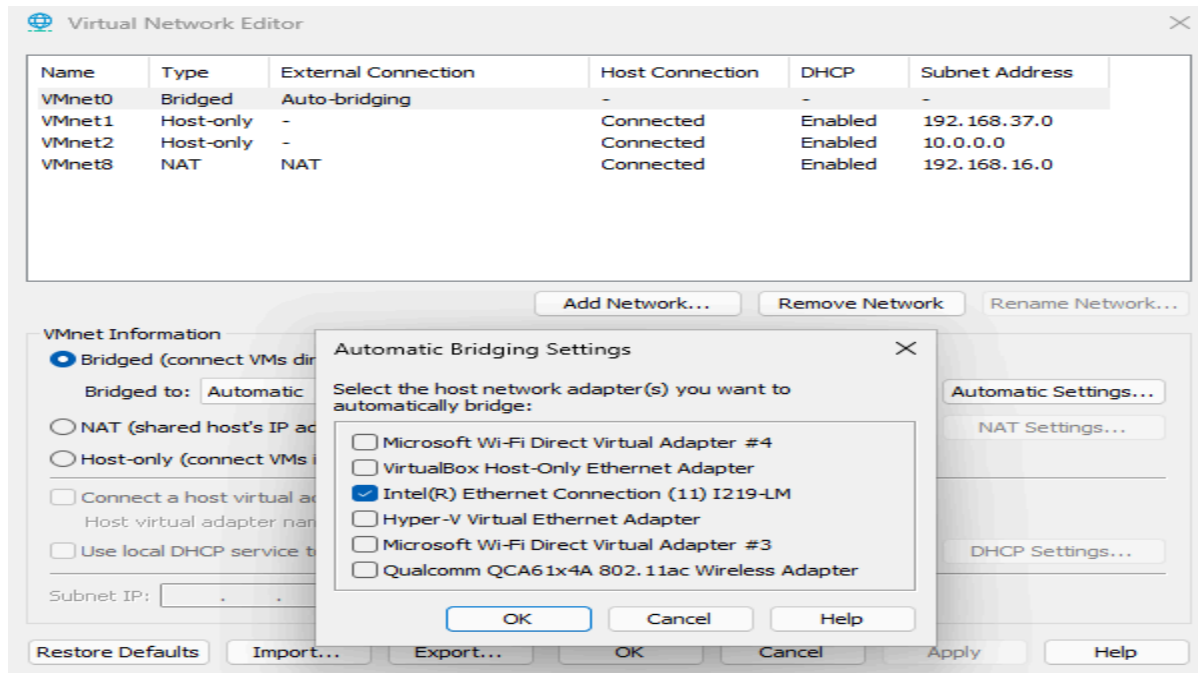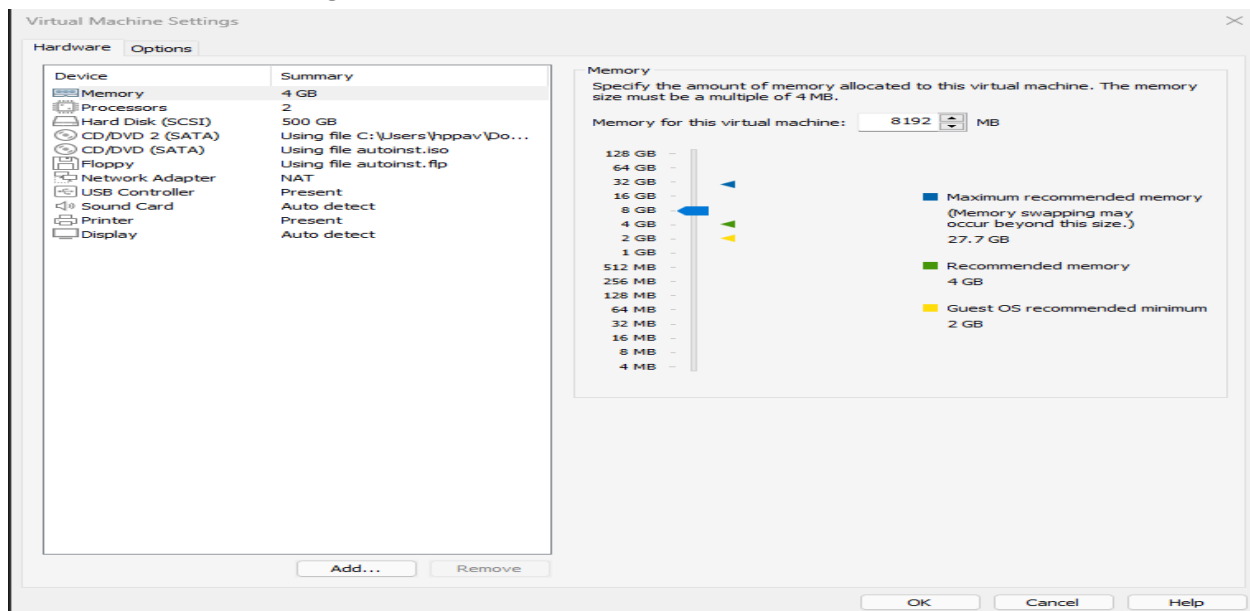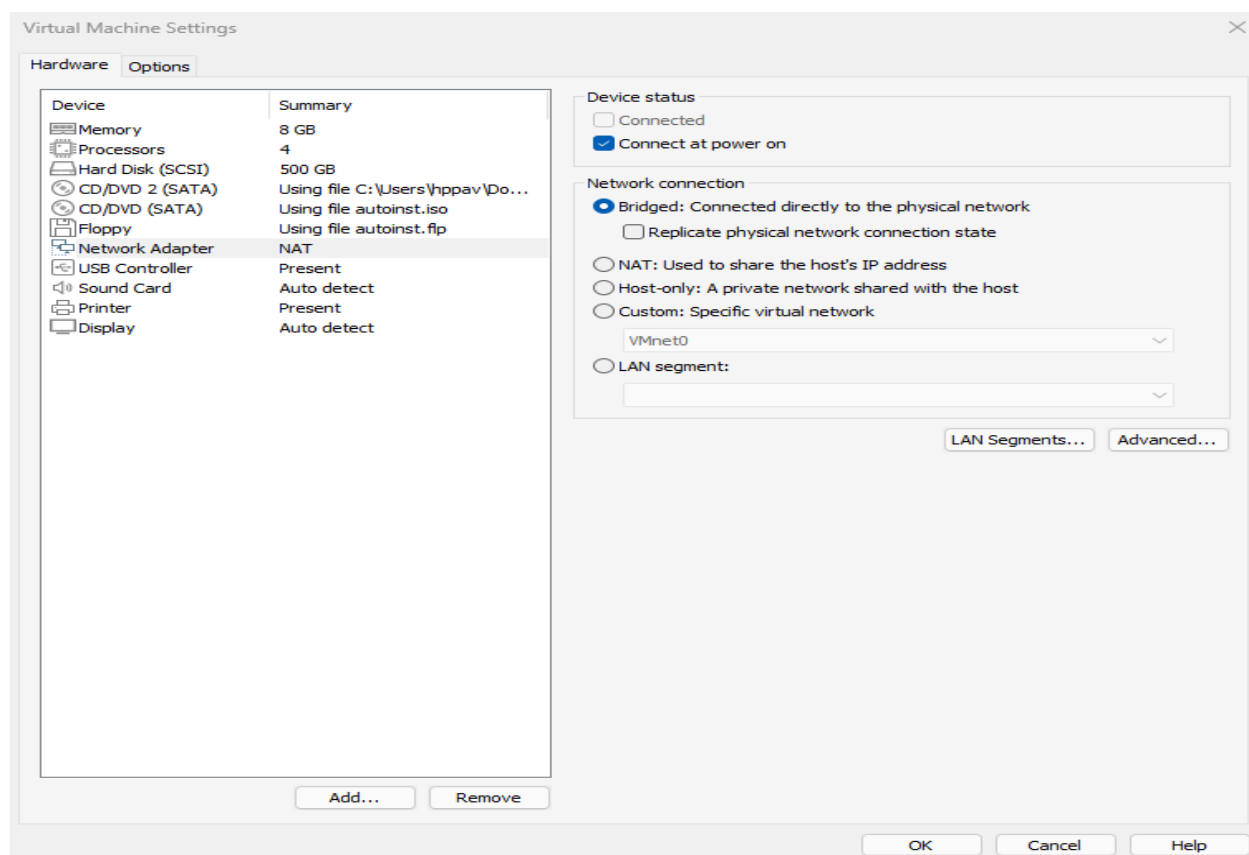