Step by Step Oracle 12c Grid Infrastructure (RAC) on Linux 64bit using Virtual Box

Category ; 12c Database ; GridInfrastructure

**In this article we will install RAC and create RAC Database (Pluggable) using Latest release Oracle 12c on Oracle Enterprise Linux 64 bit.**

**First Download the required software with below links**

**Download the following software.**

* Oracle Linux 6 (Use the latest spin eg. 6.4)
* VirtualBox (4.2.14)
* Oracle 12c Release 1 (12.1.0.1) Software (64 bit)

Hardware Requirements:-

* Minimum 4gb for each Virtual Machine
* Dual core with adequate CPU speed (2.5GHZ)
* Disk Space of 40-50 GB on your windows partition anywhere

**Installation Phases**

1. Install Oracle Virtual Box
2. Create Virtual Machine – oinfo12c-rac1
3. Preparing the Guest OS for Oracle Installation (Oracle Prerequisites)
4. Create Shared Disks for Grid Infrastructure
5. Creating Partitions for shared Disk Storage
6. Clone the Virtual Machine to second node – oinfo12c-rac2
7. Stage the Oracle Software
8. Modify the Virtual Machine – oinfo12c-rac2
9. Test the machines readiness
10. Install Grid Infrastructure
11. Install Oracle RAC
12. Create Database using DBCA

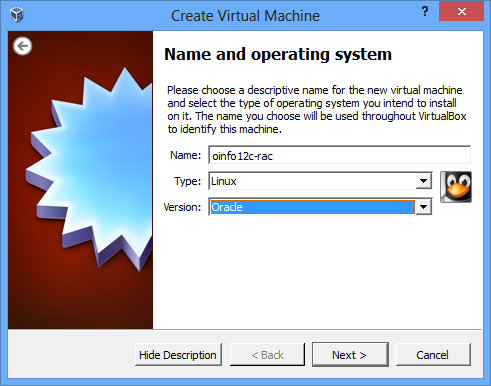
# 1. Install Virtual Box

Read it from here

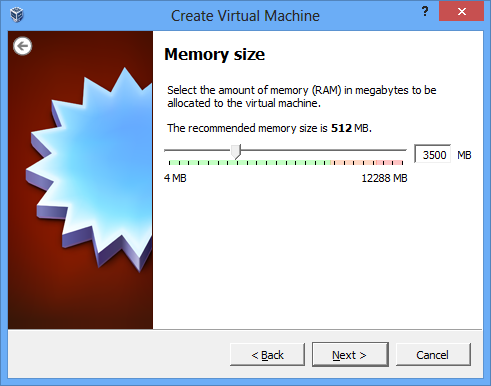
# 2. Create Virtual Machine – oinfo12c-rac1

Start the virtualbox and Click on New and then the following screen will be displayed.

Input : Virtual Machine, oinfo12c-rac, Type as Linux and Version is Oracle, Click on Next

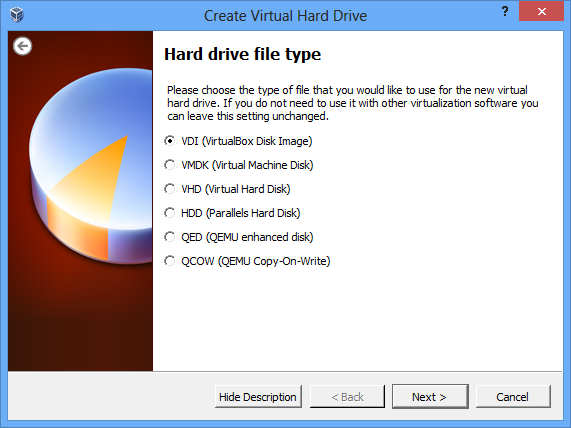


Select Memory , Ensure you have more than 3.5gb for each rac node, other wise your installation will not continue, Click on Next

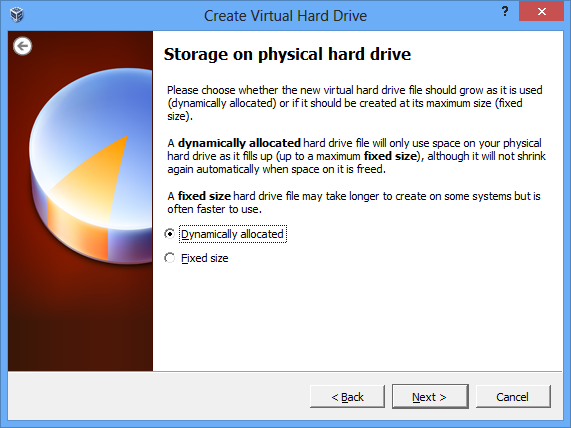


Create Virtual Disk section, Select Create Virtual Hard Drive and click on Create and then Select VDI (VirtualBox Disk Image)

