, 0.18
Checking remote Internet network services list: PASS
Checking remote Internet servers database configuration: PASS
Checking for GLOBUS_LOCATION: /opt/osg-1.2/globus
Checking expiration date of remote host certificate: Jul  9 20:45:23 2010 GMT
Checking for gatekeeper configuration file: YES
    /opt/osg-1.2/globus/etc/globus-gatekeeper.conf
Checking users in grid-mapfile, if none must be using Prima: alice,cdf,cigi,compbio
Checking for remote globus-sh-tools-vars.sh: YES
Checking configured grid services: PASS
    jobmanager,jobmanager-condor,jobmanager-fork,jobmanager-managedfork
Checking for OSG osg-attributes.conf: YES
Checking scheduler types associated with remote jobmanagers: PASS
    jobmanager is of type managedfork
    jobmanager-condor is of type condor
    jobmanager-fork is of type managedfork
    jobmanager-managedfork is of type managedfork
Checking for paths to binaries of remote schedulers: PASS
    Path to condor binaries is /opt/osg-1.2/condor/bin
    Path to managedfork binaries is .
Checking remote scheduler status: PASS
    condor : 1 jobs running, 0 jobs idle/pending
Checking if Globus is deployed from the VDT: YES; version 2.0.0p7
Checking for OSG version: NO
Checking for OSG grid3-user-vo-map.txt: YES
    ops users: ops
    cms users: uscms01
    i2u2 users: i2u2
    geant4 users: geant4
    atlas users: usatlas1,usatlas3,usatlas4
    grow users: grow
    osgedu users: osgedu
    nanohub users: nanohub
    alice users: alice
    icecube users: icecube
    gpn users: gpn
    nebiogrid users: nebiogrid
    cdf users: cdf
    nwigc users: nwigc
    osg users: osg
    engage users: engage
    star users: star
    cigi users: cigi
    dosar users: dosar
    grase users: grase
    sbgrid users: sbgrid
```



```
jdem users: jdem
ligo users: ligo
glow users: glow
nysgrid users: nysgrid
fermilab users: fermilab
ilc users: ilc
dzero users: samgrid
compbiogrid users: compbiogrid
mis users: mis
des users: des
Checking for OSG site name: UC_ITB_2
Checking for OSG $GRID3 definition: /opt/osg-1.2
Checking for OSG $OSG_GRID definition: /opt/wn-1.2
Checking for OSG $APP definition: /opt/share/app
Checking for OSG $DATA definition: /opt/share/data
Checking for OSG $TMP definition: /opt/share/data
Checking for OSG $WNTMP definition: /tmp
Checking for OSG $OSG_GRID existence: FAIL
Checking for OSG $APP existence: PASS
Checking for OSG $DATA existence: PASS
Checking for OSG $TMP existence: PASS
Checking for OSG $APP writability: PASS
Checking for OSG $DATA writability: PASS
Checking for OSG $TMP writability: PASS
Checking for OSG $APP available space: 8.833 GB
Checking for OSG $DATA available space: 8.833 GB
Checking for OSG $TMP available space: 8.833 GB
Checking for OSG additional site-specific variable definitions: YES
MountPoints
  SAMPLE_LOCATION default /SAMPLE-path
  SAMPLE_SCRATCH devel /SAMPLE-path
Checking for OSG execution jobmanager(s): uct3-edge5.uchicago.edu/jobmanager-condor
Checking for OSG utility jobmanager(s): uct3-edge5.uchicago.edu/jobmanager
Checking for OSG sponsoring VO: osg:100
Checking for OSG policy expression: NONE
Checking for OSG setup.sh: YES
Checking for OSG $Monalisa_HOME definition: FAIL
Checking for MonALISA configuration: UNTESTED
Checking for a running MonALISA: UNTESTED
Checking for a running GANGLIA gmond daemon: PASS (pid 3212 ...)
  /usr/sbin/gmond
  name = "part_max_used"
  owner = "unspecified"
  url = "unspecified"
Checking for a running GANGLIA gmetad daemon: NO
  gmetad does not appear to be running
Checking for a running gsift server: YES; port 2811
Checking gsift (local client, local host -> remote host): PASS
Checking gsift (local client, remote host -> local host): PASS
Checking that no differences exist between gsift'd files: PASS
```

```
----- End uct3-edge5.uchicago.edu at Wed Aug 5 20:23:11 2009 GMT -----  
Info: Site verification completed at Wed Aug 5 20:23:11 2009 GMT.
```

- Check rsv status
 - Go to <http://your.host:8443/rsv/>

Presentation

References

1. [Release Documentation](#)

Comments

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