Oracle 19c Installation on Linux with ASM in Standalone database

Installation oracle Linux 7.9 (OLE7.9.iso)

Steps

1 **Prerequisites**
2 **Configure Oracle ASM**
3 **Install Grid Software**
4 **Configure ASM Diskgroups**
5 **Install Oracle Software**
6 **DBCA Create Database on ASM**

Step1 . Prerequisites

Connect to OEL 7.9 server via putty and install the below packages
##Root
yum install -y oracle-database-preinstall-19c
yum -y install oracleasm*
yum -y install kmod-oracleasm*

Add below OS groups
##Root
groupadd -g 54327 asmdba
groupadd -g 54328 asmoper
groupadd -g 54329 asmadmin

Add asmdba as secondary group to Oracle user

usermod -a -G asmdba oracle

Create Grid User

useradd -u 54331 -g oinstall -G dba,asmdba,asmoper,asmadmin,racdba grid

Change the password for Oracle and Grid user

passwd oracle
passwd grid

Create the Directories for Oracle Database installation

mkdir -p /u01/app/oracle

mkdir -p /u01/app/oracle/product/19/db

chown -R oracle:oinstall /u01

Create the Directories for Oracle Grid installation

mkdir -p /u01/app/grid/product/19/grid

chown -R grid:oinstall /u01/app/grid

chmod -R   775 /u01

Step2. Configure Oracle ASM

Let us configure Oracle ASM

oracleasm configure -i

Default user to own the driver interface []: grid
Default group to own the driver interface []: oinstall
Start Oracle ASM library driver on boot (y/n) [n]: y
Scan for Oracle ASM disks on boot (y/n): y
Writing Oracle ASM library driver configuration: done

Load / initiate Oracle ASM

oracleasm init

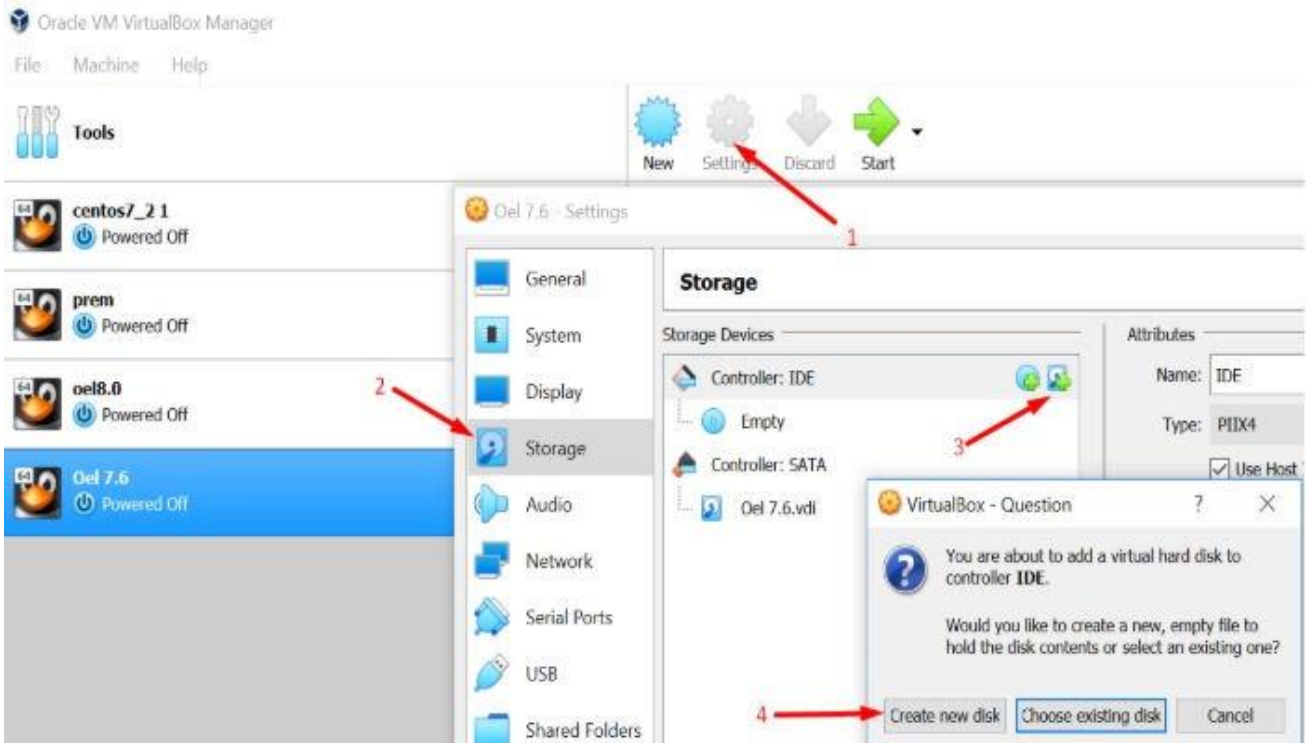
Creating /dev/oracleasm mount point: /dev/oracleasm
Loading module “oracleasm”: oracleasm
Configuring “Oracleasm” to use device physical block size
Mounting ASMlib driver filesystem: /dev/oracleasm

init 0

Add 30GB Harddisk

Add 30 GB HDD to virtual machine which we will use to create 3 partitions of 10 GB each for our ASM disks. Open Virtual machine >> Settings >> Storage >> Controller: SATA >> Create new disk

Fixed allocation.



Click Next >> Next >> Give size 30 GB >> Click on Create

Start virtual machine and login as root user to format the newly added disk

fdisk -l

In the above output the **/dev/sdb** is not yet formatted. Let's create 3 partitions on sdb

fdisk /dev/sdb

n --> to create new partition
<enter>
<enter>
<enter>
+10G
n
<enter>
<enter>
<enter>
+10G
n
<enter>
<enter>
<enter>
<enter>

w --> to save partition table

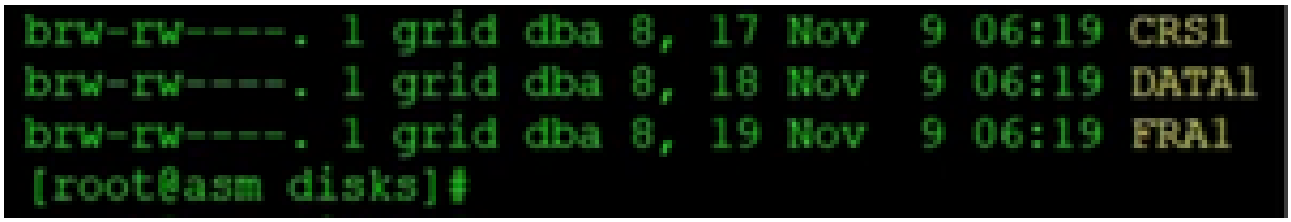
step3. Create separate ASM Disk for each partition

oracleasm createdisk GRID_DG /dev/sdb1
oracleasm createdisk P9494_DG1 /dev/sdb2
oracleasm createdisk P9494_DG_FLASH /dev/sdb3