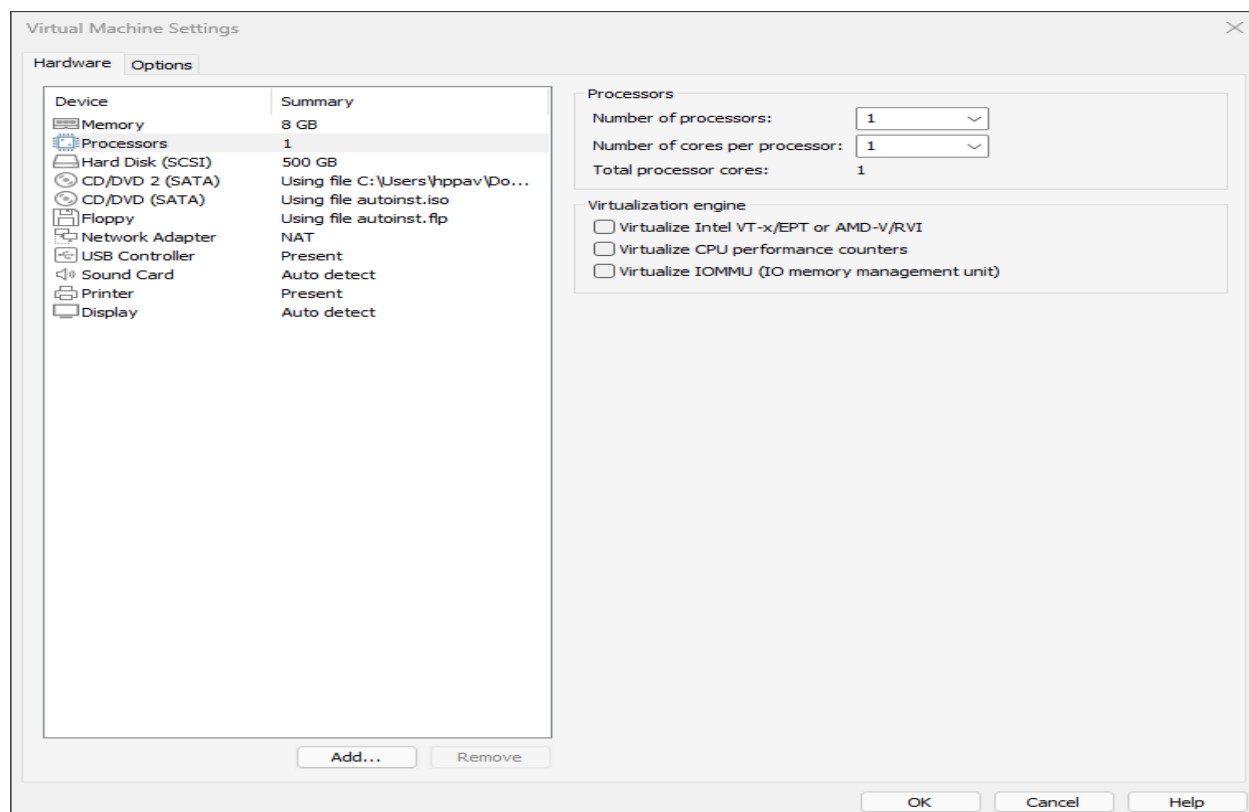# Assignment 1
Gaurav Chaudhari
240840127033

