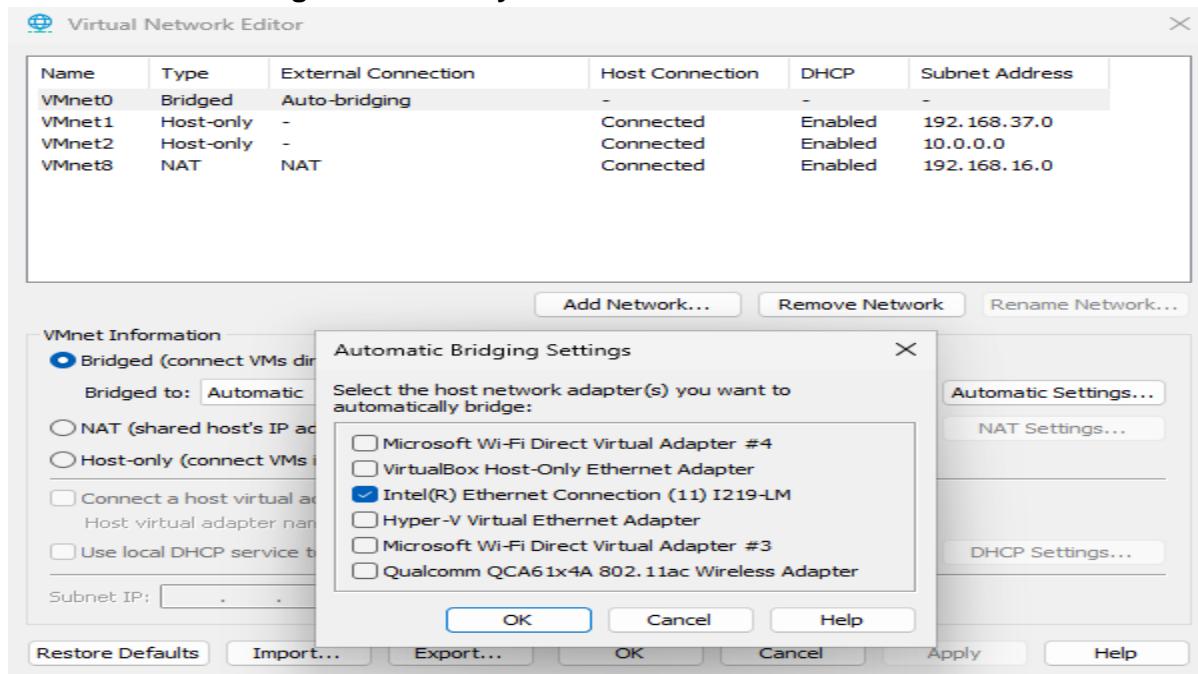
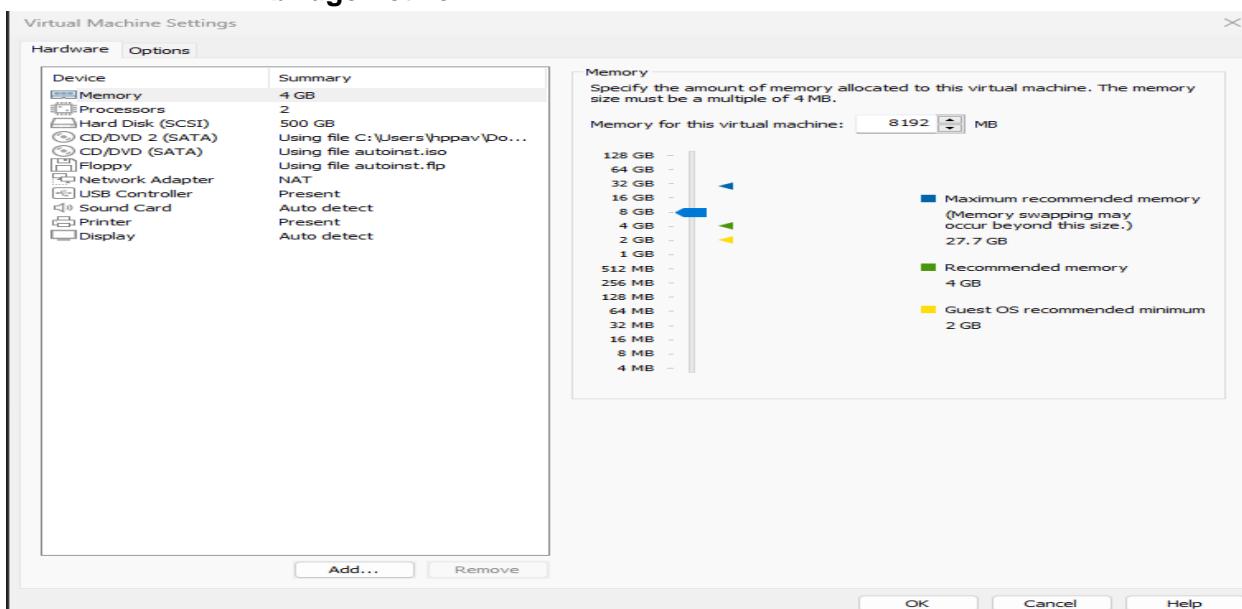


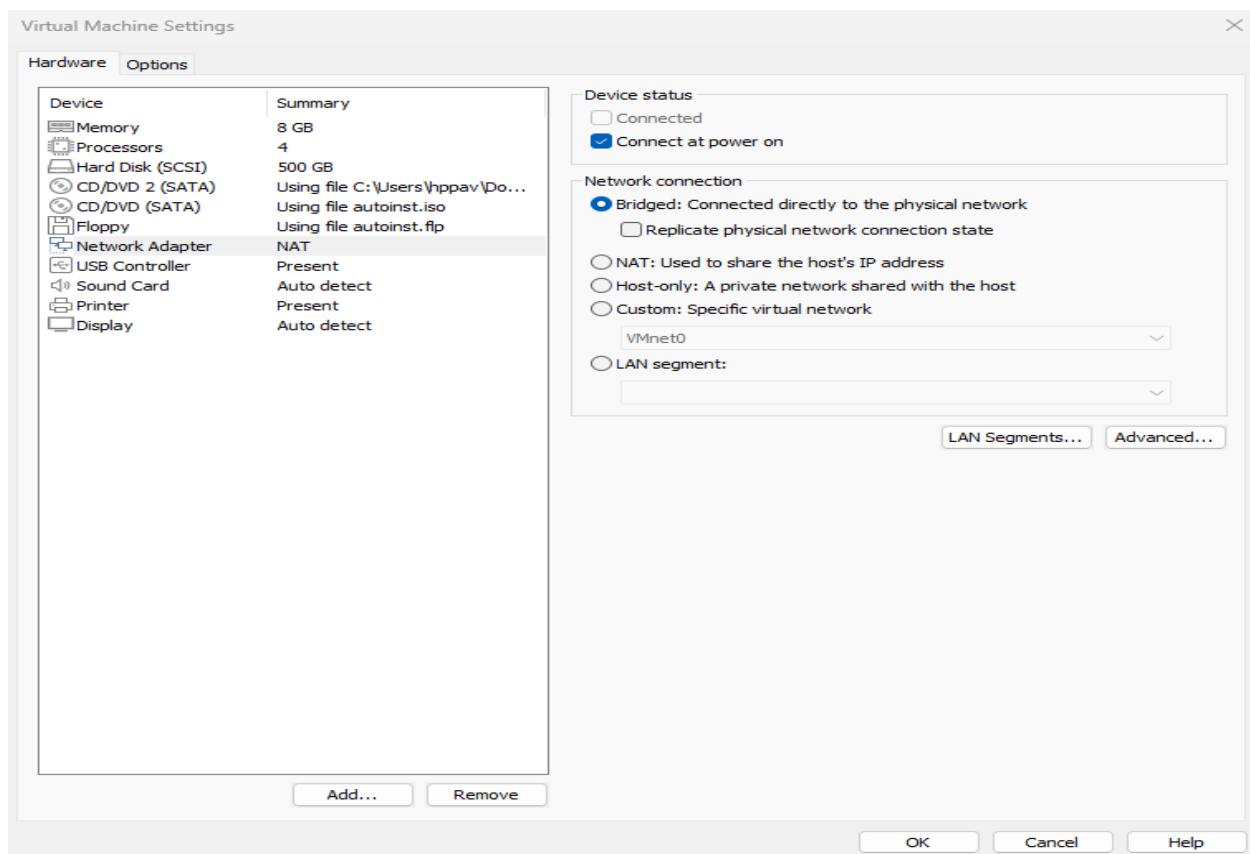
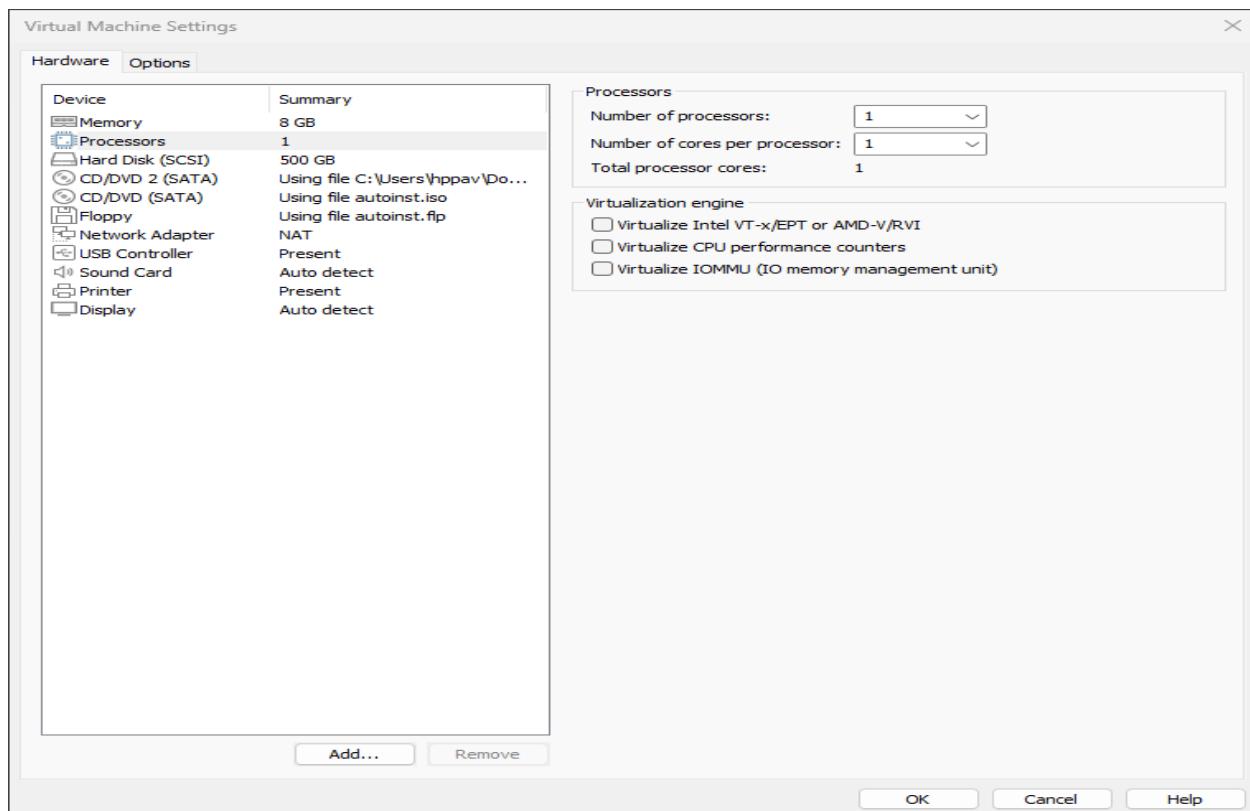
# Practice Assignment