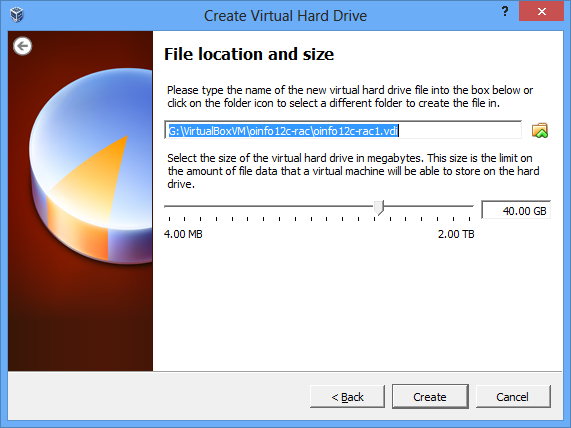
If you want to use your Virtual Machine with VMware also , you can select VMDK option, click on next

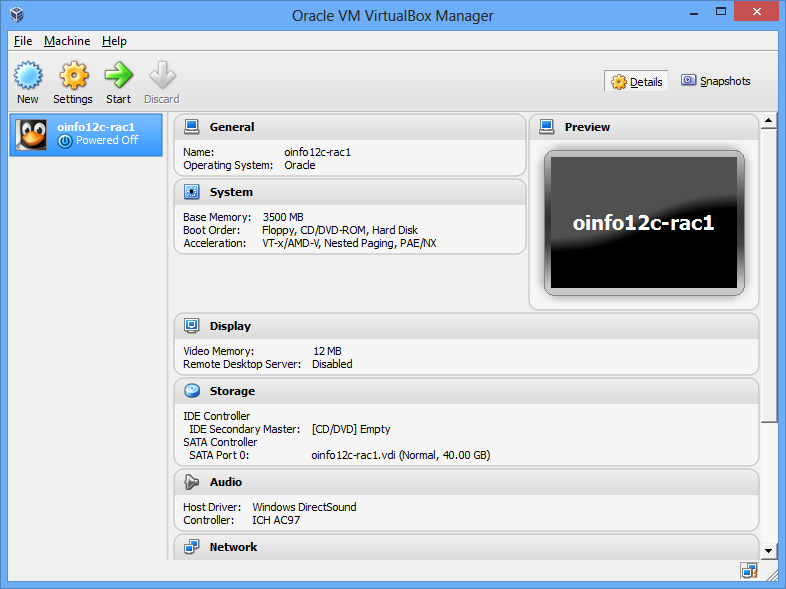


Select Dynamically Allocated option, then proceed



Choose the path for the Location of the Drives and the size of the Disk and then Click on Create

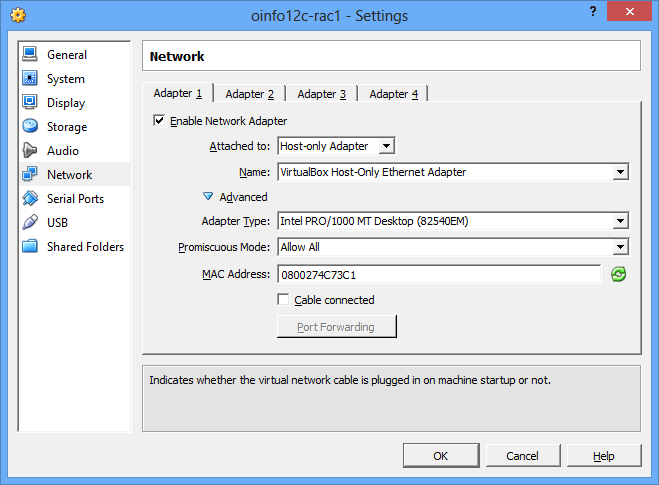




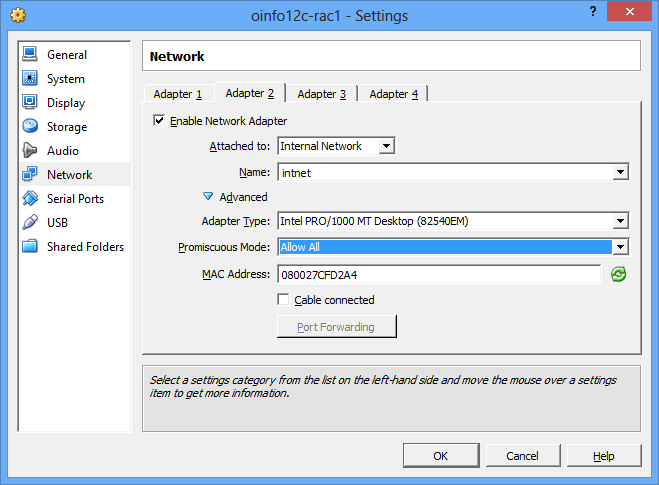
A VM has been ready, before proceed we need add additional Ethernet drives and Boot options for our Machine

Click on Settings and Add network devices for Cluster interconnect, Public Network and SCAN

