Commands for completing a simple CE installation

1. Pacman:

```
# cd  [install directory]
```
Here install directory refers to the directory where PACMAN is to be installed. For eg. if one plans to install it in the /nfs/pacman directory, the command would be cd /nfs/pacman.

```
# wget http://physics.bu.edu/pacman/sample_cache/tarballs/pacman-3.19.tar.gz
# tar --no-same-owner -xzvf pacman-3.19.tar.gz
# cd pacman-3.19
# source setup.sh
```

2.Installing Condor Batch System:

We shall now use Pacman to install the Condor Batch system. The first thing would be to create a directory were the Condor Batch system would be installed.

For e.g if one plans to install Condor in /nfs/batchsystem, then we use the appropriate mkdir in the /nfs/ directory. This is then followed by the Pacman command.

```
# pacman -get http://www.cs.wisc.edu/vdt/vdt_161_cache:Condor
```

However, if the operating system is not one that is supported by Pacman, then one must use the -pretend-platform option. If one has CentOS4.x installed, then he can type in the command as follows

```
pacman -pretend-platform linux-rhel-4 -get
http://www.cs.wisc.edu/vdt/vdt_161_cache:Condor
```

The VDTSETUP_CONDOR_LOCATION, VDTSETUP_CONDOR_CONFIG need to be exported. If Condor has been installed in /nfs/batchsystem and Condor is the name of the directory above etc,lib and so on in the batchsystem directory then he needs to type in the following commands

```
# export VDTSETUP_CONDOR_LOCATION=/nfs/batchsystem/Condor/
# export
VDTSETUP_CONDOR_CONFIG=$VDTSETUP_CONDOR_LOCATION/etc/condor_config
```

3. Installing OSG CE services:

We need to choose an installation directory. For eg: /nfs/osg (osg is user defined so we need to create it with mkdir command). We need to go to that location(using cd)

set umask to 0022 using the command:

#umask 0022

Now, one can install the OSG services using the following command. Please make use of the -pretend-platform option with Pacman if necessary.

 # pacman -get ITB:ce *... for the ITB test version*
OR
 # pacman -get OSG:ce *... for the OSG production version*

If installation is complete without fatal errors we must be able to source the OSG setup environment using the command
$ source setup.sh
OR
% source setup.csh

Finally, to interface your batch system to the OSG-Software, from the same directory execute the following command
 # pacman -get OSG:Globus-Condor-Setup
(use -pretend-platform if necessary).

4. Obtaining and configuring PKI certificates

Your OSG CE will need a host certificate in order to join the OSG. The command for requesting one is:

 # cert-request -ou s -dir . -label ***my-host***

```
Processing OU=Services request.
Give reason (1 line) you qualify for certificate, such as
  member of CMS experiment    or
  collaborating with Condor team,  etc.
 reason: installing gatekeeper for ZZZZZZ VO on OSG
input server administrator's name: Joe Admin
input full hostname: my-host.some.domain
Generating a 2048 bit RSA private key
.........................................+++
.....................................................................................
.....................................................+++
writing new private key to './my-hostkey.pem'
-----
input your email address: joe@some.domain
input your complete phone number: 9991234567
Choose a registration authority to which you are affiliated.
If nothing else applies, pick OSG.
_Enter__this____for this registration authority
        anl     ANL: Argonne National Lab
        esg     ESG: Earth System Grid
        esnet   ESnet: DOE Science network
        fnal    FNAL: Fermilab host and service certificates
        fusiongrid      FusionGRID: National Fusion Collaboratory Project
        lbnl    LBNL: Berkeley Lab
        lcg     LCG: LHC Computing Grid Catchall
        nersc   NERSC: computer center
```

```
        ornl    ORNL: Oak Ridge National Lab
        osg     OSG: Open Science Grid (choose this if nothing else applies)
        pnnl    PNNL: Pacific Northwest National Lab
(choose from left column): osg
osg
OSG
Choose a virtual organization under your OSG affiliation:
        bnl     BNL: Brookhaven lab researchers not in an OSG registered VO
        cdf     Collider Detector at Fermilab
        cms     Compact Muon Solenoid
        compbiogrid
        des     Dark Energy Survey
        dosar   Distributed Organization for Scientific and Academic Research
        dzero   D0 Experiment at Fermilab
        fermilab        Fermi National Accelerator Center
        fmri    Functional Magnetic Resonance Imaging
        gadu    Genome Analysis and Database Update
        geant4  Geant4 Software Toolkit
        glow    Grid Laboratory of Wisconsin
        gpn     Great Plains Network
        grase   Group Researching Advances in Software Engineering at UC Santa Cruz
        gridchem        Computational Chemistry Grid
        gridex  Grid Exerciser (GEx)
        grow    Grid Research and Education Group at Iowa
        gugrid  Georgetown University Grid
        i2u2    Interactions in Understanding the Universe Initiative
        ivdgl   International Virtual Data Grid Laboratory
        jlab    JLab: Jefferson Lab researchers
        ligo    Laser Interferometer Gravitational-Wave Observatory
        mariachi        Mixed Apparatus for Radar Investigation of Cosmic-rays of
High Ionization Experiment
        mis     OSG Monitoring Information System
        nanohub nanoHUB Network for Computational Nanotechnology (NCN)
        nwicg   Northwest Indiana Computational Grid
        ops     OSG Operations Group
        osg     Open Science Grid
        osgedu  OSG Education Activity
        sdss    Sloan Digital Sky Survey
        slac    SLAC: Stanford Linear Accelerator Center researchers
        star    Solenoidal Tracker at RHIC
        usatlas United States ATLAS Collaboration
(Choose from left column; pick osg if nothing else applies): ZZZZZ
OSG:ZZZZZ
You must agree to abide by the DOEGrids pollicies,
at
and you assert that you are authorized to request and install this
certificate on the specified host.
Do you agree (y,N): y

Your Certificate Request has been successfully submitted
Your Certificate Request id: 2394

        You will receive a notification email from the CA when your certificate
        has been issued. Please disregard the instructions to download your
        certificate though a web browser and use the cert-retrieve script instead.
```