Check whether in bridge network only select external Ethernet connection



Edit virtual machine settings give ram 8gb,processors and co-processors 1 and select bridge network



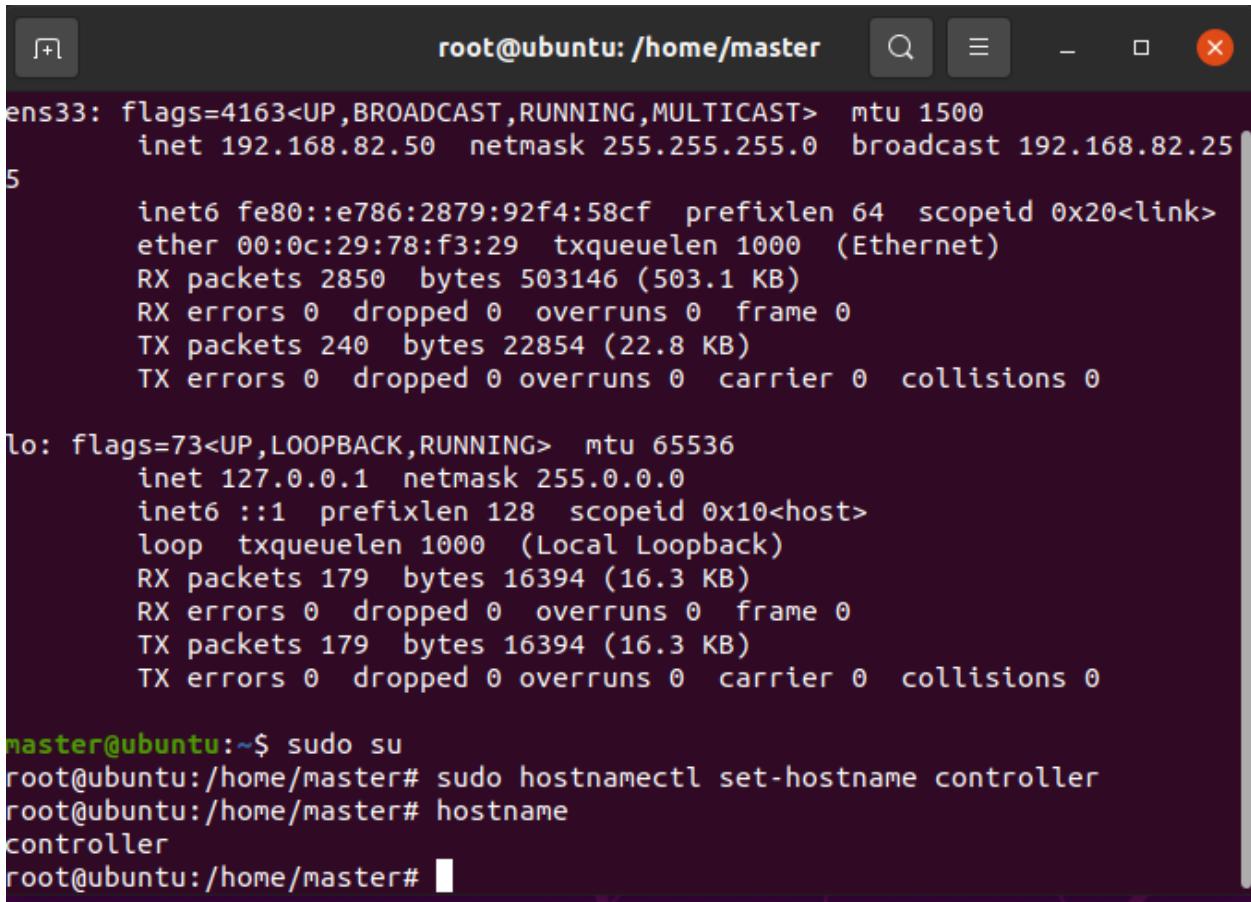


## **Update and upgrade the machine**

```
sudo su  
apt-get update -y  
apt-get upgrade -y
```

## **Check ip and set hostname for controller**

```
Controller ip address : 192.168.82.233  
sudo hostnamectl set-hostname controller
```



The screenshot shows a terminal window titled "root@ubuntu: /home/master". It displays the output of the "ifconfig" command, showing details for the ens33 and lo interfaces. The ens33 interface has an IP of 192.168.82.255 and a MAC address of fe80::e786:2879:92f4:58cf. The lo interface has an IP of 127.0.0.1. Below the interface details, the terminal shows the command "sudo hostnamectl set-hostname controller" being run, followed by the confirmation "controller".

```
root@ubuntu: /home/master  
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
      inet 192.168.82.255 brd 192.168.82.255 netmask 255.255.255.0  
      ether fe80::e786:2879:92f4:58cf brd fe80::ff:fe78:6:2879/64 scope link  
      RX packets 2850 bytes 503146 (503.1 KB)  
      RX errors 0 dropped 0 overruns 0 frame 0  
      TX packets 240 bytes 22854 (22.8 KB)  
      TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536  
      inet 127.0.0.1 brd 127.0.0.1 netmask 255.0.0.0  
      ether 00:0c:29:78:f3:29 brd ff:ff:ff:ff:ff:ff scope host  
      RX packets 179 bytes 16394 (16.3 KB)  
      RX errors 0 dropped 0 overruns 0 frame 0  
      TX packets 179 bytes 16394 (16.3 KB)  
      TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
master@ubuntu:~$ sudo su  
root@ubuntu:/home/master# sudo hostnamectl set-hostname controller  
root@ubuntu:/home/master# hostname  
controller  
root@ubuntu:/home/master#
```

## **Install ssh to copy files from one machine to another**

```
apt-get install openssh-server  
sudo systemctl enable ssh
```

## **Add user in sudoers and give all permission so no need to enter password again and again**

```
Sudo visudo  
master ALL=(ALL:ALL) NOPASSWD: ALL
```

```
GNU nano 4.8          /etc/sudoers.tmp
#
# See the man page for details on how to write a sudoers file.
#
Defaults      env_reset
Defaults      mail_badpass
Defaults      secure_path="/usr/local/sbin:/usr/local/bin:/usr/sbin:/us>
#
# Host alias specification

#
# User alias specification

#
# Cmnd alias specification

#
# User privilege specification
root    ALL=(ALL:ALL) ALL
master  ALL=(ALL:ALL) NOPASSWD: ALL
# Members of the admin group may gain root privileges
%admin  ALL=(ALL) ALL

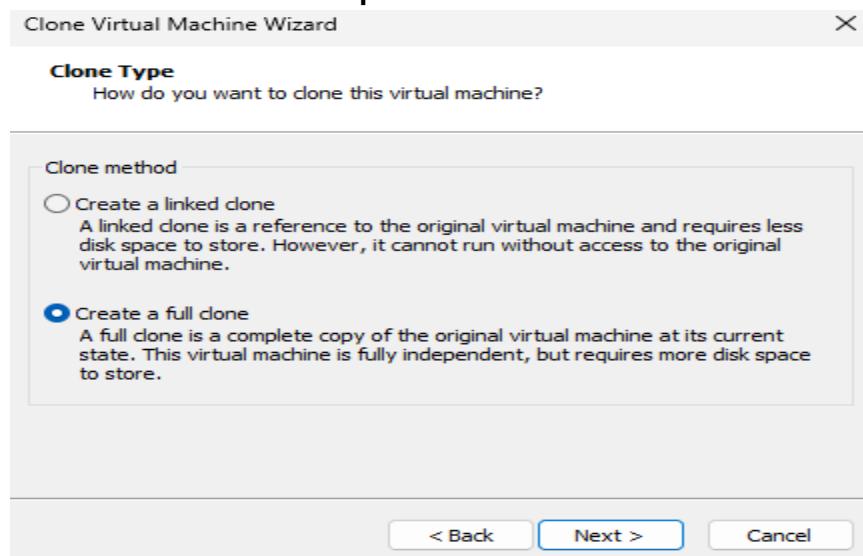
#
# Allow members of group sudo to execute any command
[ Read 30 lines ]
^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify
^X Exit     ^R Read File  ^\ Replace   ^U Paste Text ^T To Spell
```

**Save it and reboot then shutdown the system**

```
sudo chmod 700 /home/master/
```

```
ls -l /home/
```

### Clone the machine and create two compute machines



## Copy ip address of compute machines and set hostname for that

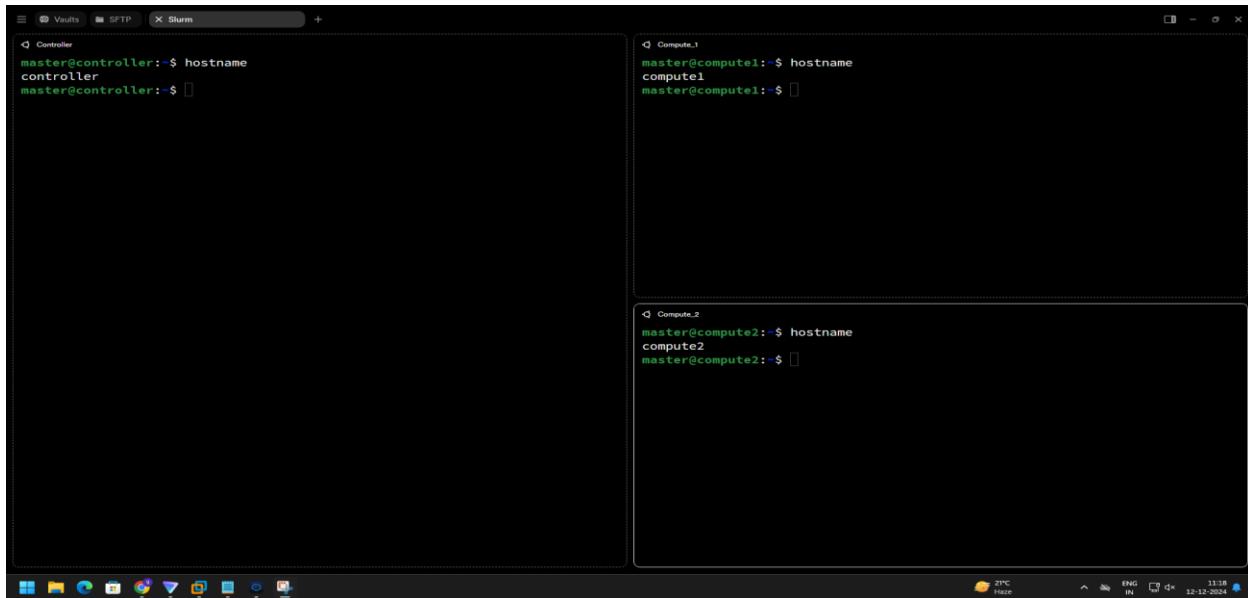
Compute1 ip address : 192.168.82.157

Compute2 ip address : 192.168.82.210

sudo hostnamectl set-hostname compute1

sudo hostnamectl set-hostname compute2

## Ssh all machines from termius



```
Controller
master@controller:~$ hostname
controller
master@controller:~$ 

Compute_1
master@compute1:~$ hostname
compute1
master@compute1:~$ 

Compute_2
master@compute2:~$ hostname
compute2
master@compute2:~$ 
```