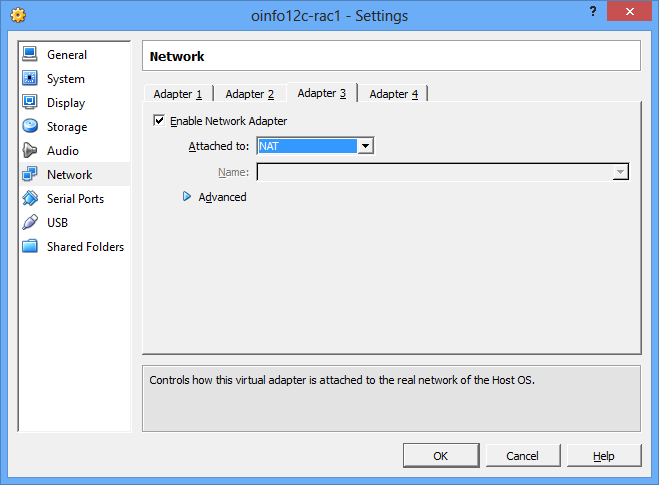
For Adapter 1, Choose the following settings



Click on Tab Adapter 2: and Choose following Options

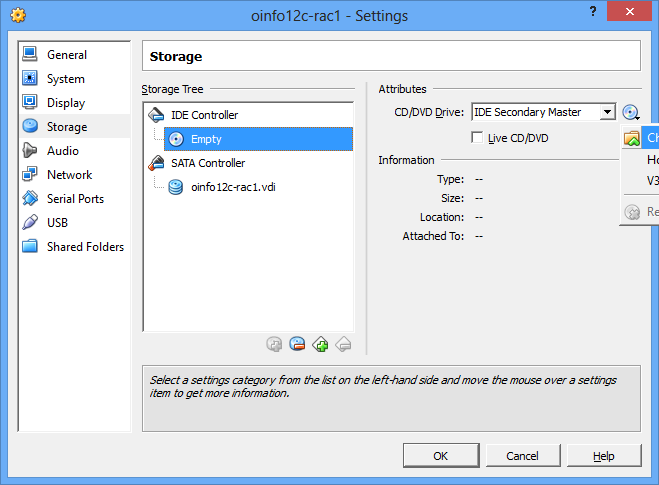


Click on Tab Adapter 3 and Choose followion options

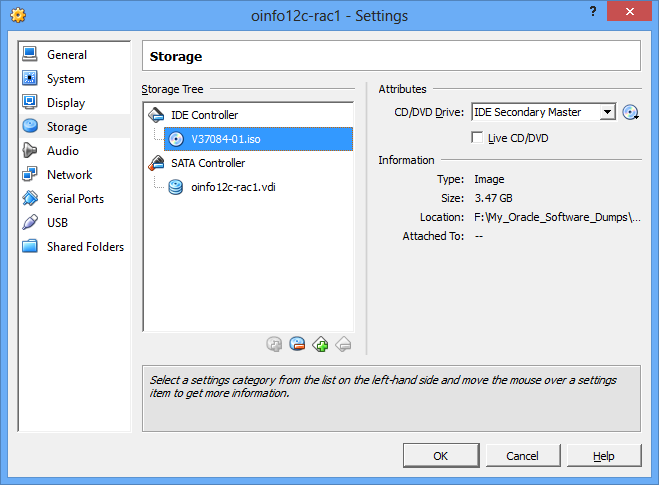


Ensure all adapters has Enabled Checkbox selected

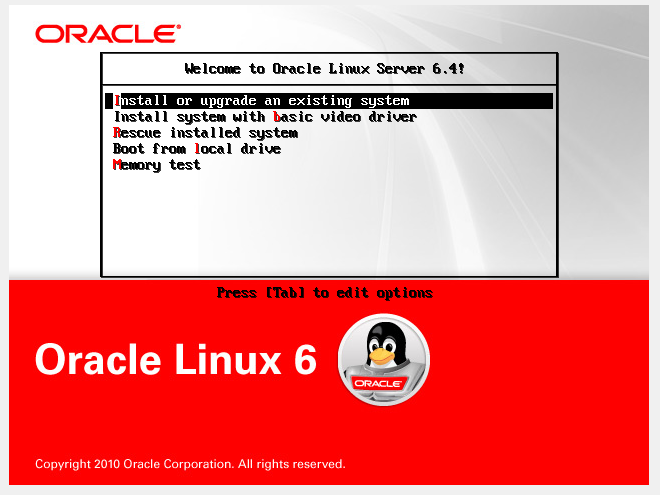
Click on Storage and select as below, this is to choose the Linux ISO image for installation, I have ISO copied to my USB and I am selecting the same.



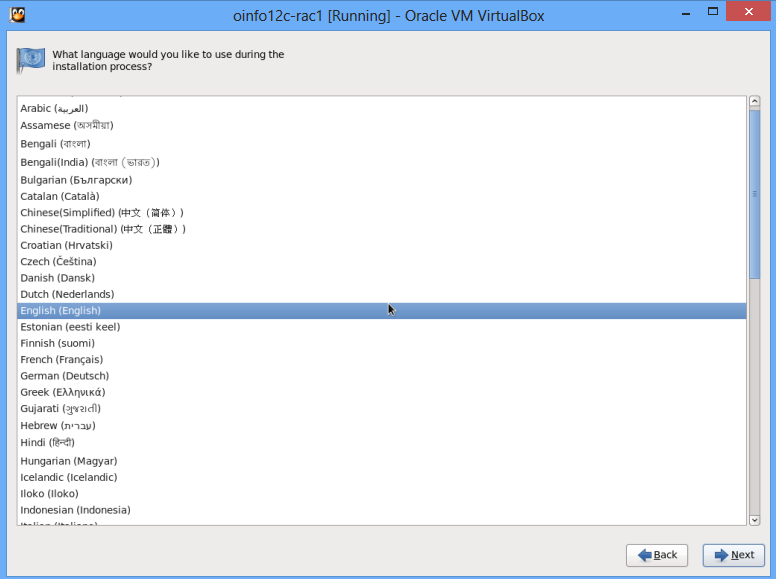
After selection the screen looks like below, click on Okay.