5. Configuring the OSG CE software

To configure OSG, you'll run the $VDT_LOCATION/monitoring/configure-osg.sh script. Some information is required to configure your OSG CE

NODE. These are collected as variables. The different variables and the type of information they represent are given in the following link.
https://twiki.grid.iu.edu/twiki/bin/view/Integration/ITB_0_5/CEInstallGuide#CE_Site_Adminstrator_Overview

Once you have decided on the variables and their values, we can use the following commands to type in the values.

```
# cd $VDT_LOCATION
# source setup.(c)sh
# cd $VDT_LOCATION/monitoring
# ./configure-osg.sh
```

6. Starting Services

We need to get into the directory of the VDT and run the following commands

```
# source setup.(c)sh
# vdt-control -on
```

'c' in parenthesis should be included for csh shells.

6.1 Condor Batch system

We need to go to the location pointed to by VDTSETUP_CONDOR_LOCATION and go up one location and source the Condor setup and we need to start condor. Again changing to the location pointed to by VDTSETUP_CONDOR_LOCATION and sourcing the setup.sh file there. The sequence of commands is shown below.

```
# cd $VDTSETUP_CONDOR_LOCATION
# cd ..
# source setup.[c]sh
# vdt-control --on condor
# cd $VDT_LOCATION   ###This variable isn't defined properly at this point; use the path name to this location
# source setup.[c]sh
```

6.2 Set up Managed Fork

To set up the Managed Fork jobmanager, run:

```
# cd $VDT_LOCATION
# source $VDT_LOCATION/setup.sh
# pacman -get OSG:ManagedFork
```

To set the managed fork jobmanager as the default, execute the following command.

```
# $VDT_LOCATION/vdt/setup/configure_globus_gatekeeper --managed-fork
y --server y
```

7. Commands for Testing CE NODE (using grid-mapfile)

7.1 Set up your credentials

The first step is to configure the CE to allow access using your own Grid credentials.

Make sure you have a grid proxy for yourself. This is based on your certificate. As a normal user run

```
> source $VDT_LOCATION/setup.(c)sh
> grid-proxy-init
  (you will be prompted for your GRID pass phrase)
```

Then, to get the subject (DN) of your proxy, run:

```
> grid-proxy-info -identity
  Output....
  /DC=gov/DC=fnal/O=Fermilab/OU=People/CN=Joe Blow 830711
```

As root again, take the identity string and pre-pend it to the /etc/grid-security/grid-mapfile and assign it to a local user account (you can use any of the VO accounts you've created at the beginning to test; you cannot use root). So the grid-mapfile should have at least one entry like:

```
"/DC=org/DC=doegrids/OU=People/CN=Joe Blow 830711" usatlas1
```

7.2 Simple Test of the Fork-Queue

Try executing the following command

```
globus-job-run $(hostname -f):2119/jobmanager-fork /usr/bin/id
```

7.3 Simple test of the Job Manager Queue

Try executing the following command

```
globus-job-run $(hostname -f):2119/jobmanager-condor /usr/bin/id
```

7.4 Simple test of the GSIFTP Services

A simple test of the gsiftp services requires creating a simple file and then copying it from one location on your machine to the default storage element available for your CE. When you configured the OSG attributes, you defined a default SE as a shared storage space with read-write access for all users. We will use this as the destination directory for the file we are copying.

Create a temporary file to be copied:

```
> echo "My test gsiftp file" > /tmp/gsiftp.test
```

Copy the file to the $OSG_DATA directory. First source the configuration file in order to set this variable.

```
> source $VDT_LOCATION/monitoring/osg-attributes.conf
> globus-url-copy file:/tmp/gsiftp.test
gsiftp://$(hostname)${OSG_DATA}/gsiftp.test
```

Verify that the file was copied to the $OSG_DATA directory:

```
> ls -l  $OSG_DATA/gsiftp.test
 -rw-r--r--  1 usatlas1 usatlas1  20 Jan  9 13:29
/nfs/osg/OSG.DIRS/data/gsiftp.test
```

7.5 Site Verification:

At this stage it is assumed that you have tested the job-manager queue, gsiftp and are ready to run this site verification script:

```
> $VDT_LOCATION/verify/site_verify.pl --host=<your hostname>
```

This test will return a lot of test result output to stdout. If all of the tests pass, your site is ready for use in OSG. If the script returns a bunch of results as untested, then it is likely that an earlier test has failed. Examine output to ensure essential services have not failed.