To check asm disks

oracleasm listdisks

ls -lrt /dev/oracleasm/disks



Step4. Install Grid Software

Edit Grid user Bash_Profile but take .bash_profile backup before editing it

From grid user
su – grid
cd $HOME
cp .bash_profile .bash_profile.orig

vi .bash_profile

Paste below contents
if [-f ~/.bashrc]; then
. ~/.bashrc
fi
ORACLE_SID=+ASM; export ORACLE_SID
ORACLE_BASE=/u01/app/grid; export ORACLE_BASE
ORACLE_HOME=/u01/app/grid/product/19.3.0/grid_home; export ORACLE_HOME
ORACLE_TERM=xterm; export ORACLE_TERM
JAVA_HOME=/usr/bin/java; export JAVA_HOME
TNS_ADMIN=$ORACLE_HOME/network/admin; export TNS_ADMIN

PATH=.:${JAVA_HOME}/bin:${PATH}:$HOME/bin:$ORACLE_HOME/bin
PATH=${PATH}:/usr/bin:/bin:/usr/local/bin
export PATH

umask 022

Save and close vi editor. Execute the bash profile and check the environment variables

. .bash_profile

env | grep ORA

```
[grid@sha10 ~]$ . .bash_profile
[grid@sha10 ~]$ env |grep ORA
ORACLE_SID=+ASM
ORACLE_BASE=/u01/app/grid
ORACLE_TERM=xterm
ORACLE_HOME=/u01/app/grid/product/19.3.0/grid_home
[grid@sha10 ~]$
```

From Root

df -h

Unzip 19c grid software under grid home

cd $ORACLE_HOME

unzip linuxx64_12201_grid_home.zip -d /u01/app/grid/product/19.3.0/grid_home

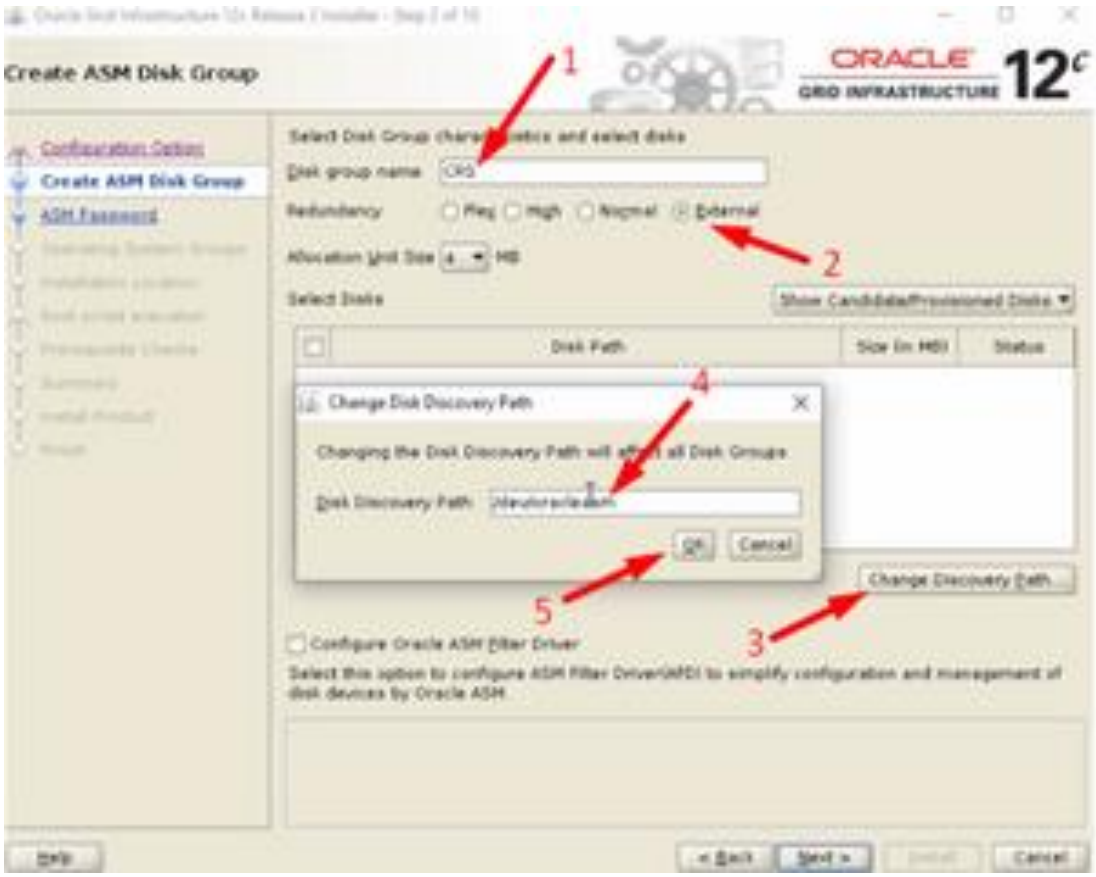
##Grid
Start the gridSetup.sh which will install grid software
chown -R grid:oinstall **/u01/app/grid/**