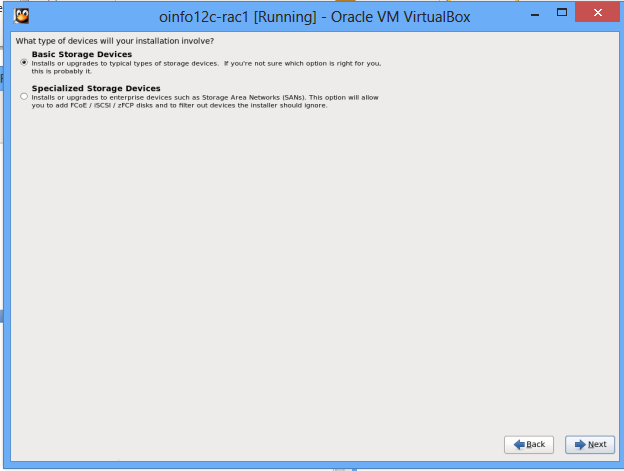
Now we are ready to install the linux on our first VM, Click on Start the top menu



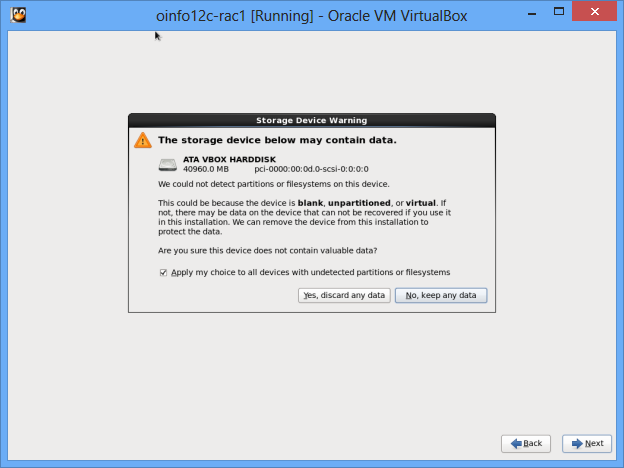
Select Install or Upgrade an existing System



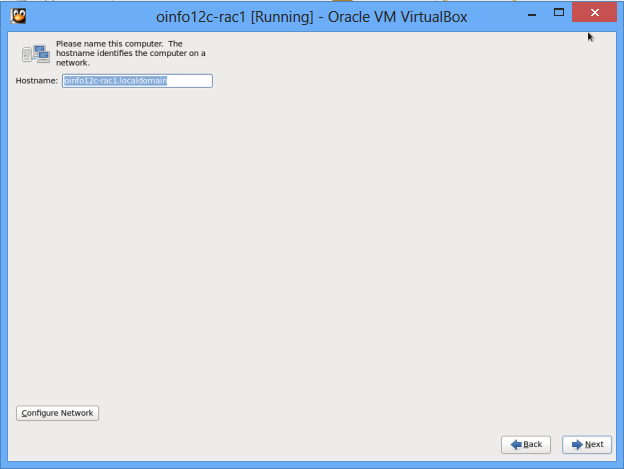
Select English and Click Next, Select Basic storage

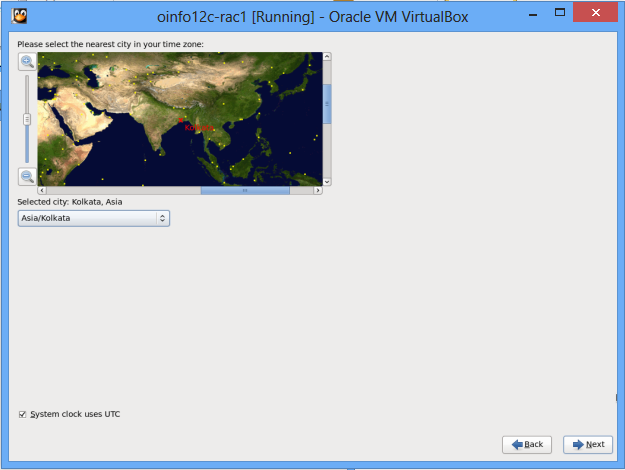


Installation will detect the storage attached to this machine and will erase any data if any in the disk we have added above.