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

Virtual Machine Settings

Hardware | Options

Device	Summary
Memory	8 GB
Processors	1
Hard Disk (SCSI)	500 GB
CD/DVD 2 (SATA)	Using file C:\Users\hppav\Do...
CD/DVD (SATA)	Using file autoinst.iso
Floppy	Using file autoinst.flp
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

Processors

Number of processors: 1 ▾

Number of cores per processor: 1 ▾

Total processor cores: 1

Virtualization engine

☐ Virtualize Intel VT-x/EPT or AMD-V/RVI

☐ Virtualize CPU performance counters

☐ Virtualize IOMMU (IO memory management unit)

Add...   Remove

OK   Cancel   Help

Virtual Machine Settings

Hardware | Options

Device	Summary
Memory	8 GB
Processors	4
Hard Disk (SCSI)	500 GB
CD/DVD 2 (SATA)	Using file C:\Users\hppav\Do...
CD/DVD (SATA)	Using file autoinst.iso
Floppy	Using file autoinst.flp
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

Device status

☐ Connected

☑ Connect at power on

Network connection

◉ Bridged: Connected directly to the physical network

   ☐ Replicate physical network connection state

○ NAT: Used to share the host's IP address

○ Host-only: A private network shared with the host

○ Custom: Specific virtual network

   VMnet0 ▾

○ LAN segment:

   ▾

LAN Segments...   Advanced...