cd **/u01/app/grid/product/19.3.0/grid_home**
Grid_home>ll

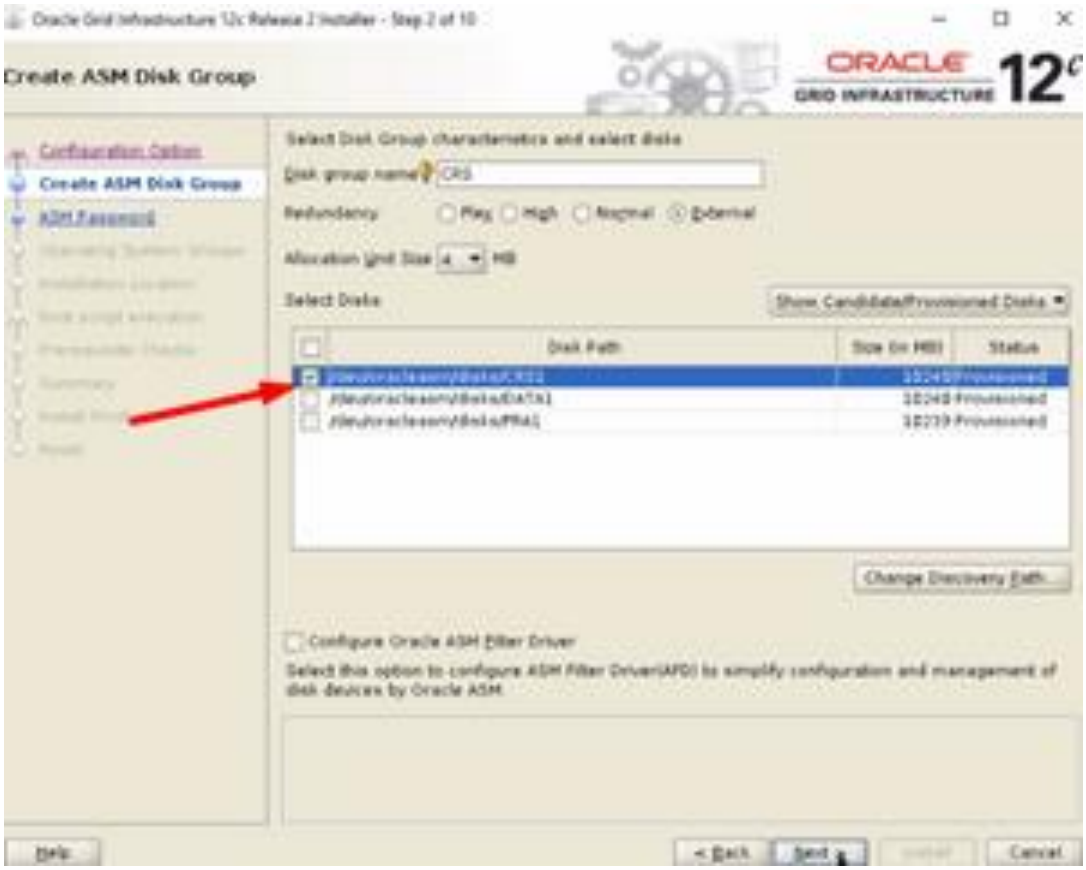
./gridSetup.sh

Follow below screens to perform the grid software installation

- Change Disk group name as CRS
- Select External
- Click on Change Discovery Path
- Give Disk Discovery Path as **/dev/oracleasm/disks**
- Click on OK



Select /dev/oracleasm/disks/CRS1 >> Next

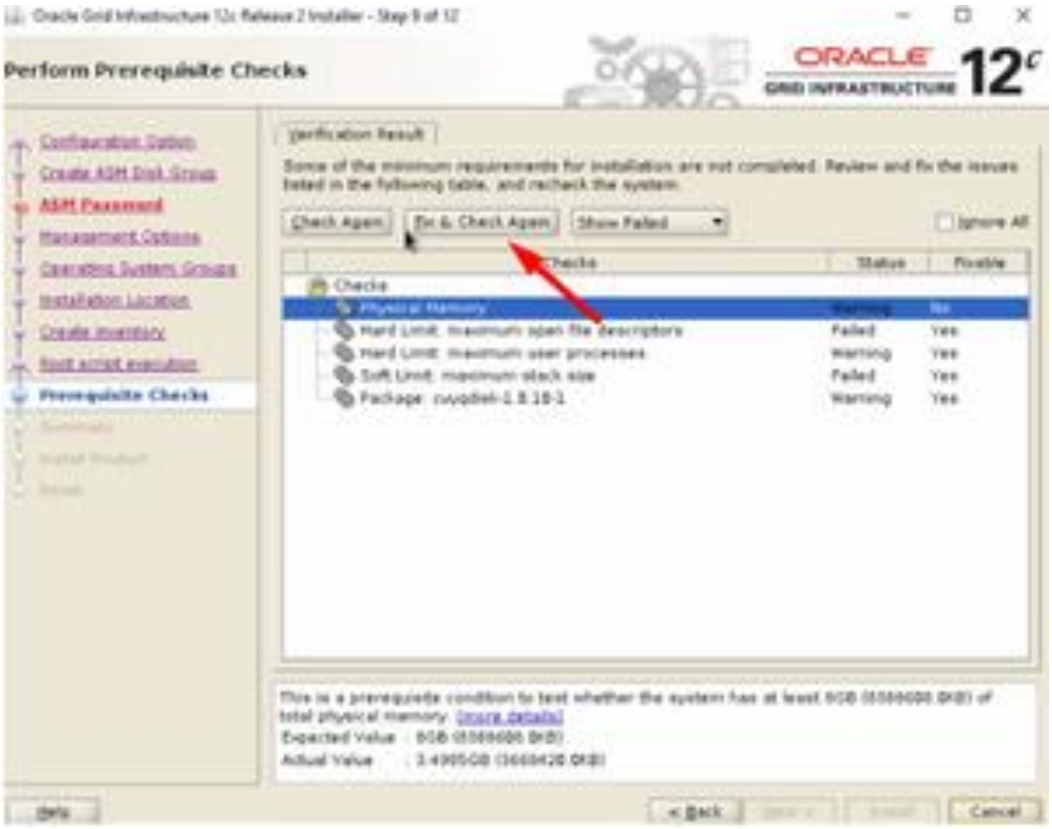


Select **Use Same Password for these Accounts** >> Specify password >> confirm password >> Next. Click on Yes