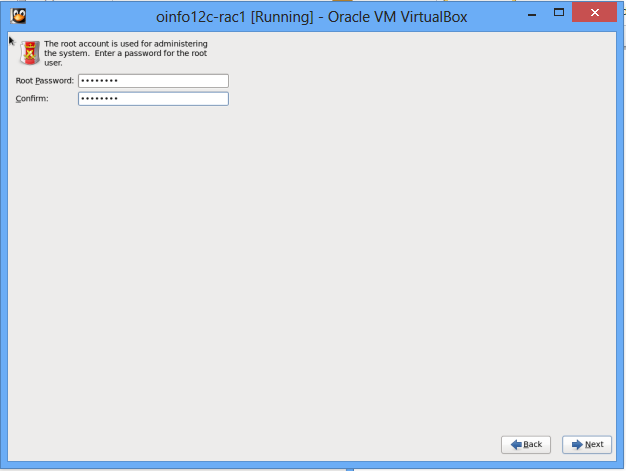


Click on Yes to remove the data and click on next, select hostname as oinfo-rac1.localdomain click on next

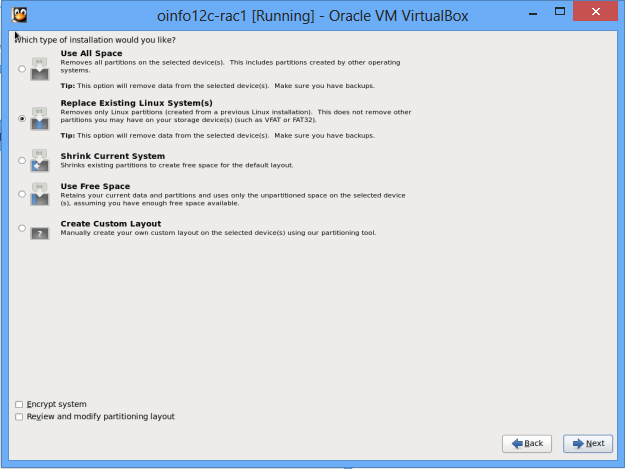


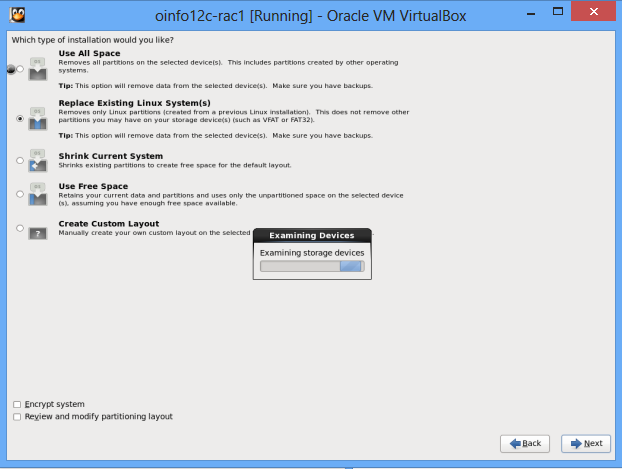


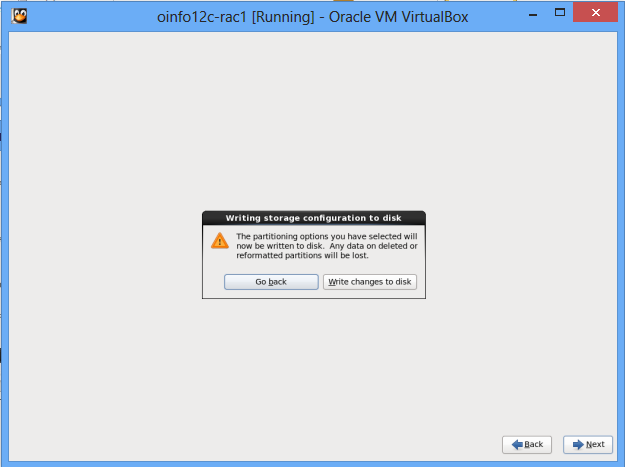
Input Root password

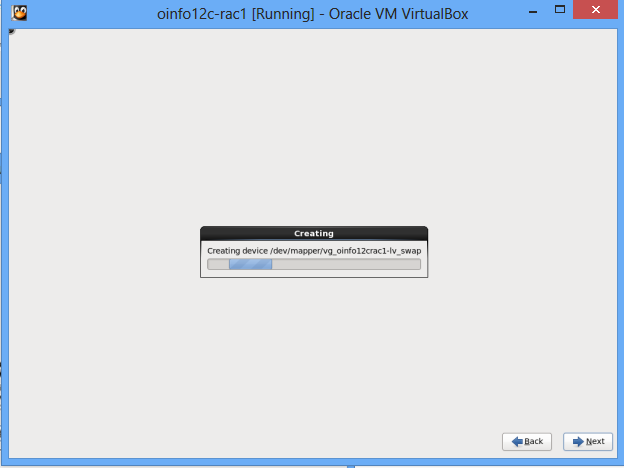


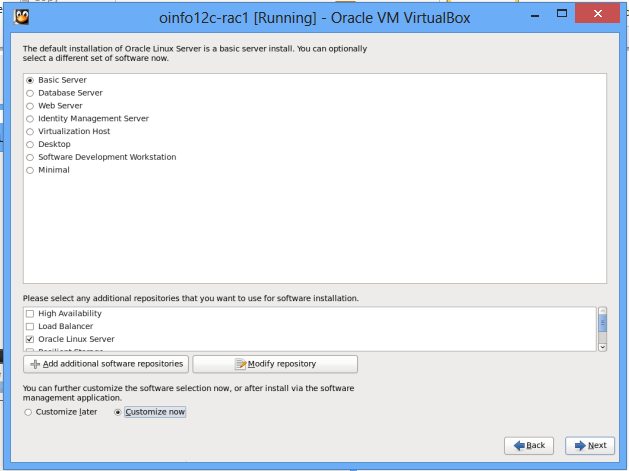
Use Replace option

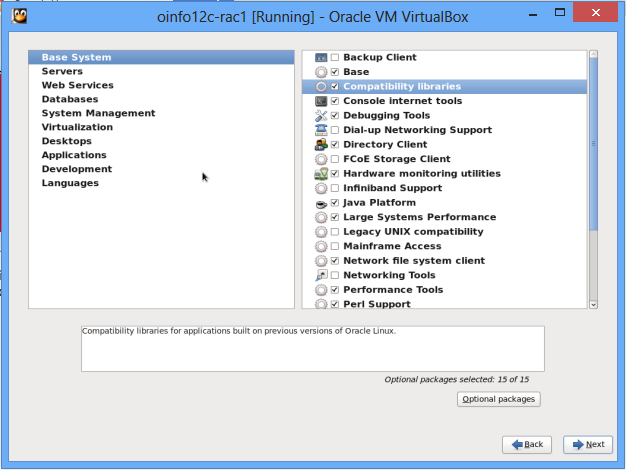


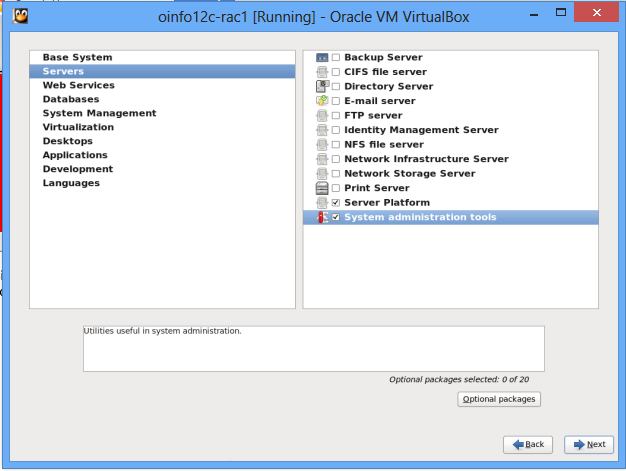


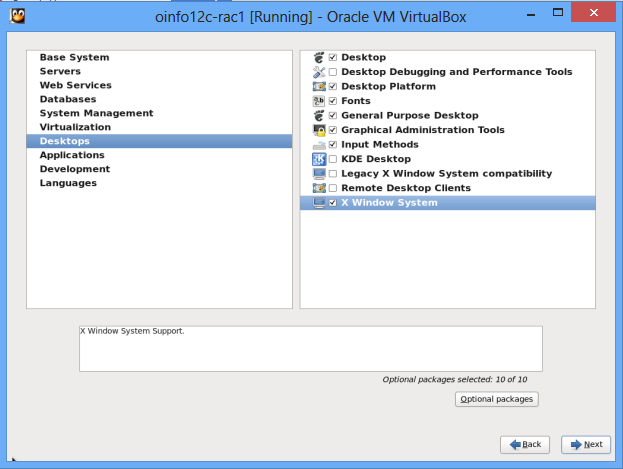


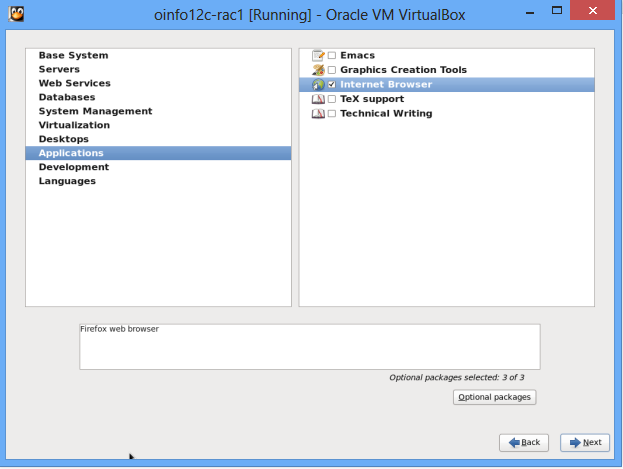


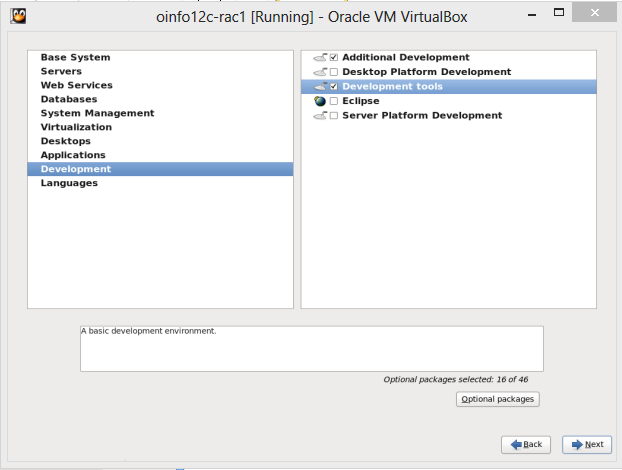




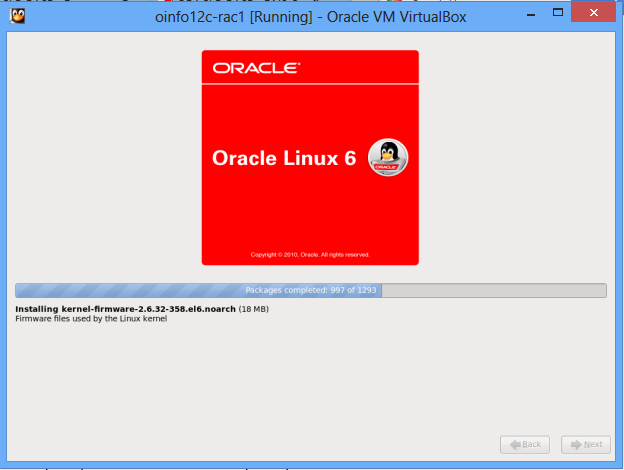