Add...   Remove

OK   Cancel   Help

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

```
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.82.50  netmask 255.255.255.0  broadcast 192.168.82.25
5
        inet6 fe80::e786:2879:92f4:58cf  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:78:f3:29  txqueuelen 1000  (Ethernet)
        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  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        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
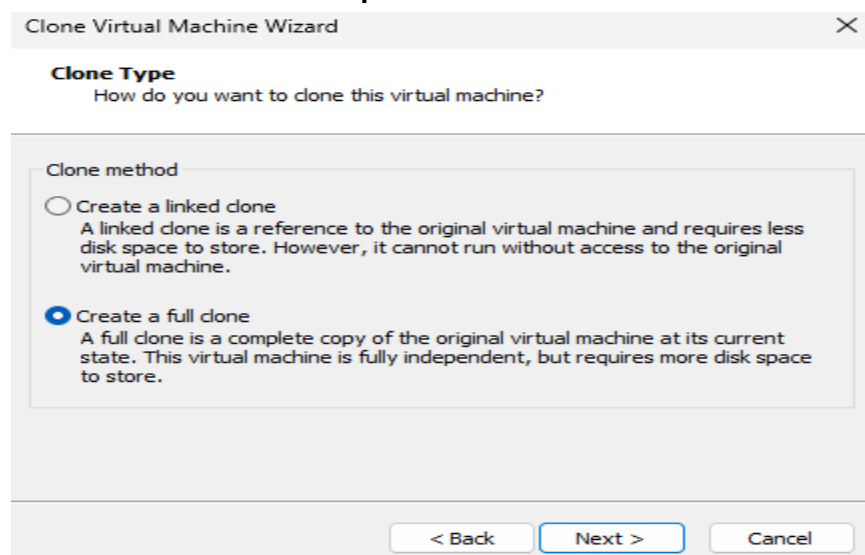
Copy ip address of compute machines and set hostname for that
Compute1 ip address : 192.168.82.157
Compute2 ip address : 192.168.82.210
sudo hostnamectl set-hostname compute1
sudo hostnamectl set-hostname compute2
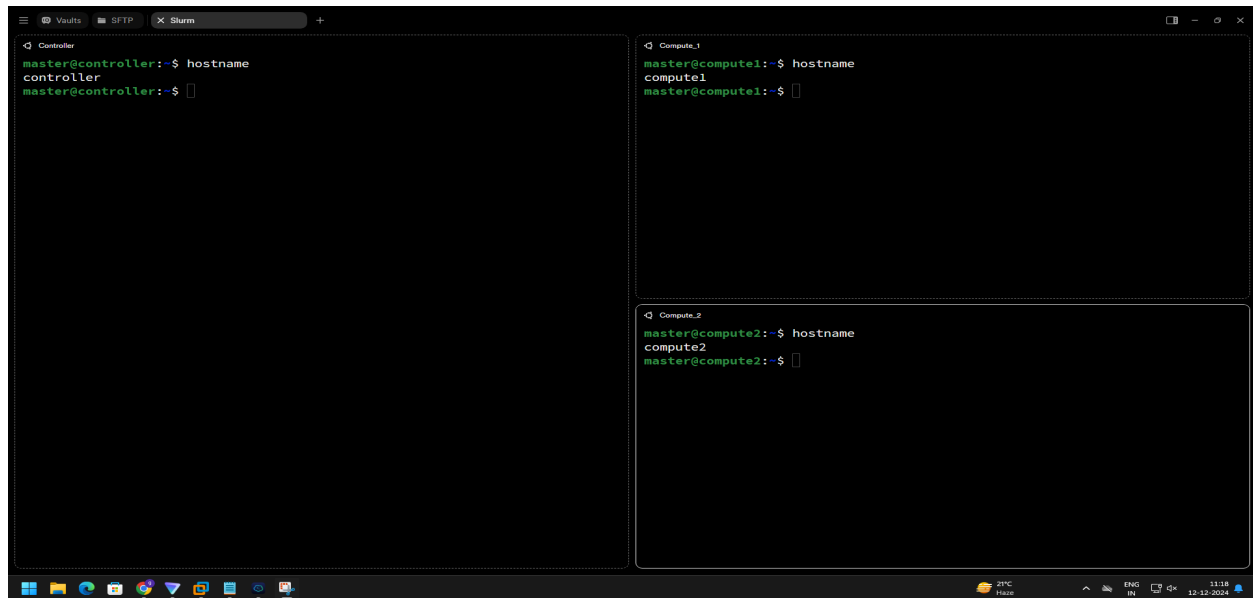
Ssh all machines from termius
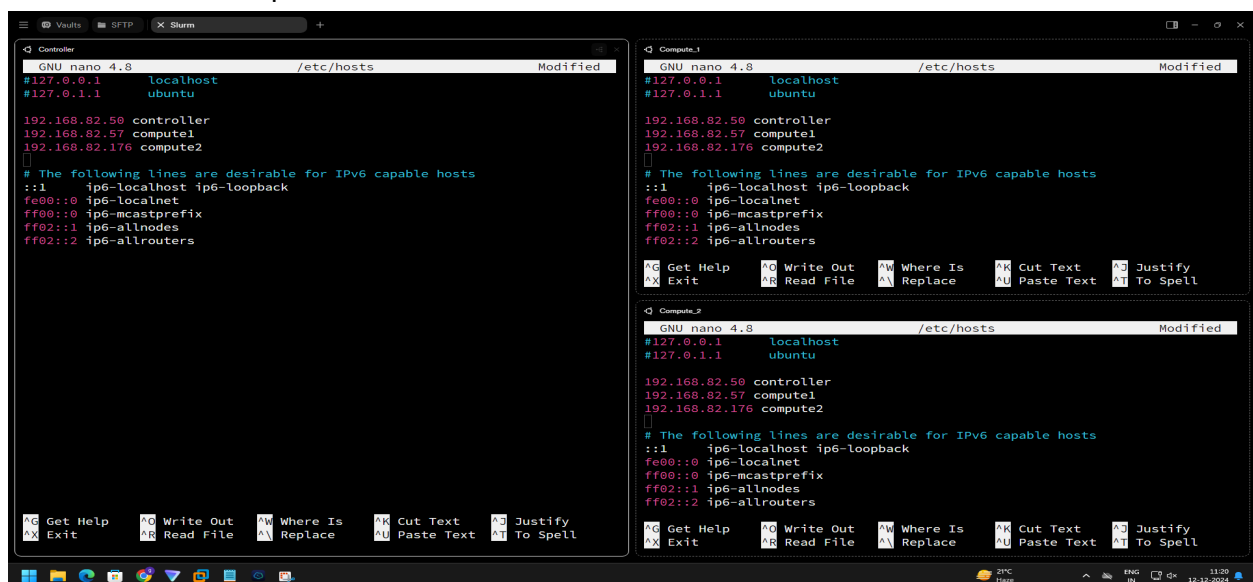
Edit /etc/hosts file
sudo nano /etc/hosts
192.168.82.233 controller