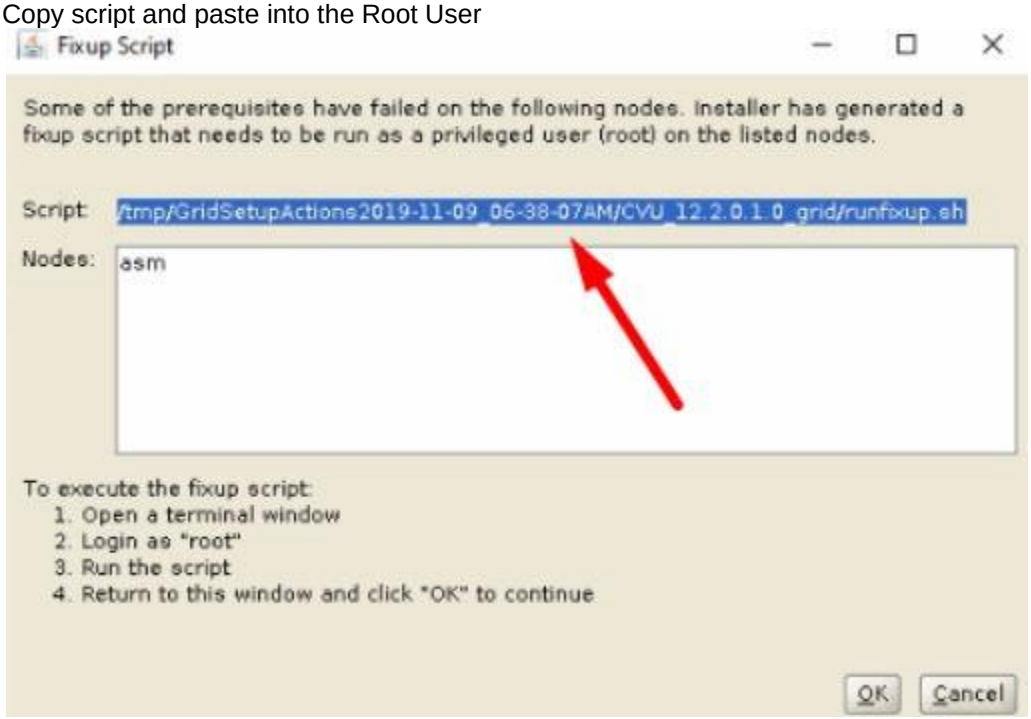
Click Next >> Next

Click Next >> Next >> Next

Click on fix and check again

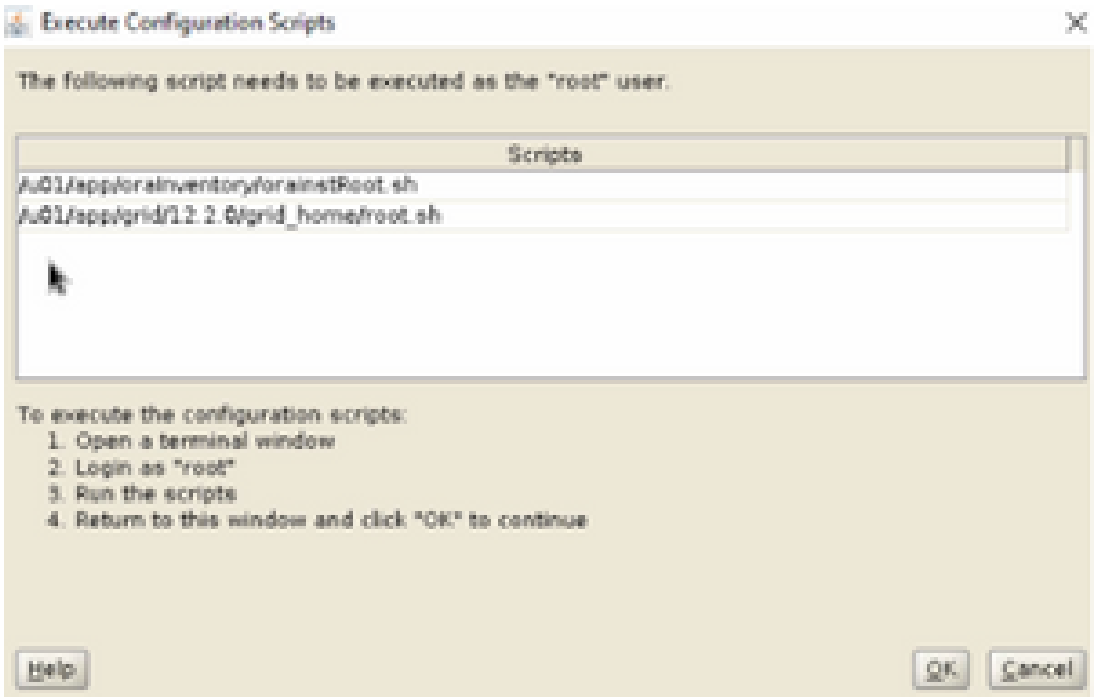


Copy script and paste into the Root User



Click on OK >> Check Ignore All >> Click Yes

Click on Install and wait for installer to prompt root scripts



Click on Close

Configure ASM Diskgroups

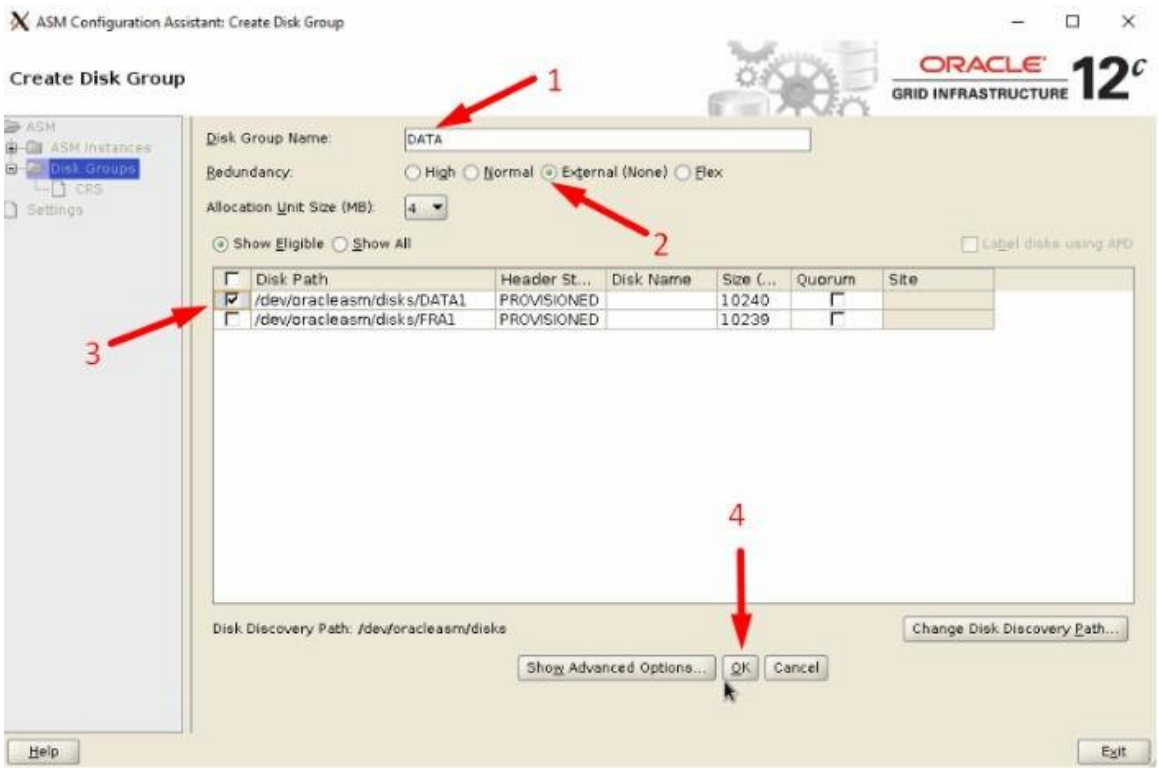
The grid installer allows you to only create one diskgroup (CRS). We need to start the **asmca** utility in order to create DATA and FRA diskgroup which are required for database installation. Click on **Create**

cd /u01/app/grid/product/19.3.0/grid_home/bin
Bin>asmca

- Give Disk Group Name as **DATA**
- Select **External(None)**
- Select **/dev/oracleasm/disks/DATA1**
- Click on **OK**

Click on **Create**

- Give Disk Group Name as **FRA**
- Select **External(None)**
- Select **/dev/oracleasm/disks/FRA1**
- Click on **OK**