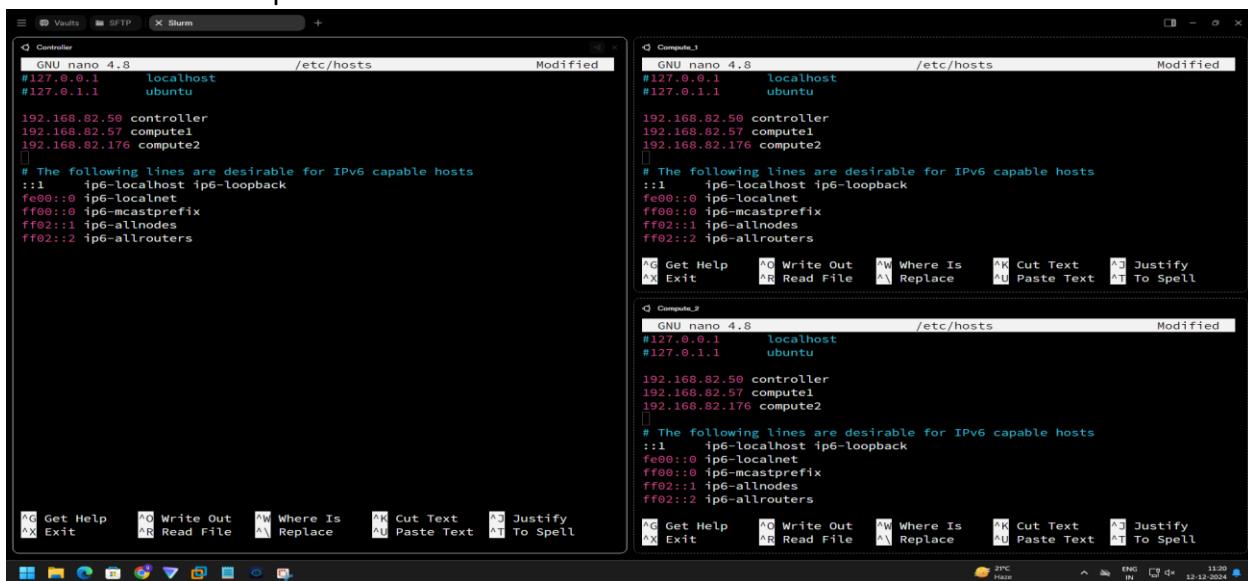
## Edit /etc/hosts file

sudo nano /etc/hosts

192.168.82.233 controller

192.168.82.157 compute1

192.168.82.210 compute2



```
Controller
GNU nano 4.8 /etc/hosts Modified
#127.0.0.1 localhost
#127.0.1.1 ubuntu

192.168.82.50 controller
192.168.82.57 compute1
192.168.82.176 compute2

# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters

Compute_1
GNU nano 4.8 /etc/hosts Modified
#127.0.0.1 localhost
#127.0.1.1 ubuntu

192.168.82.50 controller
192.168.82.57 compute1
192.168.82.176 compute2

# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters

Compute_2
GNU nano 4.8 /etc/hosts Modified
#127.0.0.1 localhost
#127.0.1.1 ubuntu

192.168.82.50 controller
192.168.82.57 compute1
192.168.82.176 compute2

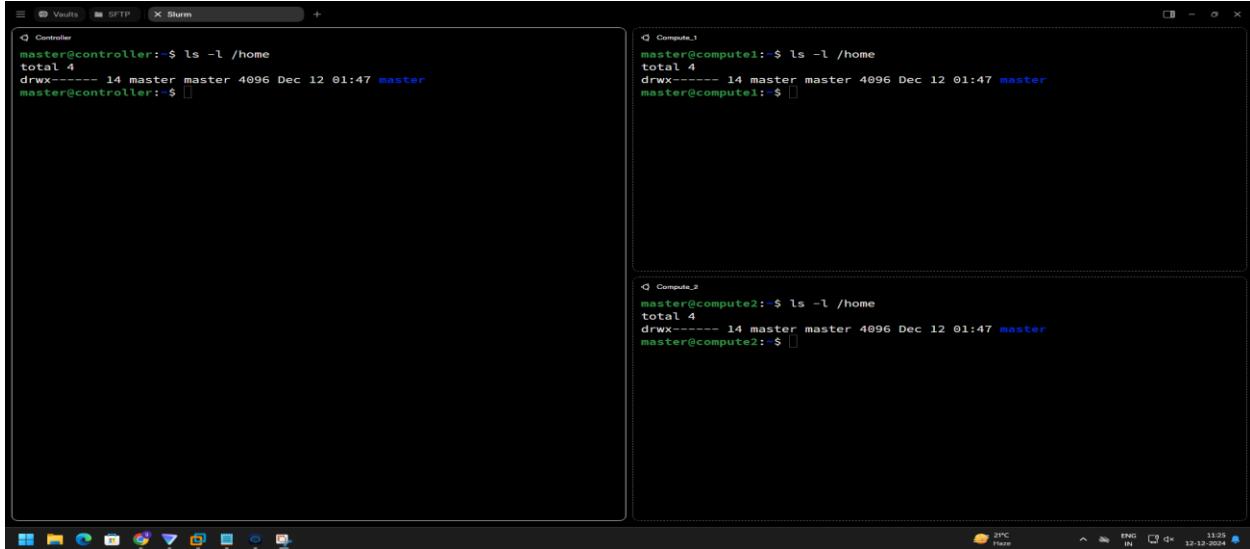
# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters 
```

# reboot the system and start slurm installation

Check file permission for home directory and owner and group is master if not

chown master:master /home/master

chmod 700 /home/master



```
Controller
master@controller:~$ ls -l /home
total 4
drwx----- 14 master master 4096 Dec 12 01:47 master
master@controller:~$ 

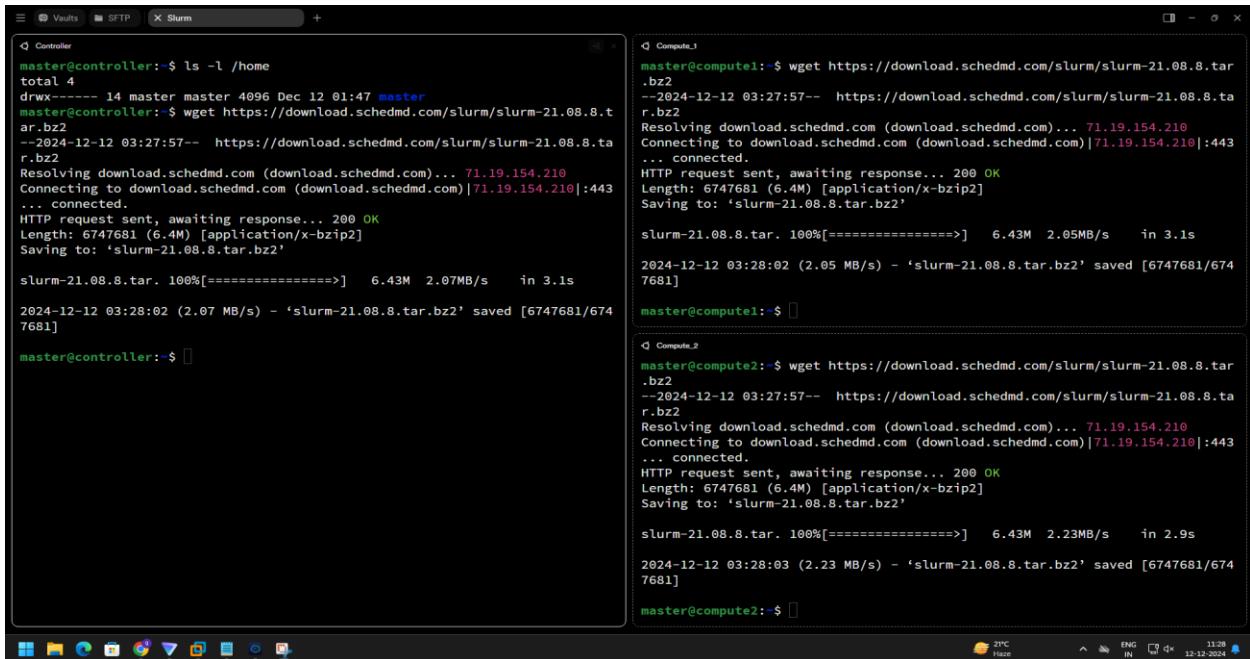
Compute_1
master@compute1:~$ ls -l /home
total 4
drwx----- 14 master master 4096 Dec 12 01:47 master
master@compute1:~$ 

Compute_2
master@compute2:~$ ls -l /home
total 4
drwx----- 14 master master 4096 Dec 12 01:47 master
master@compute2:~$ 
```

# Common steps for controller and compute

## Download slurm:

wget <https://download.schedmd.com/slurm/slurm-21.08.8.tar.bz2>



```
Controller
master@controller:~$ ls -l /home
total 4
drwx----- 14 master master 4096 Dec 12 01:47 master
master@controller:~$ wget https://download.schedmd.com/slurm/slurm-21.08.8.tar.bz2
--2024-12-12 03:27:57-- https://download.schedmd.com/slurm/slurm-21.08.8.tar.bz2
Resolving download.schedmd.com (download.schedmd.com)... 71.19.154.210
Connecting to download.schedmd.com (download.schedmd.com)|71.19.154.210|:443
... connected.
HTTP request sent, awaiting response... 200 OK
Length: 6747681 (6.4M) [application/x-bzip2]
Saving to: 'slurm-21.08.8.tar.bz2'

slurm-21.08.8.tar. 100%[=====] 6.43M 2.05MB/s in 3.1s
2024-12-12 03:28:02 (2.05 MB/s) - 'slurm-21.08.8.tar.bz2' saved [6747681/6747681]

master@controller:~$ 

Compute_1
master@compute1:~$ wget https://download.schedmd.com/slurm/slurm-21.08.8.tar.bz2
--2024-12-12 03:27:57-- https://download.schedmd.com/slurm/slurm-21.08.8.tar.bz2
Resolving download.schedmd.com (download.schedmd.com)... 71.19.154.210
Connecting to download.schedmd.com (download.schedmd.com)|71.19.154.210|:443
... connected.
HTTP request sent, awaiting response... 200 OK
Length: 6747681 (6.4M) [application/x-bzip2]
Saving to: 'slurm-21.08.8.tar.bz2'

slurm-21.08.8.tar. 100%[=====] 6.43M 2.05MB/s in 3.1s
2024-12-12 03:28:02 (2.05 MB/s) - 'slurm-21.08.8.tar.bz2' saved [6747681/6747681]

master@compute1:~$ 
```