192.168.82.157 compute1
192.168.82.210 compute2
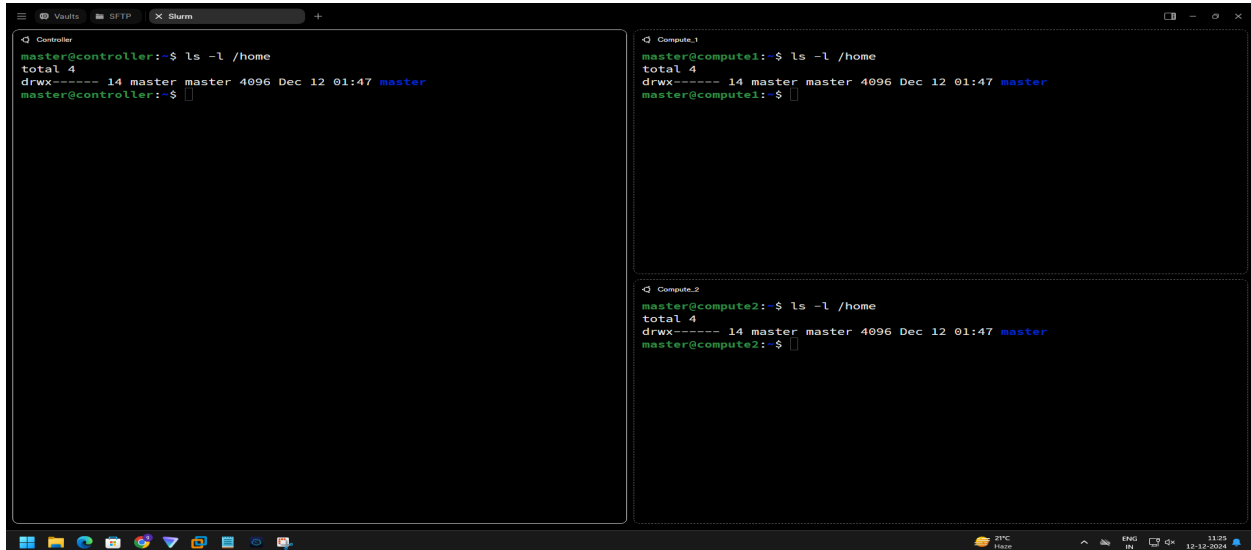
reboot the system and start slurm installation

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

chown master:master /home/master

chmod 700 /home/master
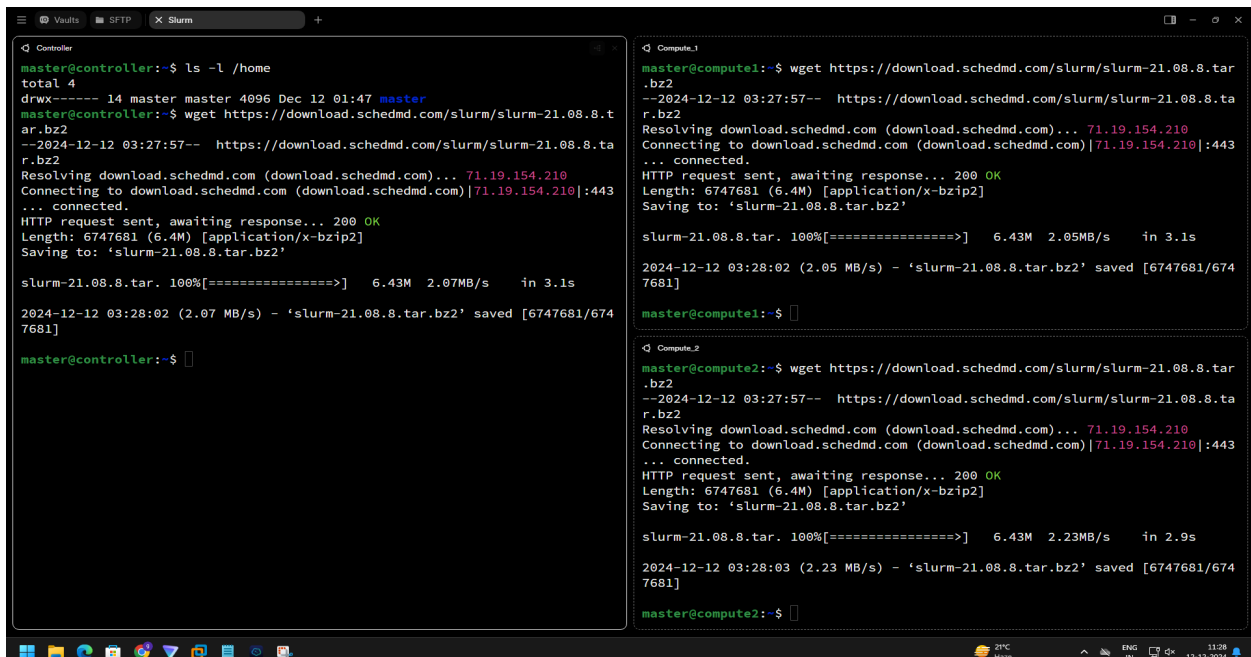
Common steps for controller and compute

Download slurm:

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

Install required libraries and dependencies

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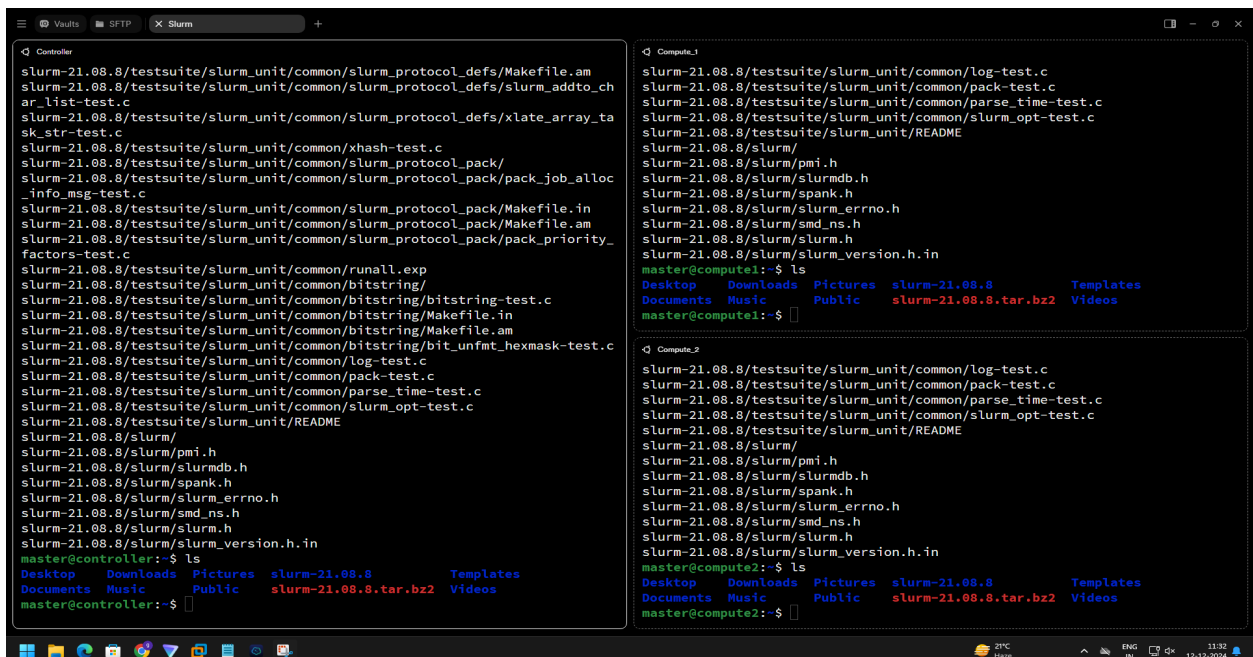

Unzip already downloaded slurm file

tar -xvjf slurm-21.08.8.tar.bz2 slurm-21.08.8/

cd slurm-21.08.8
./configure --prefix=/home/master/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 ower 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

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

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

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