ASM Configuration Assistant: Create Disk Group
Create Disk Group
ORACLE GRID INFRASTRUCTURE 12c
1
Disk Group Name: DATA
Redundancy: High Normal External (None) Flex
2
Allocation Unit Size (MB): 4
Show Eligible Show All
Label disks using ASFD
Disk Path | Header St... | Disk Name | Size (... | Quorum | Site
/dev/oracleasm/disks/DATA1 | PROVISIONED | | 10240
/dev/oracleasm/disks/FRA1 | PROVISIONED | | 10239
3
4
Disk Discovery Path: /dev/oracleasm/disks
Change Disk Discovery Path...
Show Advanced Options...
OK
Cancel
Help
Exit

Exit >> Yes


Disk Groups
ORACLE 12c

Step5 .Install Oracle Software

Edit Oracle user bash profile and put below
From oracle user

su oracle

cd $HOME

cp .bash_profile .bash_profile.orig

vi .bash_profile

```
if [ -f ~/.bashrc ]; then
. ~/.bashrc
fi
ORACLE_HOSTNAME=localhost.localdomain; export ORACLE_HOSTNAME
ORACLE_SID=orcl; export ORACLE_SID
ORACLE_UNQNAME=orcl; export ORACLE_UNQNAME
ORACLE_BASE=/u01/app/oracle; export ORACLE_BASE
ORACLE_HOME=/u01/app/oracle/product/19.3.0/dbhome_1; export ORACLE_HOME
ORACLE_TERM=xterm; export ORACLE_TERM

JAVA_HOME=/usr/bin/java; export JAVA_HOME
NLS_DATE_FORMAT="DD-MON-YYYY HH24:MI:SS"; export NLS_DATE_FORMAT
TNS_ADMIN=$ORACLE_HOME/network/admin; export TNS_ADMIN
PATH=.:${JAVA_HOME}/bin:${PATH}:$HOME/bin:$ORACLE_HOME/bin
PATH=${PATH}:/usr/bin:/bin:/usr/local/bin
export PATH

LD_LIBRARY_PATH=$ORACLE_HOME/lib
LD_LIBRARY_PATH=${LD_LIBRARY_PATH}:$ORACLE_HOME/oracm/lib
LD_LIBRARY_PATH=${LD_LIBRARY_PATH}:/lib:/usr/lib:/usr/local/lib
export LD_LIBRARY_PATH

CLASSPATH=$ORACLE_HOME/JRE:$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/jlib:$ORACLE_H
OME/network/jlib
export CLASSPATH

TEMP=/tmp ;export TMP
TMPDIR=$tmp ; export TMPDIR

umask 022
```

Execute the Bash_Profile

. .bash_profile

Env |grep ORA

```
[oracle@sha10 bin]$ cd $HOME
[oracle@sha10 ~]$ vi .bash_profile
[oracle@sha10 ~]$ . .bash_profile
[oracle@sha10 ~]$ env |grep ORA
ORACLE_UNQNAME=orcl
ORACLE_SID=orcl
ORACLE_BASE=/u01/app/oracle
ORACLE_HOSTNAME=sha10.localdomain
ORACLE_TERM=xterm
ORACLE_HOME=/u01/app/oracle/product/19.3.0/dbhome_1
[oracle@sha10 ~]$
```