## Install required libraries and dependencies

```
sudo apt install -y build-essential munge libmunge-dev libmunge2 libmysqlclient-dev libssl-dev  
libpam0g-dev libnuma-dev perl
```

```
Controller
```

2024-12-12 03:28:02 (2.07 MB/s) - 'slurm-21.08.8.tar.bz2' saved [6747681/6747681]

```
master@controller:~$ sudo apt install -y build-essential munge libmunge-dev libmysqlclient-dev libssl-dev libpam0g-dev libnuma-dev perl  
[sudo] password for master:  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
perl is already the newest version (5.30.0-9ubuntu0.5).  
perl set to manually installed.  
The following additional packages will be installed:  
  binutils binutils-common binutils-x86_64-linux-gnu dpkg-dev fakeroot g++  
  g++-9 gcc gcc-9 libalgoritm-diff-perl libalgoritm-diff-xs-perl  
  libalgoritm-merge-perl libasan5 libbinutils libc-dev-bin libc6-dev  
  libcrypt-dev libctf-nobfd libctf0 libfakeroot libgcc-9-dev libitm  
  libasan0 libquadmath0 libstdc++-9-dev libtsan0 libubsan1 linux-libc-dev  
  make manpages-dev zlib1g-dev  
Suggested packages:  
  binutils-doc debian-keyring g++-multilib g++-9-multilib gcc-9-doc  
  gcc-multilib autoconf automake libtool flex bison gcc-doc gcc-9-multilib  
  gcc-9-locales glibc-doc libssl-doc libstdc++-9-doc make-doc  
The following NEW packages will be installed:  
  binutils binutils-common binutils-x86_64-linux-gnu build-essential  
  dpkg-dev fakeroot g++ g++-9 gcc gcc-9 libalgoritm-diff-perl  
  libalgoritm-diff-xs-perl libalgoritm-merge-perl libasan5 libbinutils  
  libc-dev-bin libc6-dev libcrypt-dev libctf-nobfd libctf0 libfakeroot  
  libgcc-9-dev libitm libasan0 libmunge-dev libmunge2 libmysqld-client-dev  
  libnuma-dev libpam0g-dev libquadmath0 libssl-dev libstdc++-9-dev  
  libtsan0 libubsan1 linux-libc-dev make manpages-dev munge zlib1g-dev  
0 upgraded, 39 newly installed, 0 to remove and 0 not upgraded.  
Need to get 40.5 MB of archives.  
After this operation, 190 MB of additional disk space will be used.  
Get:1 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 binutils-common amd64 2.34-6ubuntu1.9 [208 kB]  
1% [Working]
```

```
Compute_1
```

After this operation, 190 MB of additional disk space will be used.  
Get:1 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 binutils-common amd64 2.34-6ubuntu1.9 [208 kB]  
1% [Waiting for headers]  
Get:2 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 libbinutils amd64 2.34-6ubuntu1.9 [475 kB]  
Get:3 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 libctf-nobfd amd64 2.34-6ubuntu1.9 [48.2 kB]  
Get:4 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 libctf0 amd64 2.34-6ubuntu1.9 [46.6 kB]  
Get:5 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 binutils-x86\_64-linux-gnu amd64 2.34-6ubuntu1.9 [1,614 kB]  
Get:6 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 binutils amd64 2.34-6ubuntu1.9 [3,380 B]  
Get:7 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 libc-dev-bin amd64 2.31-0ubuntu9.16 [71.6 kB]  
8% [Waiting for headers]

390 kB/s 1min 37s

```
Compute_2
```

make manpages-dev zlib1g-dev  
Suggested packages:  
 binutils-doc debian-keyring g++-multilib g++-9-multilib gcc-9-doc  
 gcc-multilib autoconf automake libtool flex bison gcc-doc gcc-9-multilib  
 gcc-9-locales glibc-doc libssl-doc libstdc++-9-doc make-doc  
The following NEW packages will be installed:  
 binutils binutils-common binutils-x86\_64-linux-gnu build-essential  
 dpkg-dev fakeroot g++ g++-9 gcc gcc-9 libalgoritm-diff-perl  
 libalgoritm-diff-xs-perl libalgoritm-merge-perl libasan5 libbinutils  
 libc-dev-bin libc6-dev libcrypt-dev libctf-nobfd libctf0 libfakeroot  
 libgcc-9-dev libitm libasan0 libmunge-dev libmunge2 libmysqld-client-dev  
 libnuma-dev libpam0g-dev libquadmath0 libssl-dev libstdc++-9-dev  
 libtsan0 libubsan1 linux-libc-dev make manpages-dev munge zlib1g-dev  
0 upgraded, 39 newly installed, 0 to remove and 0 not upgraded.  
Need to get 40.5 MB of archives.  
After this operation, 190 MB of additional disk space will be used.  
0% [Waiting for headers]

## **Unzip already downloaded slurm file**

```
tar -xvf slurm-21.08.8.tar.bz2 slurm-21.08.8/
```

```
Controller
slurm-21.08.8/testsuite/slurm_unit/common/slurm_protocol_defs/Makefile.am
slurm-21.08.8/testsuite/slurm_unit/common/slurm_protocol_defs/slurm_addto_ch
ar_list-test.c
slurm-21.08.8/testsuite/slurm_unit/common/slurm_protocol_defs/xlate_array_ta
sk_str-test.c
slurm-21.08.8/testsuite/slurm_unit/common/xhash-test.c
slurm-21.08.8/testsuite/slurm_unit/common/slurm_protocol_pack/
slurm-21.08.8/testsuite/slurm_unit/common/slurm_protocol_pack/pack_job_alloc
_info_msg-test.c
slurm-21.08.8/testsuite/slurm_unit/common/slurm_protocol_pack/Makefile.in
slurm-21.08.8/testsuite/slurm_unit/common/slurm_protocol_pack/Makefile.am
slurm-21.08.8/testsuite/slurm_unit/common/slurm_protocol_pack/pack_priority_
factors-test.c
slurm-21.08.8/testsuite/slurm_unit/common/runall.exp
slurm-21.08.8/testsuite/slurm_unit/common/bitstring/
slurm-21.08.8/testsuite/slurm_unit/common/bitstring/bitstring-test.c
slurm-21.08.8/testsuite/slurm_unit/common/bitstring/bitstring/Makefile.in
slurm-21.08.8/testsuite/slurm_unit/common/bitstring/Makefile.am
slurm-21.08.8/testsuite/slurm_unit/common/bitstring/bit_unfmt_hexmask-test.c
slurm-21.08.8/testsuite/slurm_unit/common/log-test.c
slurm-21.08.8/testsuite/slurm_unit/common/pack-test.c
slurm-21.08.8/testsuite/slurm_unit/common/parse_time-test.c
slurm-21.08.8/testsuite/slurm_unit/common/slurm_opt-test.c
slurm-21.08.8/testsuite/slurm_unit/README
slurm-21.08.8/slurm/
slurm-21.08.8/slurm/pmi.h
slurm-21.08.8/slurm/slurmdb.h
slurm-21.08.8/slurm/spank.h
slurm-21.08.8/slurm/slurm_errno.h
slurm-21.08.8/slurm/smd_ns.h
slurm-21.08.8/slurm/slurm.h
slurm-21.08.8/slurm/slurm_version.h.in
master@controller:~$ ls
Desktop Downloads Pictures slurm-21.08.8 Templates
Documents Music Public slurm-21.08.8.tar.bz2 Videos
master@controller:~$ 

Compute1
slurm-21.08.8/testsuite/slurm_unit/common/log-test.c
slurm-21.08.8/testsuite/slurm_unit/common/pack-test.c
slurm-21.08.8/testsuite/slurm_unit/common/parse_time-test.c
slurm-21.08.8/testsuite/slurm_unit/common/slurm_opt-test.c
slurm-21.08.8/testsuite/slurm_unit/README
slurm-21.08.8/slurm/
slurm-21.08.8/slurm/pmi.h
slurm-21.08.8/slurm/slurmdb.h
slurm-21.08.8/slurm/spank.h
slurm-21.08.8/slurm/slurm_errno.h
slurm-21.08.8/slurm/smd_ns.h
slurm-21.08.8/slurm/slurm.h
slurm-21.08.8/slurm/slurm_version.h.in
master@compute1:~$ ls
Desktop Downloads Pictures slurm-21.08.8 Templates
Documents Music Public slurm-21.08.8.tar.bz2 Videos
master@compute1:~$ 

Compute2
slurm-21.08.8/testsuite/slurm_unit/common/log-test.c
slurm-21.08.8/testsuite/slurm_unit/common/pack-test.c
slurm-21.08.8/testsuite/slurm_unit/common/parse_time-test.c
slurm-21.08.8/testsuite/slurm_unit/common/slurm_opt-test.c
slurm-21.08.8/testsuite/slurm_unit/README
slurm-21.08.8/slurm/
slurm-21.08.8/slurm/pmi.h
slurm-21.08.8/slurm/slurmdb.h
slurm-21.08.8/slurm/spank.h
slurm-21.08.8/slurm/slurm_errno.h
slurm-21.08.8/slurm/smd_ns.h
slurm-21.08.8/slurm/slurm.h
slurm-21.08.8/slurm/slurm_version.h.in
master@compute2:~$ ls
Desktop Downloads Pictures slurm-21.08.8 Templates
Documents Music Public slurm-21.08.8.tar.bz2 Videos
master@compute2:~$ 
```

cd slurm-21.08.8

```
./configure --prefix=/home/master/slurm-21.08.8/
```

```
Controller
master@controller:~$ cd slurm-21.08.8
master@controller:~/slurm-21.08.8$ ls
aclocal.m4  configure.ac  doc      Makefile.in  slurm
AUTHORS     contribs      etc      META        slurm.spec
NEWS       CONTRIBUTING.md  INSTALL   NEWS       src
config.h.in  COPYING      LICENSE.OpenSSL README.rst  testsuite
master@controller:~/slurm-21.08.8$ ./configure --prefix=/home/controller/slurm-21.08.8/]

Compute_1
master@compute1:~$ cd slurm-21.08.8
master@compute1:~/slurm-21.08.8$ ls
aclocal.m4  configure.ac  doc      Makefile.in  slurm
AUTHORS     contribs      etc      META        slurm.spec
NEWS       CONTRIBUTING.md  INSTALL   NEWS       src
master@compute1:~/slurm-21.08.8$ ./configure --prefix=/home/compute1/slurm-21.08.8/]

Compute_2
master@compute2:~$ cd slurm-21.08.8
master@compute2:~/slurm-21.08.8$ ls
aclocal.m4  configure.ac  doc      Makefile.in  slurm
AUTHORS     contribs      etc      META        slurm.spec
NEWS       CONTRIBUTING.md  INSTALL   NEWS       src
master@compute2:~/slurm-21.08.8$ ./configure --prefix=/home/compute2/slurm-21.08.8/]
```