```
#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=
```

```
#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
```

```
# 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=
#JobCompHost=
#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     M-A Mark Text   M-] To Bracket
^X Exit        ^R Read File    ^\ Replace    ^U Paste Text  ^T To Spell    ^_ Go To Line  M-E Redo     M-G Copy Text   ^Q Where Was
```

```
#JobCompPort=
JobCompType=jobcomp/none
#JobCompUser=
#JobContainerType=job_container/none
JobAcctGatherFrequency=30
JobAcctGatherType=jobacct_gather/none
SlurmctldDebug=info
SlurmctldLogFile=/var/log/slurmctld.log
SlurmdDebug=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     M-A Mark Text   M-] To Bracket
^X Exit        ^R Read File    ^\ Replace    ^U Paste Text  ^T To Spell    ^_ Go To Line  M-E Redo     M-G Copy Text   ^Q Where Was
```

Install mailutils

apt-get install mailutils

selinux/   services   shadow-   snmp/   ssl/   subuid   sudoers.d/
master@controller:~/slurm-21.08.8$ sudo mkdir /etc/s
sane.d/   sensors3.conf   sgml/   shells   speech-dispatcher/ subgid   subuid-
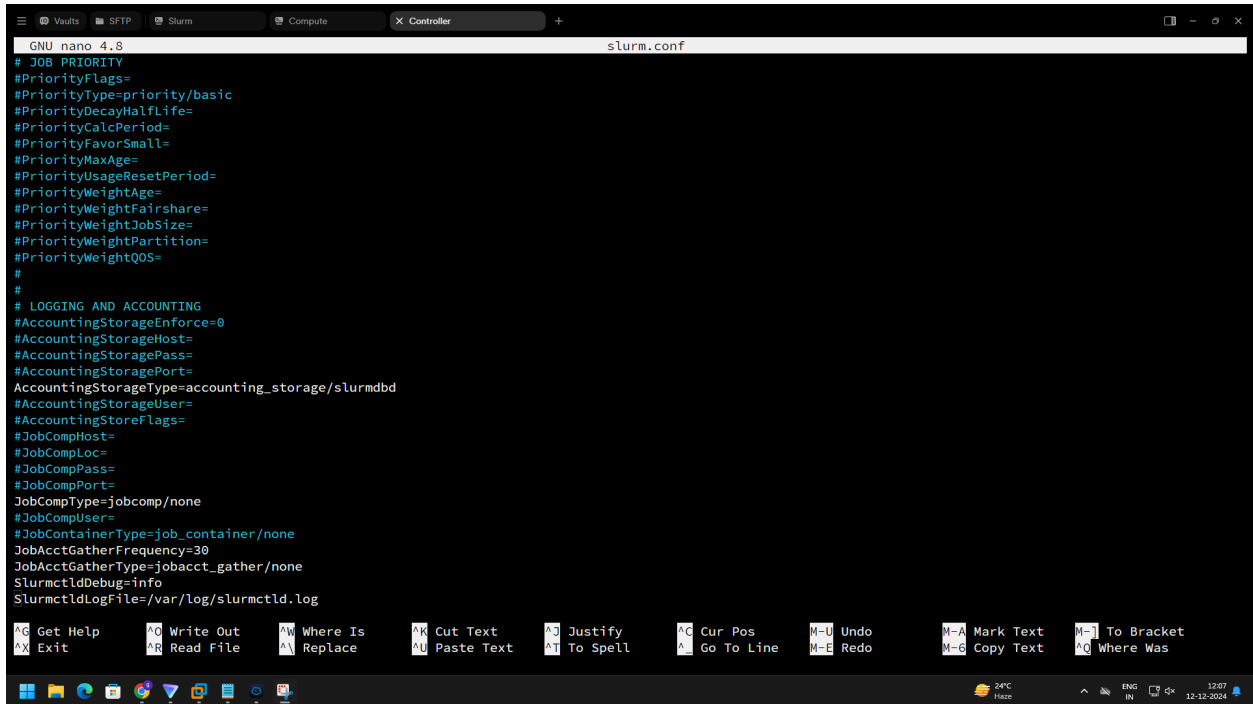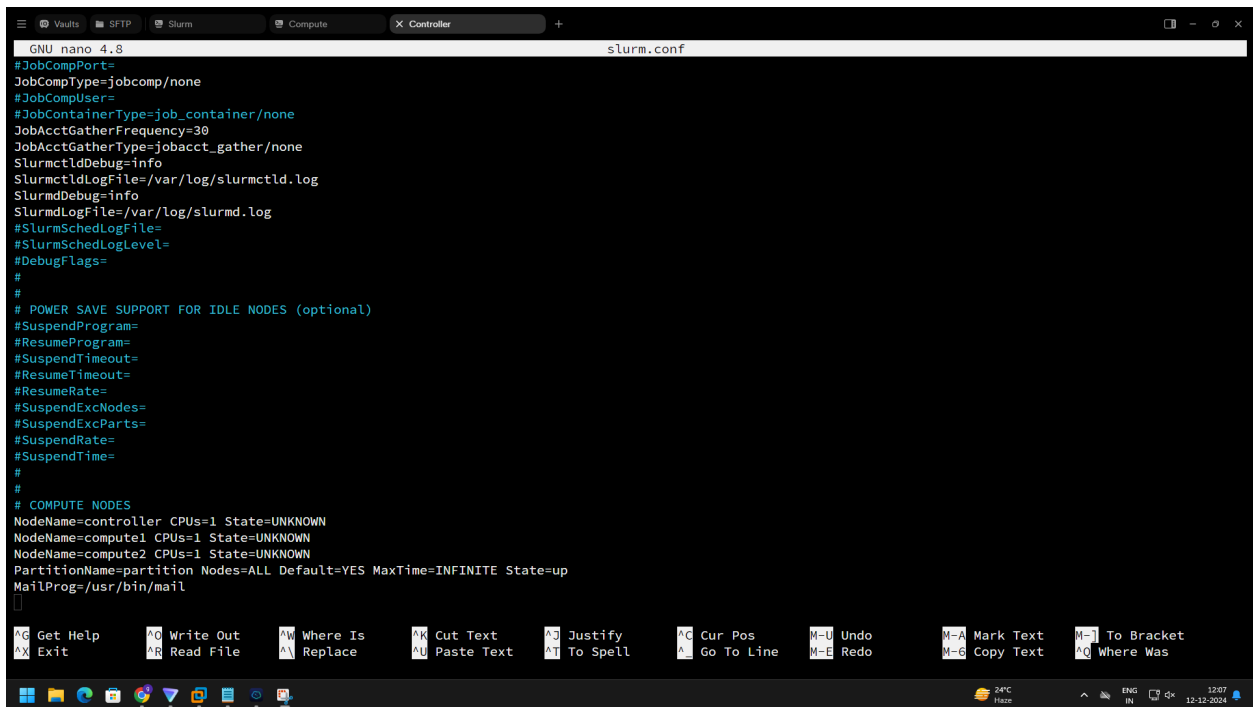security/   sensors.d/   shadow   skel/   ssh/   subgid-   sudoers
selinux/   services   shadow-   snmp/   ssl/   subuid   sudoers.d/
master@controller:~/slurm-21.08.8$ sudo mkdir /etc/slurm
master@controller:~/slurm-21.08.8$ sudo mkdir /etc/slurm-llnl
master@controller:~/slurm-21.08.8$ sudo mkdir /etc/slurmsudo mkdir /etc/slurm-llnl^C
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 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 libgc1c2 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 libgc1c2 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 libgc1c2 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