Unzip the Oracle software

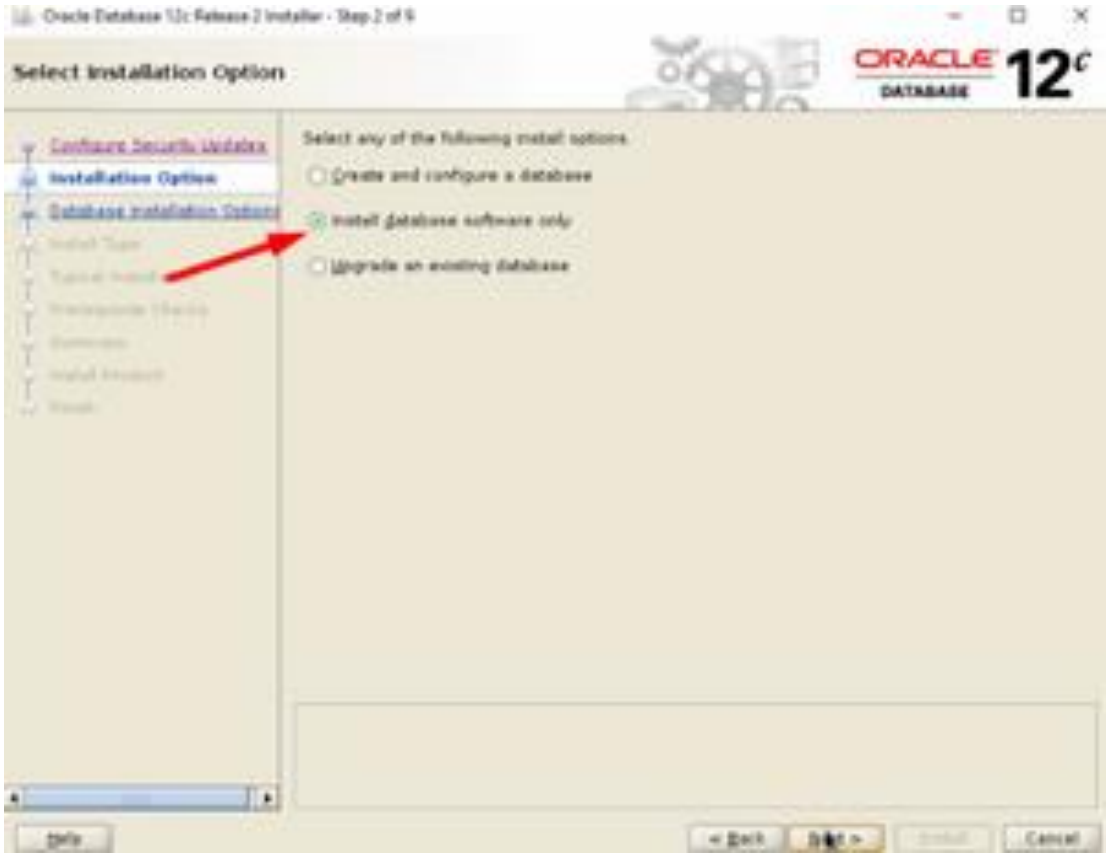
Df –h

unzip linuxx64_12201_database.zip -d /u01/app/oracle/product/19.3.0/dbhome_1

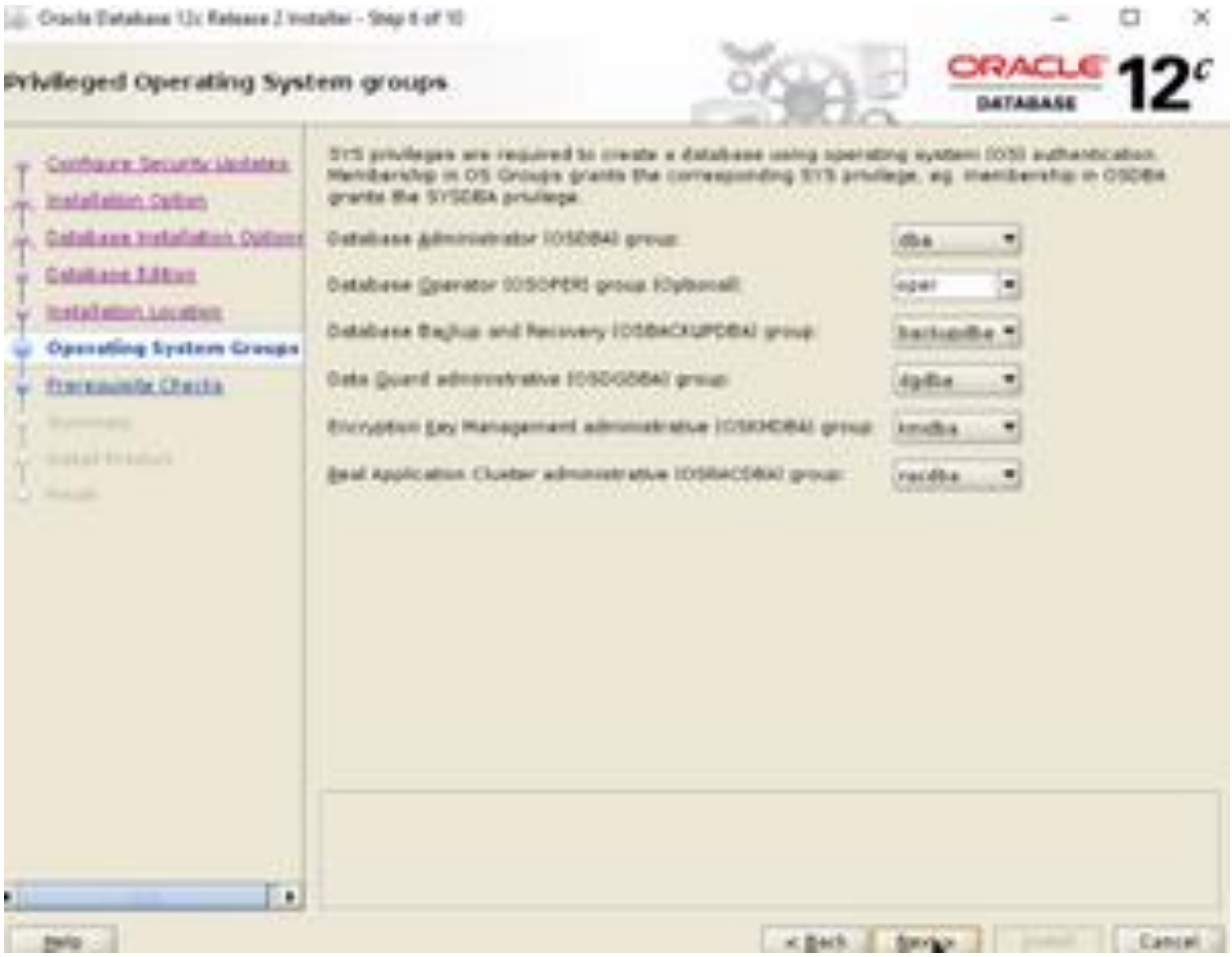
cd /u01/app/oracle/product/19.3.0/dbhome_1/database

Start the runinstaller

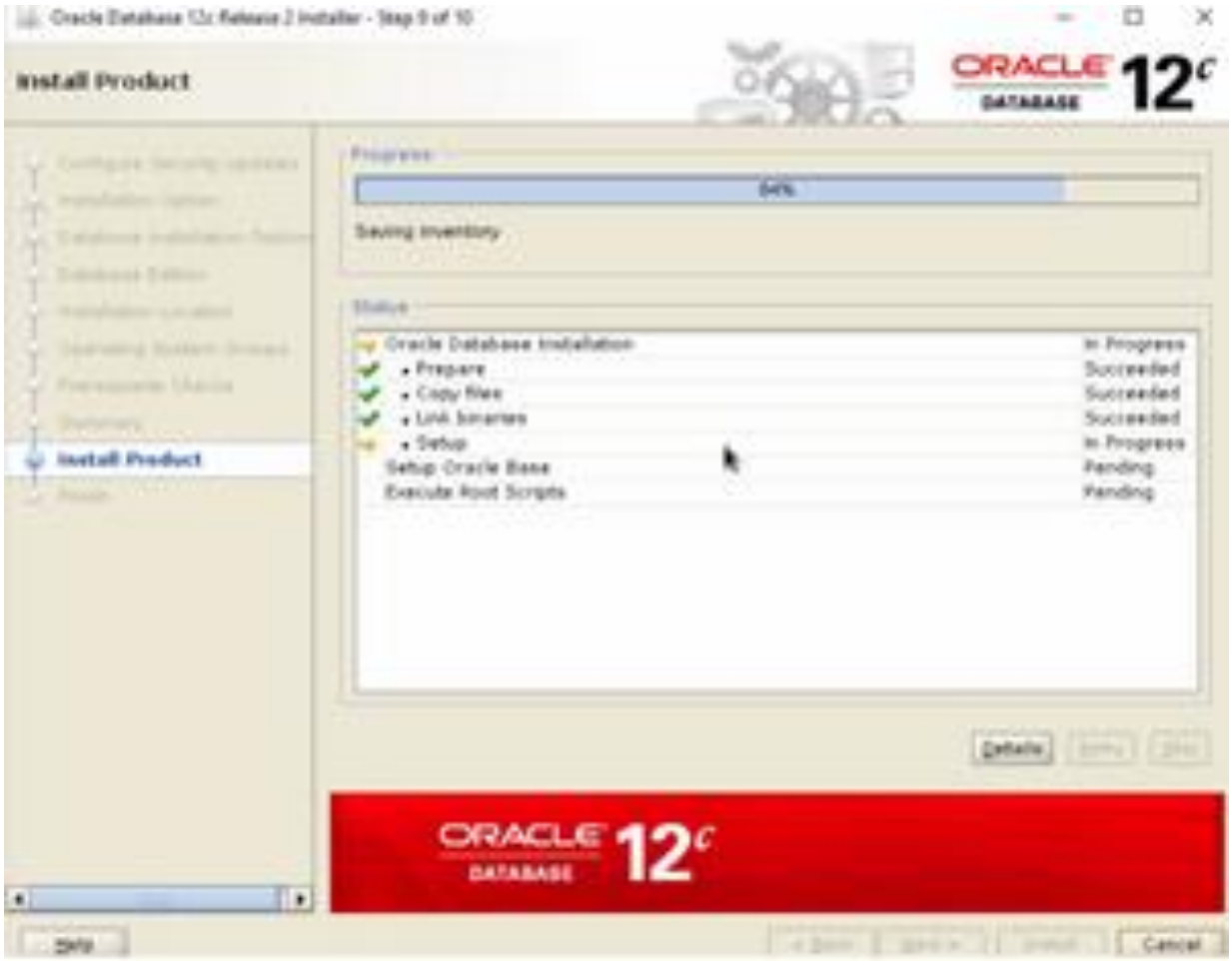
cd database
./runinstaller
Uncheck the i wish to receive security updates via my oracle support