**Then perform make and make install**

Make

Make install

```
sudo mkdir /etc/slurm
sudo mkdir /etc/slurm-llnl
```

**Different installation first on controller**

**Create a munge key:**

Sudo create-munge-key

**Change owner and Change permission for munge key**

```
sudo chown munge: /etc/munge/munge.key
chmod 400 /etc/munge/munge.key
```

**Copy munge key to the compute nodes:**

```
sudo scp -r /etc/munge/munge.key master@compute1:/tmp
sudo scp -r /etc/munge/munge.key master@compute2:/tmp
```

```

Do you want to overwrite it? (y/N) y
Generating a pseudo-random key using /dev/urandom completed.
master@controller:~$ ls
Desktop Documents Downloads Music Pictures Public slurm-21.08.8 slurm-21.08.8.tar.bz2 Templates Videos
master@controller:~$ cd slurm-21.08.8/
master@controller:~/slurm-21.08.8$ ls
acllocal.m4 config.h config.status contribs DISCLAIMER INSTALL Makefile META RELEASE_NOTES src
AUTHORS config.h.in configure CONTRIBUTING.md doc libtool Makefile.am NEWS slurm stamp-h1
auxdir config.log configure.ac COPYING etc LICENSE.OpenSSL Makefile.in README.rst slurm.spec testsuite
master@controller:~/slurm-21.08.8$ sudo create-munge-key
The munge key /etc/munge/munge.key already exists
Do you want to overwrite it? (y/N) y
Generating a pseudo-random key using /dev/urandom completed.
master@controller:~/slurm-21.08.8$ sudo chmod 400 /etc/munge/munge.key
master@controller:~/slurm-21.08.8$ chown munge: /etc/munge/munge.key
chown: cannot access '/etc/munge/munge.key': Permission denied
master@controller:~/slurm-21.08.8$ sudo chown munge: /etc/munge/munge.key
master@controller:~/slurm-21.08.8$ $ sudo chown munge: /etc/munge/munge.key^C
master@controller:~/slurm-21.08.8$ sudo scp -r /etc/munge/munge.key master@compute1:/tmp
put1:/tmp
The authenticity of host 'compute1 (192.168.82.57)' can't be established.
ECDSA key fingerprint is SHA256:yR2zdg2SLDvAxvb3Dlsol+ixWn4kAuLwtD7JI9Hi88.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'compute1,192.168.82.57' (ECDSA) to the list of known hosts.
master@compute1's password:
munge.key                                              100% 1024   824.2KB/s  00:00
master@controller:~/slurm-21.08.8$ sudo scp -r /etc/munge/munge.key master@compute2:/tmp
put2:/tmp
The authenticity of host 'compute2 (192.168.82.176)' can't be established.
ECDSA key fingerprint is SHA256:yR2zdg2SLDvAxvb3Dlsol+ixWn4kAuLwtD7JI9Hi88.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'compute2,192.168.82.176' (ECDSA) to the list of known hosts.
master@compute2's password:
munge.key                                              100% 1024   750.3KB/s  00:00
master@controller:~/slurm-21.08.8$ 

```

The screenshot shows a terminal window titled "Controller". The user is navigating through a Slurm source code directory and generating a munge key. They then copy the key to two compute nodes using SCP. The terminal includes a standard Linux desktop toolbar at the top and a system tray at the bottom.

sudo chown -R munge: /etc/munge /var/log/munge  
 sudo chmod 0700 /etc/munge /var/log/munge

sudo systemctl enable munge  
 sudo systemctl start munge  
 sudo systemctl status munge

```

master@controller:~/slurm-21.08.8$ sudo systemctl enable munge
Synchronizing state of munge.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable munge
master@controller:~/slurm-21.08.8$ sudo systemctl start munge
master@controller:~/slurm-21.08.8$ sudo systemctl status munge
● munge.service - MUNGE authentication service
   Loaded: loaded (/lib/systemd/system/munge.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2024-12-12 03:31:15 PST; 21min ago
     Docs: man:munged(8)
     Main PID: 1915 (munged)
        Tasks: 4 (limit: 9371)
      Memory: 592.0K
      CGroup: /system.slice/munge.service
              └─1915 /usr/sbin/munged

Dec 12 03:31:15 controller systemd[1]: Starting MUNGE authentication service...
Dec 12 03:31:15 controller systemd[1]: Started MUNGE authentication service.
master@controller:~/slurm-21.08.8$ 

```

**Go into the slurm etc folder**

Cd /home/master/slurm-21.08.8/etc

## Create or copy of the slurm.conf file

```
cp slurm.conf.example slurm.conf
```

**Edit the slurm.conf file and change or add the following content in the file**

## Sudo nano slurm.conf

```
ClusterName=cluster  
SlurmctldHost=controller  
AuthType=auth/munge
```

SlurmUser=master

AccountingStorageType=accounting\_storage/slurmdbd

```
HostName=controller CPUs=1 State=UNKNOWN
HostName=compute1 CPUs=1 State=UNKNOWN
HostName=compute2 CPUs=1 State=UNKNOWN
PartitionName=partition Nodes=ALL Default=YES MaxTime=INFINITE State=up
MailProg=/usr/bin/mail
```

```
GNU nano 4.8 slurm.conf

#
# Example slurm.conf file. Please run configurator.html
# (in doc/html) to build a configuration file customized
# for your environment.
#
#
# slurm.conf file generated by configurator.html.
# Put this file on all nodes of your cluster.
# See the slurm.conf man page for more information.
#
ClusterName=cluster
SlurmctldHost=controller
AuthType=auth/munge
#SlurmctldHost=
#
#DisableRootJobs=NO
#EnforcePartLimits=NO
#Epilog=
#EpilogSlurmctld=
#FirstJobId=1
#MaxJobId=67043328
#GresTypes=
#GroupUpdateForce=0
#GroupUpdateTime=600
#JobfileAppend=0
#JobQueue=1
#JobSubmitPlugins(lua
#KillOnBadExit=0
#LaunchType=launch/slurm
#Licenses=foo*4,bar
#MailProg=/bin/mail
#MaxJobCount=10000
#MaxStepCount=40000
#MaxTasksPerNode=512

AG Get Help      P Write Out      AW Where Is      CK Cut Text      J Justify      CP Cur Pos      M-U Undo      M-A Mark Text      M-[ To Bracket
^X Exit          PR Read File     ^R Replace      PU Paste Text    AI To Spell     G Go To Line    M-E Redo      M-G Copy Text    M-] Where Was

2°C ENG IN 12-12-2024
```

The screenshot shows a terminal window with the title bar "Controller". The main area displays the contents of the file "slurm.conf" using the "GNU nano 4.8" editor. The file contains configuration parameters for Slurm, such as MPI settings, resource limits, and service ports. The bottom of the screen shows a standard Windows-style taskbar with various icons and system status indicators.

```
GNU nano 4.8
#MaxTasksPerNode=512
#Mpidefault=none
#Mpiparams=ports=-#
#PluginDir=
#PlugStackConfig=
#PrivateData=jobs
ProctrackType=proctrack/cgroup
#Prolog=
#PrologFlags=
#PrologSlurmctld=
#PropagatePrioProcess=0
#PropagateResourceLimits=
#PropagateResourceLimitsExcept=
#RebootProgram=
ReturnToService=1
SlurmctldPidFile=/var/run/slurmctld.pid
SlurmctldPort=6817
SlurmdPidFile=/var/run/slurmd.pid
SlurmdPort=6818
SlurmdSpoolDir=/var/spool/slurmd
SlurmUser=controller
#SlurmdUser=root
#SrunEpilog=
#SrunProlog=
StateSaveLocation=/var/spool/slurmctld
SwitchType=switch/none
#TaskEpilog=
TaskPlugin=task/affinity
#TaskProlog=
#TopologyPlugin=topology/tree
#TmpFS=/tmp
#TrackWCKey=no
#TreeWidth=
#UnkillableStepProgram=
```

Key bindings shown at the bottom:

- ^G Get Help
- ^O Write Out
- ^W Where Is
- ^K Cut Text
- ^U Paste Text
- ^J Justify
- ^C Cur Pos
- M-U Undo
- M-A Mark Text
- M-T To Bracket

Other key bindings:

- ^X Exit
- ^R Read File
- ^A Replace
- ^L To Spell
- ^G Go To Line
- M-E Redo
- M-G Copy Text
- M-Q Where Was

System tray icons and status:

- 24PC
- IN
- 12-12-2024
- 12:06

This screenshot is identical to the one above, showing the same terminal window with the "Controller" title bar, the "slurm.conf" file in "GNU nano 4.8" editor, and the same set of key bindings and system status icons at the bottom.

```
GNU nano 4.8
#UnkillableStepProgram=
#UsePAM=0
#
# TIMERS
#BatchStartTimeout=10
#CompleteWait=0
#EpilogMsgTime=2000
#GetEnvTimeout=2
#HealthCheckInterval=0
#HealthCheckProgram=
InactiveLimit=0
KillWait=30
#MessageTimeout=10
#ResvOverRun=0
MinJobAge=300
#OverTimeLimit=0
SlurmctldTimeout=120
SlurmdTimeout=300
#UnkillableStepTimeout=60
#VSizeFactor=0
Waittime=0
#
#
# SCHEDULING
#DefMemPerCPU=0
#MaxMemPerCPU=0
#SchedulerTimeSlice=30
SchedulerType=sched/backfill
SelectType=select/cons_tres
SelectTypeParameters=CR_Core
#
#
# JOB PRIORITY
```

Key bindings shown at the bottom:

- ^G Get Help
- ^O Write Out
- ^W Where Is
- ^K Cut Text
- ^U Paste Text
- ^J Justify
- ^C Cur Pos
- M-U Undo
- M-A Mark Text
- M-T To Bracket

Other key bindings:

- ^X Exit
- ^R Read File
- ^A Replace
- ^L To Spell
- ^G Go To Line
- M-E Redo
- M-G Copy Text
- M-Q Where Was

System tray icons and status:

