

Openhpc Installation And Usage

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OpenHPC (ohpc) is made of different components. One component is the cluster provisioning by Warewulf.

1 Installation of OpenHPC

1.1 [SERVER] Prerequisites Before Installing OpenHPC

Install CentOS 7.2.511

1.2 Download Install The Guide For OpenHPC

For this document `rev 3fc5abc` was used.

1.3 [SERVER] Disable `selinux`

Check if `selinux` is enabled:

```
if selinuxenabled; then echo yes; else echo no; fi
```

This will print if `selinux` is enabled at boot time. Temporarily disable `selinux`.

```
setenforce 0
```

Check with

```
getenforce
```

Should print

```
Permissive
```

1.4 [SERVER] Kick Start OpenHPC Installation

```
yum install epel-release
```

```
rpm -ivh http://build.openhpc.community/OpenHPC:/1.1/CentOS_7.2/x86_64/ohpc-  
release-1.1-1.x86_64.rpm
```

```
systemctl disable firewalld
```

```
systemctl stop firewalld
```

```
yum -y groupinstall ohpc-base
```

1.5 [SERVER] Install Convenient Tools

```
yum install tree zsh rsync wget mlocate vim
```

1.6 [SERVER] Install Dependencies

Not mentioned dependencies:

```
1 ifconfig
```

```
yum install net-tools
```

1.7 [SERVER] Install Warewulf Cluster For OpenHPC

```
yum -y groupinstall ohpc-warewulf
```

1.8 [SERVER] Setup The Correct Time On The Front End Node

```
systemctl enable ntpd.service
```

```
systemctl restart ntpd
```

1.9 [SERVER] Install Workload Manager Slurm (Server)

```
yum -y groupinstall ohpc-slurm-server
```

```
useradd slurm
```

1.10 [SERVER] OpenHPC Environment

Use existing environment file or create your own. Make sure data for your site is correct.

```
source /opt/kuelker/env/ohpc ADAMSPASS
```

```
env|grep OHPC|sort
```

```
OHPC_CLIENT_ARCH=ADAMSPASS
```

```
OHPC_CLIENT_INTERNAL_INTERFACE=en01
```

```
OHPC_CLIENT_INTERNAL_NETMASK=255.255.0.0
```

```
OHPC_CLIENT_PROVISION_INTERFACE=en01
```

```
OHPC_SERVER_CHROOT=/opt/ohpc/admin/images/i86_x64/centos7.2
```

```
OHPC_SERVER_INTERNAL_INTERFACE=enp2s0
```

```
OHPC_SERVER_INTERNAL_NETMASK=255.255.0.0
```

```
OHPC_SERVER_IP=172.16.254.254
```

```
OHPC_SERVER_NAME=gw200
```

During this guide it is assumed that the environment is sourced in before at the beginning. That is especially true if variables are in the commands. Variables always start with `$OHPC_` or `${OHPC_}`.

```
source /opt/kuelker/env/ohpc ADAMSPASS
```

1.11 [SERVER] Complete Basic OpenHPC/ Warewulf Setup

Source in the correct environment (see previous chapter).

```
source /opt/kuelker/env/ohpc ADAMSPASS

# Configure Warewulf provisioning to use desired internal interface
export PFN=/etc/warewulf/provision.conf
perl -pi -e "s/device = eth1/device = ${OHPC_SERVER_INTERNAL_INTERFACE}/" $PFN
# Enable tftp service for compute node image distribution
perl -pi -e "s/^\s+disable\s+= yes/ disable = no/" /etc/xinetd.d/tftp
# Enable http access for Warewulf cgi-bin directory to support newer apache syntax
export MFN=/etc/httpd/conf.d/warewulf-httpd.conf
perl -pi -e "s/cgi-bin>\$/cgi-bin>\n Require all granted/" $MFN
perl -pi -e "s/Allow from all/Require all granted/" $MFN
perl -ni -e "print unless /\s+Order allow,deny/" $MFN
# Enable internal interface for provisioning
ifconfig ${OHPC_SERVER_INTERNAL_INTERFACE}\
        ${OHPC_SERVER_IP}\
        netmask ${OHPC_SERVER_INTERNAL_NETMASK} up

# Restart/enable relevant services to support provisioning
systemctl restart xinetd
systemctl enable mariadb.service
systemctl restart mariadb
systemctl enable httpd.service
systemctl restart httpd
```

1.12 [SERVER] Configure NFS /home

Later a NFS server is needed

```
source /opt/kuelker/env/ohpc ADAMSPASS
yum install nfs-utils
mkdir -p /opt/ohpc/home
echo "${OHPC_HOME_BASE} *(${OHPC_SERVER_NFSEXP10})" >> /etc/exports
echo "/opt/ohpc/pub *(${OHPC_SERVER_NFSEXP11})" >> /etc/exports
exportfs -a
systemctl restart nfs
systemctl enable nfs-server
```

1.13 [SERVER] Install Ganglia to Front Node

Make sure `selinux` is disabled! Installation works with `selelinux`, but if `selinux` is enabled ganglia can not collect data. (There was an error collecting ganglia data (127.0.0.1:8652): fsockopen error: Permission denied)

```
setenforce 0
```

```
yum -y groupinstall ohpc-ganglia
```

Backup old configuration

```
cp /etc/ganglia/gmond.conf /etc/ganglia/gmond.conf.`date +%F`
```

```
cp /opt/ohpc/pub/examples/ganglia/gmond.conf /etc/ganglia
```

Source the environment

```
source /opt/kuelker/env/ohpc ADAMSPASS
```

Set the server name

```
perl -pi -e "s/<sms>/${OHPC_SERVER_NAME}/" /etc/ganglia/gmond.conf
```

Set the site name

```
cp /etc/ganglia/gmetad.conf /etc/ganglia/gmetad.conf.`date +%F`
```

```
echo "gridname $OHPC_SITE_NAME" >> /etc/ganglia/gmetad.conf
```

Enable and start Ganglia

```
systemctl enable gmond
```

```
systemctl enable gmetad
```

```
systemctl start gmond
```

```
systemctl start gmetad
```

```
systemctl try-restart httpd
```

1.14 Install Ganglia on the Clients

```
source /opt/kuelker/env/ohpc ADAMSPASS
```

```
yum -y --installroot=$OHPC_SERVER_CHROOT_TEST install ganglia-gmond-ohpc
```

```
chroot $OHPC_SERVER_CHROOT_TEST systemctl enable gmond
```

2 Documentation

The official install guide:

- [guide download http](#)
- [guide download ftp](#)

3 Disclaimer of Warranty

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