Click on Next will start Linux Installation



The system will reboot, once restarted perform the following Oracle Prerequisites

# 3. Perform Oracle Pre-requisites on the Newly created virtual Machine

**Modif the /etc/sysctl.conf**

fs.file-max = 6815744

kernel.sem = 250 32000 100 128

kernel.shmmni = 4096

kernel.shmall = 1073741824

kernel.shmmax = 4398046511104

net.core.rmem\_default = 262144

net.core.rmem\_max = 4194304

net.core.wmem\_default = 262144

net.core.wmem\_max = 1048576

fs.aio-max-nr = 1048576

net.ipv4.ip\_local\_port\_range = 9000 65500

**Load the newly amended values into kernel, without restart using /sbin/sysctl -p**

**Add the following lines to "/etc/security/limits.conf" file.**

oracle soft nofile 1024

oracle hard nofile 65536

oracle soft nproc 2047

oracle hard nproc 16384

oracle soft stack 10240

oracle hard stack 32768

**Load the RPMS's (64 and 32 bit) into the OS**

rpm -q binutils compat-libcap1 compat-libstdc++-33 compat-libstdc++-33.i686 gcc gcc-c++ glibc glibc.i686 glibc-devel glibc-devel.i686 ksh libgcc libgcc.i686 \

libstdc++ libstdc++.i686 libstdc++-devel libstdc++-devel.i686 libaio libaio.i686 libaio-devel libaio-devel.i686 libXext libXext.i686 libXtst libXtst.i686 libX11 libX11.i686 \

libXau libXau.i686 libxcb libxcb.i686 libXi libXi.i686 make sysstat unixODBC unixODBC-devel