- 24PC
- IN
- 12-12-2024
- 12:06

The screenshot shows a terminal window titled "Controller" with the file "slurm.conf" open in the nano editor. The file contains various configuration parameters for the Slurm workload manager. Key sections include "JOB\_PRIORITY", "LOGGING AND ACCOUNTING", and "POWER SAVE SUPPORT FOR IDLE NODES". The terminal interface includes a menu bar at the top and a toolbar at the bottom with standard text editing commands like Get Help, Write Out, Read File, Cut Text, Paste Text, etc.

```
GNU nano 4.8
# JOB_PRIORITY
#PriorityFlags=
#PriorityType=priority/basic
#PriorityDecayHalfLife=
#PriorityCalcPeriod=
#PriorityFavorSmall=
#PriorityMaxAge=
#PriorityUsageResetPeriod=
#PriorityWeightAge=
#PriorityWeightFairshare=
#PriorityWeightJobSize=
#PriorityWeightPartition=
#PriorityWeightQOS=
#
#
# LOGGING AND ACCOUNTING
#AccountingStorageEnforce=0
#AccountingStorageHost=
#AccountingStoragePass=
#AccountingStoragePort=
AccountingStorageType=accounting_storage/slurmdbd
#AccountingStorageUser=
#AccountingStoreFlags=
#JobCompIost=
#JobCompLoc=
#JobCompPass=
#JobCompPort=
JobCompType=jobcomp/none
#JobCompUser=
#JobContainerType=job_container/none
JobAcctGatherFrequency=30
JobAcctGatherType=jobacct_gather/none
SlurmctldDebug=info
SlurmctldLogFile=/var/log/slurmctld.log

^G Get Help      ^O Write Out    ^W Where Is      ^K Cut Text      ^J Justify      ^C Cur Pos      M-U Undo
^X Exit          ^R Read File     ^U Replace       ^P Paste Text    ^T To Spell     ^G Go To Line   M-E Redo
M-A Mark Text    M-G Copy Text   M-] To Bracket  M-Q Where Was

24PC
ENG IN 12-12-2024
```

This screenshot shows another terminal window with the same "Controller" title and "slurm.conf" file content as the first one. The configuration file includes settings for job accounting, power save support, and node definitions. The terminal interface is identical, featuring a menu bar and a toolbar at the bottom.

```
#JobCompPort=
JobCompType=jobcomp/none
#JobCompUser=
#JobContainerType=job_container/none
JobAcctGatherFrequency=30
JobAcctGatherType=jobacct_gather/none
SlurmctldDebug=info
SlurmctldLogFile=/var/log/slurmctld.log
SlurmDebug=info
SlurmdLogFile=/var/log/slurmd.log
#SlurmSchedLogFile=
#SlurmSchedLogLevel=
#DebugFlags=
#
#
# POWER SAVE SUPPORT FOR IDLE NODES (optional)
#SuspendProgram=
#ResumeProgram=
#SuspendTimeout=
#ResumeTimeout=
#ResumeRate=
#SuspendExcNodes=
#SuspendExcParts=
#SuspendRate=
#SuspendTime=
#
#
# COMPUTE NODES
NodeName=controller CPUs=1 State=UNKNOWN
NodeName=compute1 CPUs=1 State=UNKNOWN
NodeName=compute2 CPUs=1 State=UNKNOWN
PartitionName=partition Nodes=ALL Default=YES MaxTime=INFINITE State=up
MailProg=/usr/bin/mail

^G Get Help      ^O Write Out    ^W Where Is      ^K Cut Text      ^J Justify      ^C Cur Pos      M-U Undo
^X Exit          ^R Read File     ^U Replace       ^P Paste Text    ^T To Spell     ^G Go To Line   M-E Redo
M-A Mark Text    M-G Copy Text   M-] To Bracket  M-Q Where Was

24PC
ENG IN 12-12-2024
```

## Install mailutils

apt-get install mailutils

```

selinux/      services      shadow-      snmp/       ssl/        subuid      sudoers.d/
master@controller:~/slurm-21.08.8$ sudo mkdir /etc/slurm
master@controller:~/slurm-21.08.8$ sudo mkdir /etc/slurm-llnl
master@controller:~/slurm-21.08.8$ cd etc
master@controller:~/slurm-21.08.8/etc$ cp slurm.conf.example etc/slurm.conf
cp: cannot create regular file '/etc/slurm.conf': No such file or directory
master@controller:~/slurm-21.08.8/etc$ sudo cp slurm.conf.example etc/slurm.conf
cp: cannot create regular file '/etc/slurm.conf': No such file or directory
master@controller:~/slurm-21.08.8/etc$ sudo cp slurm.conf.example slurm.conf
master@controller:~/slurm-21.08.8/etc$ pwd
/home/master/slurm-21.08.8/etc
master@controller:~/slurm-21.08.8/etc$ sudo nano slurm.conf
master@controller:~/slurm-21.08.8/etc$ sudo apt-get install mailutils
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  guile-2.2-libs libgccl2 libgsasl7 libkyotocabinet16v5 libmailutils6 libntlm0 mailutils-common postfix
Suggested packages:
  mailutils-mh mailutils-doc procmail postfix-mysql postfix-pgsql postfix-ldap postfix-pcre postfix-lmdb postfix-sqlite sasl2-bin
  | dovecot-common resolvconf postfix-cdb postfix-doc
The following NEW packages will be installed:
  guile-2.2-libs libgccl2 libgsasl7 libkyotocabinet16v5 libmailutils6 libntlm0 mailutils mailutils-common postfix
0 upgraded, 9 newly installed, 0 to remove and 0 not upgraded.
Need to get 7,542 kB of archives.
After this operation, 56.3 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us.archive.ubuntu.com/ubuntu focal/main amd64 libgccl2 amd64 1:7.6.4-0.4ubuntu1 [83.9 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu focal/main amd64 guile-2.2-libs amd64 2.2.7+1-4 [4,962 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu focal-updates/universe amd64 libntlm0 amd64 1.5-2ubuntu0.1 [14.7 kB]
Get:4 http://us.archive.ubuntu.com/ubuntu focal/universe amd64 libgsasl7 amd64 1.8.1-1 [114 kB]
Get:5 http://us.archive.ubuntu.com/ubuntu focal/universe amd64 libkyotocabinet16v5 amd64 1.2.76-4.2build1 [318 kB]

```

## Go in to slurm etc and copy or create cgroup.conf file

cp cgroup.conf.example cgroup.conf

```

###
# Slurm cgroup support configuration file
#
# See man slurm.conf and man cgroup.conf for further
# information on cgroup configuration parameters
#--
CgroupAutomount=yes

ConstrainCores=no
ConstrainRAMSpace=no

```

Copy slurm.conf into /etc/slurm and /etc/slurm-llnl

```
sudo cp slurm.conf /etc/slurm  
sudo cp slurm.conf /etc/slurm-llnl
```

### **Copy slurm.conf to compute nodes also**

```
scp slurm.conf master@compute1:/tmp  
scp slurm.conf master@compute2:/tmp
```