```
GNU nano 4.8                                        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
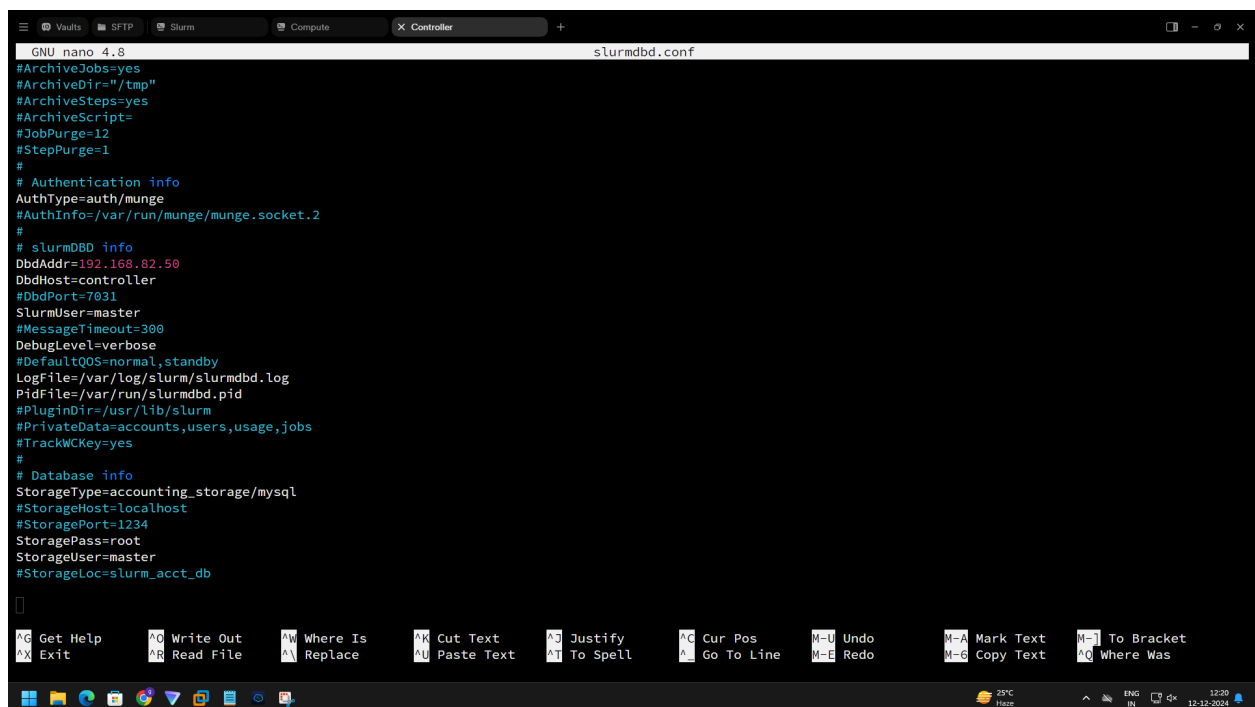
LogFile=/var/log/slurm/slurmdbd.log
PidFile=/var/run/slurmdbd.pid