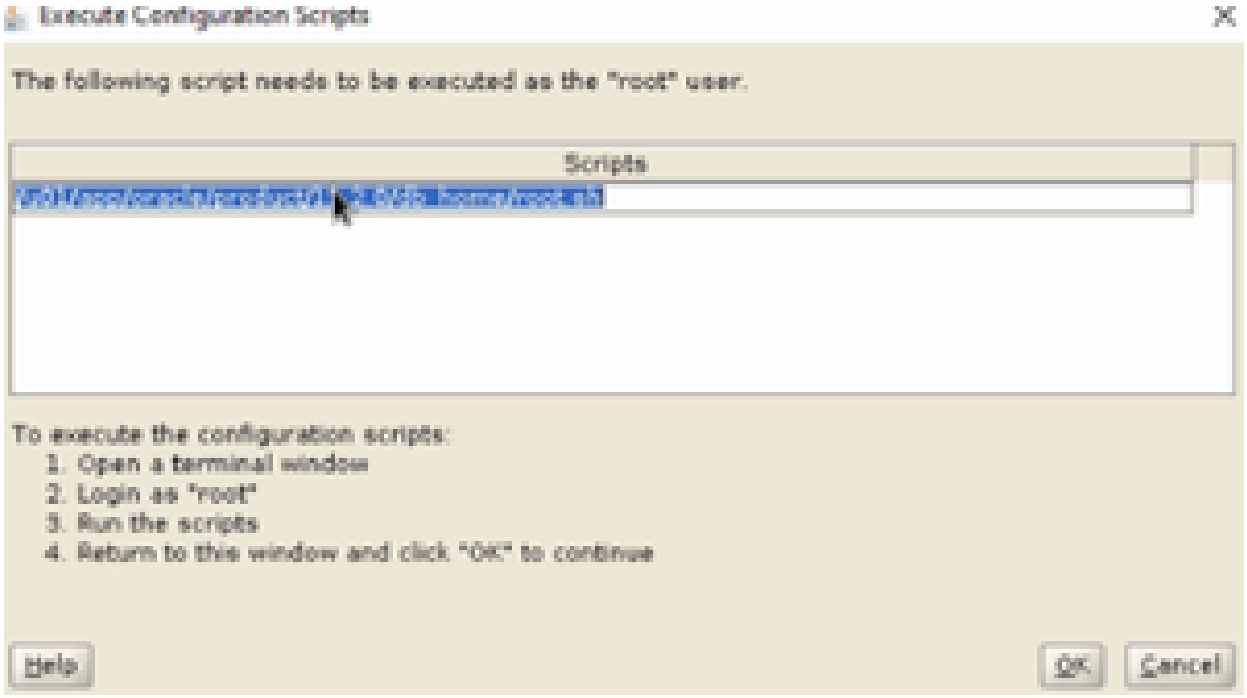
Select install database software only >> Next >> Next >> Next >> Next >> Next



Click on Install



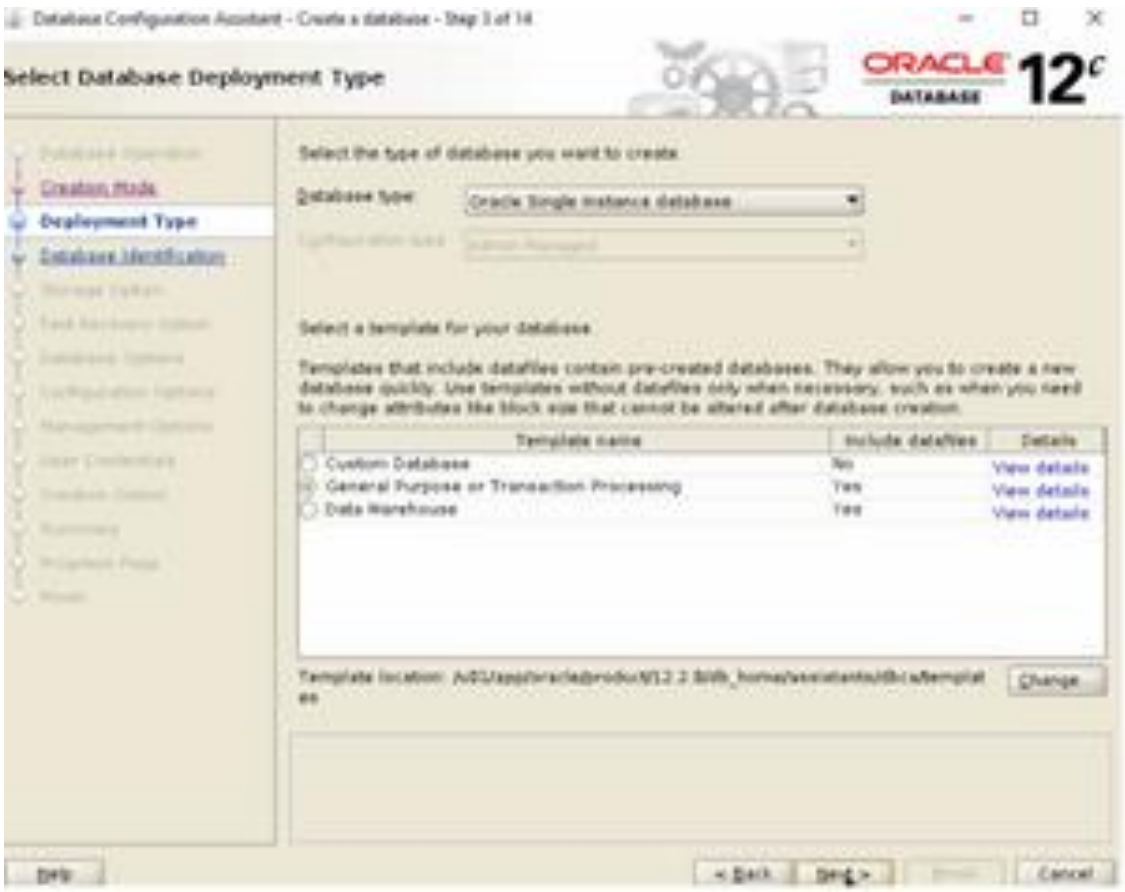
Run the Root scripts as root user



Close the installer.