### **Copy slurmdbd.conf file or create it and edit it and made following changes**

AuthType=auth/munge

DbdAddr=192.168.82.223

DbdHost=controller

SlurmUser=master

DebugLevel=verbose

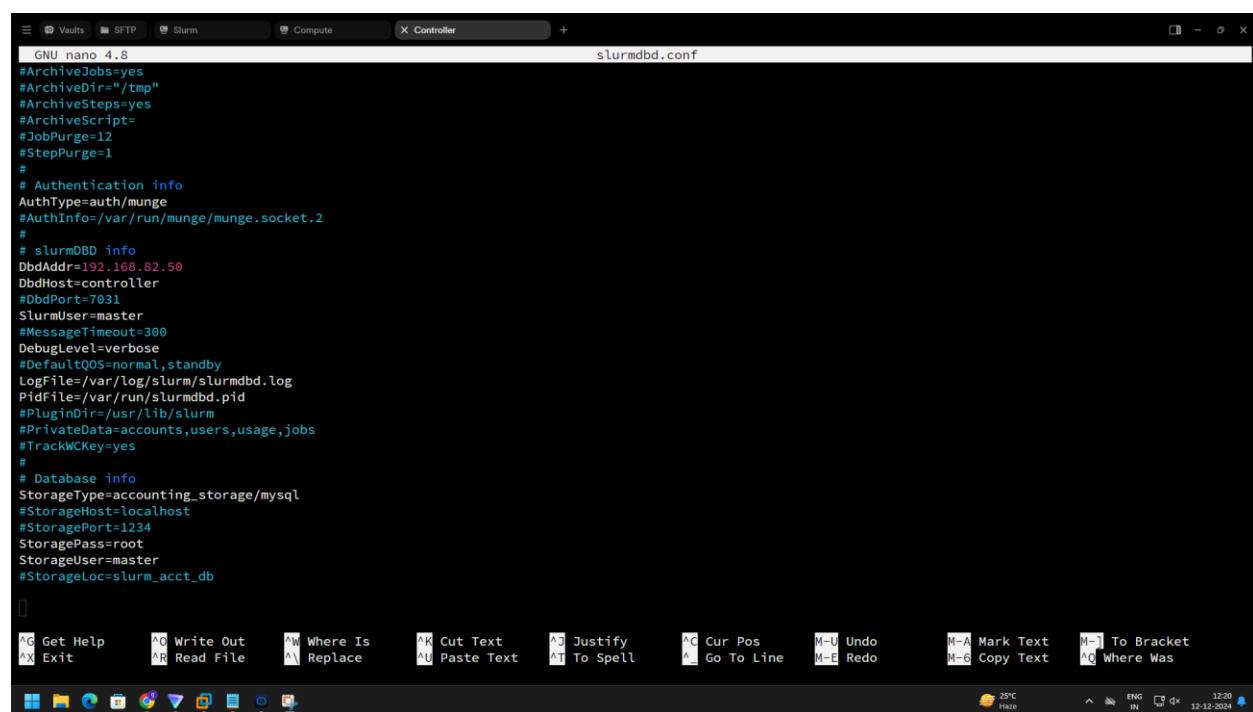
LogFile=/var/log/slurm/slurmdbd.log

PidFile=/var/run/slurmdbd.pid

StorageType=accounting\_storage/mysql

StoragePass=root

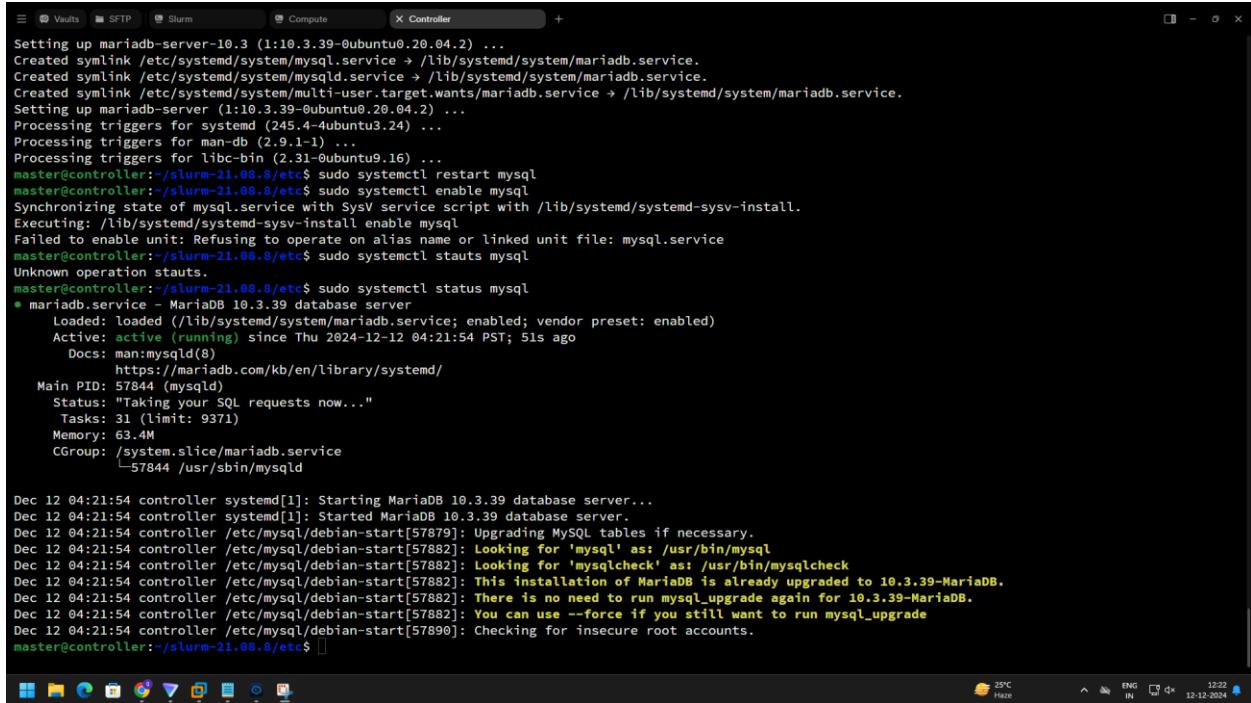
StorageUser=master



```
GNU nano 4.8  
#ArchiveJobs=yes  
#ArchiveDir="/tmp"  
#ArchiveSteps=yes  
#ArchiveScript=  
#JobPurge=12  
#StepPurge=1  
#  
# Authentication info  
AuthType=auth/munge  
#AuthInfo=/var/run/munge/munge.socket.2  
#  
# slurmdBD info  
DbdAddr=192.168.82.50  
DbdHost=controller  
#DbdPort=7031  
SlurmUser=master  
#MessageTimeout=300  
DebugLevel=verbose  
#DefaultQOS=normal,standby  
LogFile=/var/log/slurm/slurmdbd.log  
PidFile=/var/run/slurmdbd.pid  
#PluginDir=/usr/lib/slurm  
#PrivateData=accounts,users,usage,jobs  
#TrackWCKey=yes  
#  
# Database info  
StorageType=accounting_storage/mysql  
#StorageHost=localhost  
#StoragePort=1234  
StoragePass=root  
StorageUser=master  
#StorageLoc=slurm_acct_db
```

## Install mariadb-server start and enable it

```
apt-get install mariadb-server  
sudo systemctl start mysql  
sudo systemctl enable mysql
```



```
Setting up mariadb-server-10.3 (1:10.3.39-0ubuntu0.20.04.2) ...  
Created symlink /etc/systemd/system/mysql.service → /lib/systemd/system/mariadb.service.  
Created symlink /etc/systemd/system/mysqld.service → /lib/systemd/system/mariadb.service.  
Created symlink /etc/systemd/system/multi-user.target.wants/mariadb.service → /lib/systemd/system/mariadb.service.  
Setting up mariadb-server (1:10.3.39-0ubuntu0.20.04.2) ...  
Processing triggers for systemd (245.4-4ubuntu3.24) ...  
Processing triggers for man-db (2.9.1-1) ...  
Processing triggers for libc-bin (2.31-0ubuntu9.16) ...  
master@controller:~/slurm-21.08.8/etc$ sudo systemctl restart mysql  
master@controller:~/slurm-21.08.8/etc$ sudo systemctl enable mysql  
Synchronizing state of mysql.service with SysV service script with /lib/systemd/systemd-sysv-install.  
Executing: /lib/systemd/systemd-sysv-install enable mysql  
Failed to enable unit: Refusing to operate on alias name or linked unit file: mysql.service  
master@controller:~/slurm-21.08.8/etc$ sudo systemctl status mysql  
Unknown operation status.  
master@controller:~/slurm-21.08.8/etc$ sudo systemctl status mysql  
● mariadb.service - MariaDB 10.3.39 database server  
   Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset: enabled)  
   Active: active (running) since Thu 2024-12-12 04:21:54 PST; 51s ago  
     Docs: man:mysqld(8)  
           https://mariadb.com/kb/en/library/systemd/  
 Main PID: 57844 (mysqld)  
    Status: "Taking your SQL requests now..."  
      Tasks: 31 (limit: 9371)  
     Memory: 63.4M  
      CGroup: /system.slice/mariadb.service  
              └─57844 /usr/sbin/mysqld  
  
Dec 12 04:21:54 controller systemd[1]: Starting MariaDB 10.3.39 database server...  
Dec 12 04:21:54 controller systemd[1]: Started MariaDB 10.3.39 database server.  
Dec 12 04:21:54 controller /etc/mysql/debian-start[57879]: Upgrading MySQL tables if necessary.  
Dec 12 04:21:54 controller /etc/mysql/debian-start[57882]: Looking for 'mysql' as: /usr/bin/mysql  
Dec 12 04:21:54 controller /etc/mysql/debian-start[57882]: Looking for 'mysqlcheck' as: /usr/bin/mysqlcheck  
Dec 12 04:21:54 controller /etc/mysql/debian-start[57882]: This installation of MariaDB is already upgraded to 10.3.39-MariaDB.  
Dec 12 04:21:54 controller /etc/mysql/debian-start[57882]: There is no need to run mysql_upgrade again for 10.3.39-MariaDB.  
Dec 12 04:21:54 controller /etc/mysql/debian-start[57882]: You can use --force if you still want to run mysql_upgrade  
Dec 12 04:21:54 controller /etc/mysql/debian-start[57890]: Checking for insecure root accounts.  
master@controller:~/slurm-21.08.8/etc$
```

## Login to mysql and add user and give the permission

```
sudo mysql -u root  
CREATE USER 'master'@'controller' identified by 'root';  
CREATE USER 'master'@'localhost' identified by 'root';  
CREATE USER 'master'@'%' identified by 'root';
```

```
GRANT ALL PRIVILEGES ON *.* TO 'master'@'controller';  
GRANT ALL PRIVILEGES ON *.* TO 'master'@'localhost';  
GRANT ALL PRIVILEGES ON *.* TO 'master'@'%';
```

```
master@controller:~/slurm-21.08.8/etc$ sudo mysql -u root
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 37
Server version: 10.3.39-MariaDB-0ubuntu0.20.04.2 Ubuntu 20.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> CREATE USER 'master'@'controller' identified by 'root';
Query OK, 0 rows affected (0.000 sec)

MariaDB [(none)]> CREATE USER 'master'@'localhost' identified by 'root';
Query OK, 0 rows affected (0.000 sec)

MariaDB [(none)]> CREATE USER 'master'@'%' identified by 'root';
Query OK, 0 rows affected (0.000 sec)

MariaDB [(none)]> GRANT ALL PRIVILEGES ON *.* TO 'master'@'controller';
Query OK, 0 rows affected (0.000 sec)

MariaDB [(none)]> GRANT ALL PRIVILEGES ON *.* TO 'master'@'localhost';
Query OK, 0 rows affected (0.000 sec)

MariaDB [(none)]> GRANT ALL PRIVILEGES ON *.* TO 'master'@'%';
Query OK, 0 rows affected (0.000 sec)

MariaDB [(none)]> exit
Bye
master@controller:~/slurm-21.08.8/etc$
```

## Copy the service files

```
sudo cp slurmctld.service /etc/systemd/system/
sudo cp slurmdbd.service /etc/systemd/system/
sudo cp slurmdbd.service /etc/systemd/system/
```

```
sudo mkdir /var/spool/slurmctld
```

## Add the paths in /etc/bash.bashrc

```
nano /etc/bash.bashrc
export PATH="/home/master/slurm-21.08.8/bin/:$PATH"
export PATH="/home/master/slurm-21.08.8/sbin/:$PATH"
export LD_LIBRARY_PATH="/home/master/slurm-21.08.8/lib/:$LD_LIBRARY_PATH"
```

```

# sudo hint
if [ ! -e "$HOME/.sudo_as_admin_successful" ] && [ ! -e "$HOME/.hushlogin" ] ; then
    case "$groups" in
        *\:admin\:*|*\ sudo\*)
            if [ -x /usr/bin/sudo ]; then
                cat <<-EOF
                To run a command as administrator (user "root"), use "sudo <command>".
                See "man sudo_root" for details.
                EOF
            fi
        esac
    fi

# if the command-not-found package is installed, use it
if [ -x /usr/lib/command-not-found -o -x /usr/share/command-not-found/command-not-found ]; then
    function command_not_found_handle {
        # check because c-n-f could've been removed in the meantime
        if [ -x /usr/lib/command-not-found ]; then
            /usr/lib/command-not-found -- "$1"
            return $?
        elif [ -x /usr/share/command-not-found/command-not-found ]; then
            /usr/share/command-not-found/command-not-found -- "$1"
            return $?
        else
            printf "%s: command not found\n" "$1" >&2
            return 127
        fi
    }
fi

export PATH="/home/master/slurm-21.08.8/bin/:$PATH"
export PATH="/home/master/slurm-21.08.8/sbin/:$PATH"
export LD_LIBRARY_PATH="/home/master/slurm-21.08.8/lib/:$LD_LIBRARY_PATH"

```

## Restart the services

Sudo systemctl restart munge  
 Sudo systemctl restart slurmrd  
 Sudo systemctl restart slurmcld  
 Sudo systemctl restart dbd

## Enable the servies

Sudo systemctl enable munge  
 Sudo systemctl enable slurmrd  
 Sudo systemctl enable slurmcld  
 Sudo systemctl enable slurldbdb

## On Compute

### Copy munge key from tmp to slurm etc

cp -r /tmp/munge.key /etc/munge/

chown -R munge: /etc/munge /var/log/munge

chmod 0700 /etc/munge /var/log/munge

systemctl enable munge  
 systemctl start munge  
 systemctl status munge

### Copy slurm.conf from tmp to slurm etc

```
cp -r /tmp/slurm.conf /home/compute1/slurm-21.08.8/etc/
cp -r /tmp/slurm.conf /home/compute2/slurm-21.08.8/etc/
mkdir /etc/slurm
cp -r /tmp/slurm.conf /etc/slurm/
mkdir /etc/slurm-llnl
Cp -r /tmp/slurm.conf /etc/slurm-llnl/
```