StorageType=accounting_storage/mysql

StoragePass=root
StorageUser=master

Install mariadb-server start and enable it
apt-get install mariadb-server
sudo systemctl start mysql
sudo systemctl enable mysql

Login to mysql and add user and give the permession
sudo mysql -u root
CREATE USER 'root'@'controller' identified by 'root';
CREATE USER 'root'@'localhost' identified by 'root';
CREATE USER 'root'@'%' identified by 'root';

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

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

sudo mkdir /var/spool/slurmctld
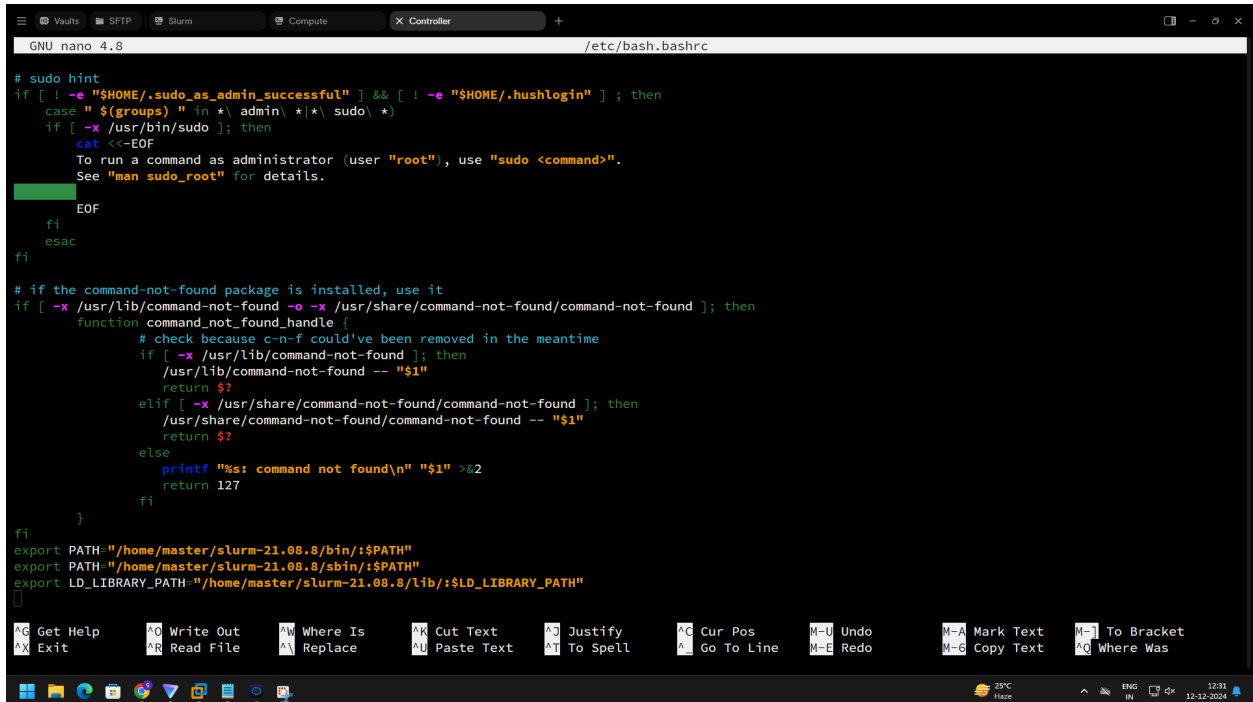
Add the paths in /etc/bash.bashrc
nano /etc/bash.bashrc
export PATH="/home/master/slurm-21.08.8/bin/:$PATH"
export PATH="/home/master/slurm-21.08.8/sbin/:$PATH"
export LD_LIBRARY_PATH="/home/master/slurm-21.08.8/lib/:$LD_LIBRARY_PATH"

```
GNU nano 4.8                                          /etc/bash.bashrc

# 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"

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

Restart the services
Sudo systemctl restart munge
Sudo systemctl restart slrumd
Sudo systemctl restart slurmctld
Sudo systemctl restart dbd

Enable the servies
Sudo sytemctl enable munge
Sudo systemctl enable slurmd
Sudo systemctl enable slurmctld
Sudo systemctl enable slurldbd

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:

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>
```

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_init: 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-0ubuntu0.20.0>
```

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: >
     Active: active (running) since Fri 2024-12-13 10:02:29 PST; 28min ago
   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: >
     Active: active (running) since Fri 2024-12-13 10:02:30 PST; 28min ago
   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:~$
```