Step6. DBCA Create Database on ASM

We can now go ahead and create database on ASM with DBCA. Start DBCA >> Create a Database >> Advance Configuration



- Give Global Database name as **prod**
- Uncheck **Create as container database**
- Click on **Next**

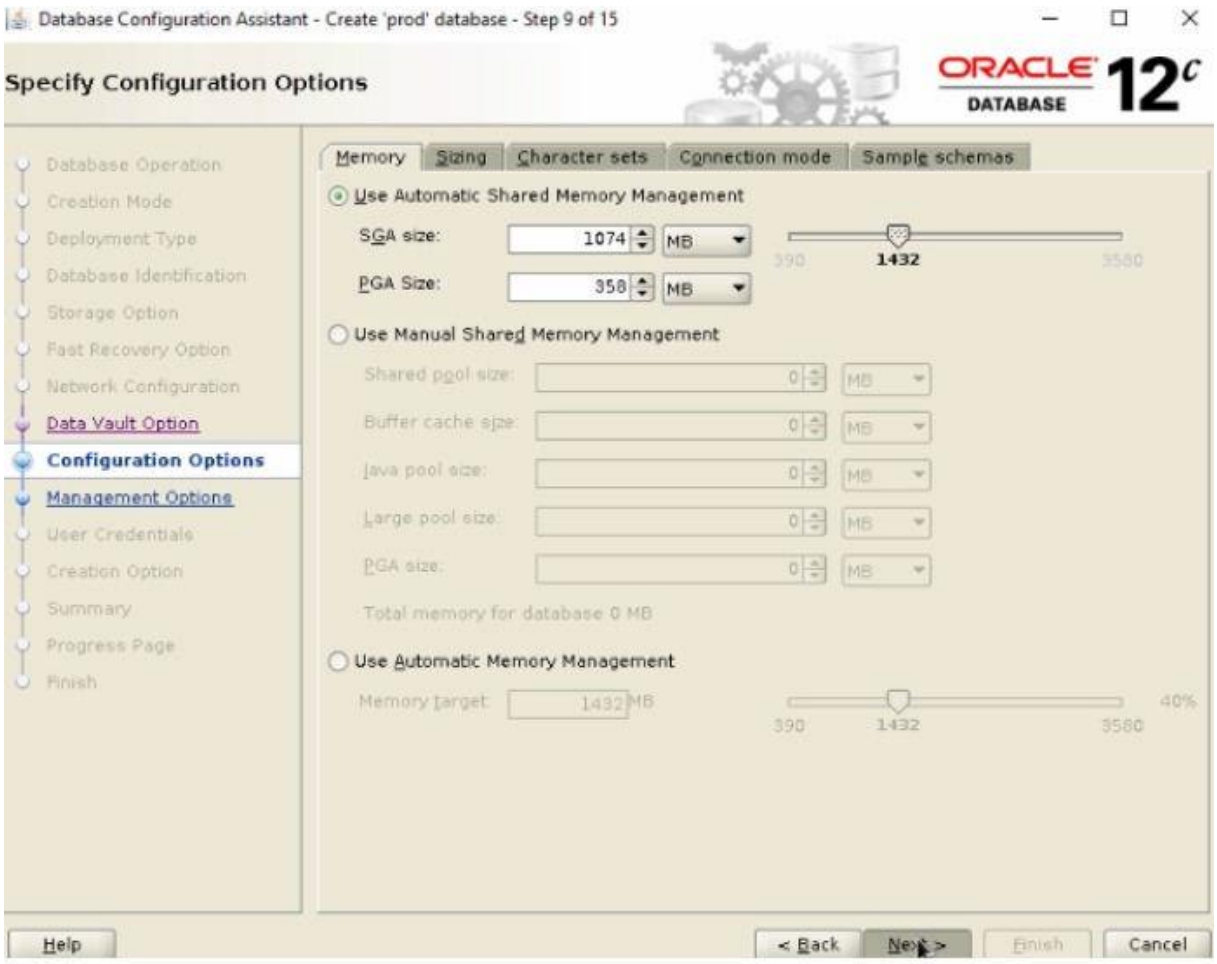
Select Use following for the database storage attributes >> Browse

- Select **DATA** >> Click on OK
- Click on Next

Select specific fast recovery area >> Browse

- Select FRA >> Click on OK
- Change Fast Recovery Area Size >> Next

Click Next >> Next >> Next



Uncheck **Register with Enterprise Manager(EM) database express**

Select Use the same administrative password for all accounts >> Password >> Confirm Password

Select **Create the database** >> Next >> Finish

Done! For confirmation purpose, connect to database as Oracle user and issue below queries

SQL> select name, open_mode from v$database;

SQL> select name from v$datafile;

SQL> select name from v$controlfile;

We have successfully create Oracle Database on ASM!

.

DBCA Does Not Display ASM Disk Groups in 19c

Log in as root user

su root

cd /dev/oracleasm/

ls -lrt --> check permission on oracleasm directory

cd /dev

dev> chown -R grid:oinstall oracleasm

cd /dev/oracleasm/disks

```
[root@sha10 disks]# whoami
root
[root@sha10 disks]# pwd
/dev/oracleasm/disks
[root@sha10 disks]# ll
total 0
brw-rw----. 1 grid dba 8, 17 Mar  8 16:26 CRS1
brw-rw----. 1 grid dba 8, 18 Mar  8 16:26 DATA1
brw-rw----. 1 grid dba 8, 19 Mar  8 16:26 FRA1
```

Login as grid user

su grid

cd $ORACLE_HOME/bin

ls -ld --> check permission on oracle directory

bin> chmod 6571 oracle

ls -ld oracle

```
[grid@sha10 bin]$ whoami
grid
[grid@sha10 bin]$ pwd
/u01/app/grid/product/19.3.0/grid_home/bin
[grid@sha10 bin]$ ls -ltr oracle
-r-srws--x. 1 grid oinstall 418591376 Mar  7 19:25 oracle
[grid@sha10 bin]$
```

Login as oracle user

Su oracle

ls -ld oracle --> check the permissions

However, oracle directory permission in both grid user and oracle user must have the same permission. Therefore, issue the following command

Cd $ORACLE_HOME/bin

bin > chmod 6571 oracle

```
[oracle@sha10 bin]$ whoami
oracle
[oracle@sha10 bin]$ pwd
/u01/app/oracle/product/19.3.0/dbhome_1/bin
[oracle@sha10 bin]$ ls -ltr oracle
-r-srws--x. 1 oracle asmadmin 441253104 Mar  8 11:22 oracle
[oracle@sha10 bin]$
```

init 6

Go back to select disk group and refresh!