### Then stop the firewall

```
systemctl stop ufw
iptables -F
```

### Copy slurm service files

```
cp slurmd.service /etc/systemd/system
```

### Copy cgroup.conf to slurm etc

```
cp /tmp/cgroup.conf .
```

### Start the services

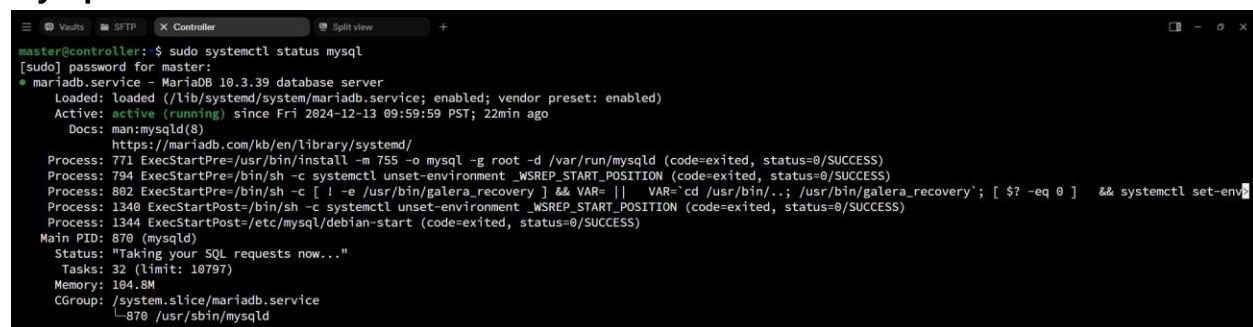
```
Sudo systemctl start munge
Sudo systemctl start slurmd
```

### Enable the services

```
Sudo systemctl enable munge
Sudo systemctl enable slurmd
```

## Output on Compute:

### Mysql service:



```
master@controller:~$ sudo systemctl status mysql
[sudo] password for master:
● mariadb.service - MariaDB 10.3.39 database server
  Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset: enabled)
  Active: active (running) since Fri 2024-12-13 09:59:59 PST; 22min ago
    Docs: man:mysqld(8)
          https://mariadb.com/kb/en/library/systemd/
   Process: 771 ExecStartPre=/usr/bin/install -m 755 -o mysql -g root -d /var/run/mysql (code=exited, status=0/SUCCESS)
   Process: 794 ExecStartPre=/bin/sh -c systemctl unset-environment _WSREP_START_POSITION (code=exited, status=0/SUCCESS)
   Process: 802 ExecStartPre=/bin/sh -c [ ! -e /usr/bin/galera_recovery ] && VAR=|| VAR=cd /usr/bin/.; /usr/bin/galera_recovery'; [ $? -eq 0 ] && systemctl set-envi
   Process: 1340 ExecStartPost=/bin/sh -c systemctl unset-environment _WSREP_START_POSITION (code=exited, status=0/SUCCESS)
   Process: 1344 ExecStartPost=/etc/mysql/debian-start (code=exited, status=0/SUCCESS)
 Main PID: 870 (mysqld)
   Status: "Taking your SQL requests now..."
      Tasks: 32 (limit: 10797)
     Memory: 104.8M
      CGroup: /system.slice/mariadb.service
              └─870 /usr/sbin/mysqld
```

### Munge service:

```

master@controller:~$ sudo systemctl status munge
● munge.service - MUNGE authentication service
  Loaded: loaded (/lib/systemd/system/munge.service; enabled; vendor preset: enabled)
  Active: active (running) since Fri 2024-12-13 09:59:54 PST; 23min ago
    Docs: man:munged(8)
 Process: 773 ExecStart=/usr/sbin/munged (code=exited, status=0/SUCCESS)
 Main PID: 797 (munged)
   Tasks: 4 (limit: 10797)
  Memory: 1.7M
    CGroup: /system.slice/munge.service
           └─797 /usr/sbin/munged

Dec 13 09:59:54 controller systemd[1]: Starting MUNGE authentication service...
Dec 13 09:59:54 controller systemd[1]: Started MUNGE authentication service.

```

### Slurmd service:

```

master@controller:~$ sudo systemctl status slurmd
● slurmd.service - Slurm node daemon
  Loaded: loaded (/etc/systemd/system/slurmd.service; disabled; vendor preset: enabled)
  Active: active (running) since Fri 2024-12-13 10:00:57 PST; 23min ago
    Main PID: 2049 (slurmd)
      Tasks: 1
     Memory: 5.7M
      CGroup: /system.slice/slurmd.service
             └─2049 /home/master/slurm-21.08.8/sbin/slurmd -D -s

Dec 13 10:00:57 controller systemd[1]: Started Slurm node daemon.
Dec 13 10:00:57 controller slurmd[2049]: slurmd: slurmd version 21.08.8 started
Dec 13 10:00:58 controller slurmd[2049]: slurmd: slurmd started on Fri, 13 Dec 2024 10:00:58 -0800
Dec 13 10:00:58 controller slurmd[2049]: slurmd: CPUs=1 Boards=1 Sockets=1 Cores=1 Threads=1 Memory=9089 TmpDisk=199995 Uptime=75 CPUSpecList=(null) FeaturesAvail=(null) F

```

### Slurmctld service:

```

master@controller:~$ sudo systemctl status slurmctld
● slurmctld.service - Slurm controller daemon
  Loaded: loaded (/etc/systemd/system/slurmctld.service; disabled; vendor preset: enabled)
  Active: active (running) since Fri 2024-12-13 10:01:11 PST; 23min ago
    Main PID: 2056 (slurmctld)
      Tasks: 18
     Memory: 7.3M
      CGroup: /system.slice/slurmctld.service
             ├─2056 /home/master/slurm-21.08.8/sbin/slurmctld -D -s
             └─2057 slurmctld: slurmscriptd

Dec 13 10:01:11 controller systemd[1]: Started Slurm controller daemon.
Dec 13 10:01:11 controller slurmctld[2056]: slurmctld: No memory enforcing mechanism configured.
Dec 13 10:01:11 controller slurmctld[2056]: slurmctld: No parameter for mcs plugin, default values set
Dec 13 10:01:11 controller slurmctld[2056]: slurmctld: mcs: MCSParameters = (null). ondemand set.
Dec 13 10:01:14 controller slurmctld[2056]: slurmctld: SchedulerParameters=default_queue_depth=100,max_rpc_cnt=0,max_sched_time=2,partition_job_depth=0,sched_max_job_start=0

```

### Slurmdbd service:

```

master@controller:~$ sudo systemctl status slurmdbd
● slurmdbd.service - Slurm DBD accounting daemon
  Loaded: loaded (/etc/systemd/system/slurmdbd.service; disabled; vendor preset: enabled)
  Active: active (running) since Fri 2024-12-13 10:01:19 PST; 26min ago
    Main PID: 2085 (slurmdbd)
      Tasks: 6
     Memory: 5.7M
      CGroup: /system.slice/slurmdbd.service
             └─2085 /home/master/slurm-21.08.8/sbin/slurmdbd -D -s

Dec 13 10:01:19 controller systemd[1]: Started Slurm DBD accounting daemon.
Dec 13 10:01:19 controller slurmdbd[2085]: (null): _log_int: Unable to open logfile '/var/log/slurm/slurmdbd.log': No such file or directory
Dec 13 10:01:19 controller slurmdbd[2085]: WARNING: MYSQL_OPT_RECONNECT is deprecated and will be removed in a future version.
Dec 13 10:01:19 controller slurmdbd[2085]: slurmdbd: accounting_storage/as_mysql: _check_mysql_concat_is_sane: MySQL server version is: 5.5.5-10.3.39-MariaDB-0ubuntu0.20.6

```

### Sinfo and scontrol ping:

```

master@controller:~$ sinfo
PARTITION AVAIL  TIMELIMIT  NODES  STATE NODELIST
partition*   up    infinite      3  idle  compute[1-2],controller
master@controller:~$ scontrol ping
Slurmctld(primary) at controller is UP
master@controller:~$ 

```

## Output of Compute nodes

## Service munge:

```
Compute_1
master@compute1:~$ sudo systemctl status munge
● munge.service - MUNGE authentication service
  Loaded: loaded (/lib/systemd/system/munge.service; enabled; vendor preset: en
  Active: active (running) since Fri 2024-12-13 09:56:58 PST; 32min ago
    Docs: man:munged(8)
    Main PID: 790 (munged)
      Tasks: 4 (limit: 10797)
     Memory: 1.5M
      CGroup: /system.slice/munge.service
             └─790 /usr/sbin/munged

Dec 13 09:56:58 compute1 systemd[1]: Starting MUNGE authentication service...
Dec 13 09:56:58 compute1 systemd[1]: Started MUNGE authentication service.
master@compute1:~$ 

Compute_2
master@compute2:~$ sudo systemctl status munge
● munge.service - MUNGE authentication service
  Loaded: loaded (/lib/systemd/system/munge.service; enabled; vendor preset: en
  Active: active (running) since Fri 2024-12-13 09:57:02 PST; 32min ago
    Docs: man:munged(8)
    Main PID: 790 (munged)
      Tasks: 4 (limit: 10797)
     Memory: 1.5M
      CGroup: /system.slice/munge.service
             └─790 /usr/sbin/munged

Dec 13 09:57:02 compute2 systemd[1]: Starting MUNGE authentication service...
Dec 13 09:57:02 compute2 systemd[1]: Started MUNGE authentication service.
master@compute2:~$ 
```

## Service slurmd:

```
Compute_1
master@compute1:~$ sudo systemctl status slurmd
● slurmd.service - Slurm node daemon
  Loaded: loaded (/etc/systemd/system/slurmd.service; disabled; vendor preset: en
  Active: active (running) since Fri 2024-12-13 10:02:29 PST; 28min ago
    Docs: man:slurmd(8)
    Main PID: 1406 (slurmd)
      Tasks: 1
     Memory: 5.8M
      CGroup: /system.slice/slurmd.service
             └─1406 /home/master/slurm-21.08.8/sbin/slurmd -D -s

Dec 13 10:02:29 compute1 systemd[1]: Started Slurm node daemon.
Dec 13 10:02:30 compute1 slurmd[1406]: slurmd: slurmd version 21.08.8 started
Dec 13 10:02:30 compute1 slurmd[1406]: slurmd: slurmd started on Fri, 13 Dec 2024
Dec 13 10:02:30 compute1 slurmd[1406]: slurmd: CPUs=1 Boards=1 Sockets=1 Cores=1 T
master@compute1:~$ 

Compute_2
master@compute2:~$ sudo systemctl status slurmd
● slurmd.service - Slurm node daemon
  Loaded: loaded (/etc/systemd/system/slurmd.service; disabled; vendor preset: en
  Active: active (running) since Fri 2024-12-13 10:02:30 PST; 28min ago
    Docs: man:slurmd(8)
    Main PID: 1411 (slurmd)
      Tasks: 1
     Memory: 5.8M
      CGroup: /system.slice/slurmd.service
             └─1411 /home/master/slurm-21.08.8/sbin/slurmd -D -s

Dec 13 10:02:30 compute2 systemd[1]: Started Slurm node daemon.
Dec 13 10:02:30 compute2 slurmd[1411]: slurmd: slurmd version 21.08.8 started
Dec 13 10:02:30 compute2 slurmd[1411]: slurmd: slurmd started on Fri, 13 Dec 2024
Dec 13 10:02:30 compute2 slurmd[1411]: slurmd: CPUs=1 Boards=1 Sockets=1 Cores=1 T
master@compute2:~$ 
```