rpm -ivh binutils-2.20.51.0.2-5.36.el6.x86\_64

rpm -ivh compat-libcap1-1.10-1.x86\_64

rpm -ivh compat-libstdc++-33-3.2.3-69.el6.x86\_64

rpm -ivh compat-libstdc++-33-3.2.3-69.el6.i686

rpm -ivh compat-libstdc++-33-3.2.3-69.el6.i686

rpm -ivh gcc-4.4.7-3.el6.x86\_64

rpm -ivh gcc-c++-4.4.7-3.el6.x86\_64

rpm -ivh glibc-2.12-1.107.el6.x86\_64

rpm -ivh glibc-2.12-1.107.el6.i686

rpm -ivh glibc-2.12-1.107.el6.i686

rpm -ivh glibc-devel-2.12-1.107.el6.x86\_64

rpm -ivh glibc-devel-2.12-1.107.el6.i686

rpm -ivh glibc-devel-2.12-1.107.el6.i686

rpm -ivh ksh-20100621-19.el6.x86\_64

rpm -ivh libgcc-4.4.7-3.el6.x86\_64

rpm -ivh libgcc-4.4.7-3.el6.i686

rpm -ivh libgcc-4.4.7-3.el6.i686

rpm -ivh libstdc++-4.4.7-3.el6.x86\_64

rpm -ivh libstdc++-4.4.7-3.el6.i686

rpm -ivh libstdc++-4.4.7-3.el6.i686

rpm -ivh libstdc++-devel-4.4.7-3.el6.x86\_64

rpm -ivh libstdc++-devel-4.4.7-3.el6.i686

rpm -ivh libstdc++-devel-4.4.7-3.el6.i686

rpm -ivh libaio-0.3.107-10.el6.x86\_64

rpm -ivh libaio-0.3.107-10.el6.i686

rpm -ivh libaio-0.3.107-10.el6.i686

rpm -ivh libaio-devel-0.3.107-10.el6.i686

rpm -ivh libaio-devel-0.3.107-10.el6.x86\_64

rpm -ivh libaio-devel-0.3.107-10.el6.i686

rpm -ivh libXext-1.3.1-2.el6.x86\_64

rpm -ivh libXext-1.3.1-2.el6.i686

rpm -ivh libXext-1.3.1-2.el6.i686

rpm -ivh libXtst-1.2.1-2.el6.x86\_64

rpm -ivh libXtst-1.2.1-2.el6.i686

rpm -ivh libXtst-1.2.1-2.el6.i686

rpm -ivh libX11-1.5.0-4.el6.x86\_64

rpm -ivh libX11-1.5.0-4.el6.i686

rpm -ivh libX11-1.5.0-4.el6.i686

rpm -ivh libXau-1.0.6-4.el6.x86\_64

rpm -ivh libXau-1.0.6-4.el6.i686

rpm -ivh libXau-1.0.6-4.el6.i686

rpm -ivh libxcb-1.8.1-1.el6.x86\_64

rpm -ivh libxcb-1.8.1-1.el6.i686

rpm -ivh libxcb-1.8.1-1.el6.i686

rpm -ivh libXi-1.6.1-3.el6.x86\_64

rpm -ivh libXi-1.6.1-3.el6.i686

rpm -ivh libXi-1.6.1-3.el6.i686

rpm -ivh make-3.81-20.el6.x86\_64

rpm -ivh sysstat-9.0.4-20.el6.x86\_64

rpm -ivh unixODBC-2.2.14-12.el6\_3.x86\_64

rpm -ivh unixODBC-devel-2.2.14-12.el6\_3.x86\_64

**Or use rpm –ivh pkgname**

**Create New Users and Groups**

groupadd -g 60321 oinstall

groupadd -g 60322 dba

groupadd -g 60323 oper

groupadd -g 60324 backupdba

groupadd -g 60325 dgdba

groupadd -g 60326 kmdba

groupadd -g 60327 asmdba

groupadd -g 60328 asmoper

groupadd -g 60329 asmadmin

groupadd –g 60330 oragrid

Create Oracle and add groups to oracle accordingly

useradd -u 60321 -g oinstall -G dba,oper,backupdba,dgdba,kmdba,asmdba,asmoper,asmadmin,oragrid oracle

passwd oracle

Add the following entries to "/etc/hosts"

127.0.0.1 localhost.localdomain localhost

192.168.56.101 oinfo12c-rac1.localdomain oinfo12c-rac1

192.168.56.102 oinfo12c-rac2.localdomain oinfo12c-rac2

192.168.1.101 oinfo12c-rac1-priv.localdomain oinfo12c-rac1-priv

192.168.1.102 oinfo12c-rac2-priv.localdomain oinfo12c-rac2-priv

192.168.56.103 oinfo12c-rac1-vip.localdomain oinfo12c-rac1-vip

192.168.56.104 oinfo12c-rac2-vip.localdomain oinfo12c-rac2-vip

#192.168.56.105 oinfo12c-scan.localdomain oinfo12c-scan

#192.168.56.106 oinfo12c-scan.localdomain oinfo12c-scan

#192.168.56.107 oinfo12c-scan.localdomain oinfo12c-scan

The reason to comment the scan IP is that from 11Gr2 (11.2.0.2) scan IP in /etc/hosts will not work, either DNS has to be used or someother tools like dnsmasq or BIND should be used. For this Article purpose we will use dnsmasq,

**Courtesy : oracle-base.com**

**Install DNSmasq package**

**The Dnsmasq service is installed from a Yum repository using the following command.**

# yum install dnsmasq

**Turn on the Dnsmasq server and make sure it starts automatically on reboot.**

# service dnsmasq start

# chkconfig dnsmasq on

**Edit the /etc/resolv.conf**

search localdomain

nameserver 192.168.56.101

**The service can be stopped, started and restarted using the following commands.**

# service dnsmasq stop

# service dnsmasq start

# service dnsmasq restart

Note: Disable Firewall

**Verify the scan using nslookup, should return all three IP's**

[root@oinfo12c-rac1 Packages]# nslookup oinfo12c-scan.localdomain

Server: 192.168.56.101

Address: 192.168.56.101#53

Name: oinfo12c-scan.localdomain

Address: 192.168.56.107

Name: oinfo12c-scan.localdomain

Address: 192.168.56.105

Name: oinfo12c-scan.localdomain

Address: 192.168.56.106

**[root@oinfo12c-rac1 Packages]#**

**Change Linux SE to permissive (Linux 6 installation does not offer this change) by editing the "/etc/selinux/config" file,**

SELINUX=permissive

**Disable Firewall**

# service iptables stop

# chkconfig iptables off

**Not to use NTP and make CTSSD works for you, you need to disable the NTP as below**

# service ntpd stop

Shutting down ntpd: [ OK ]

# chkconfig ntpd off

# mv /etc/ntp.conf /etc/ntp.conf.orig

# rm /var/run/ntpd.pid

**But if you want to use NTP and sycn time with your time server , you must add the "-x" option into the following line in the "/etc/sysconfig/ntpd" file.**

OPTIONS="-x -u ntp:ntp -p /var/run/ntpd.pid"

**Then restart NTP.**

# service ntpd restart

**Create Directories**

mkdir -p /u01/app/12.1.0.1/grid

mkdir -p /u01/app/oracle/product/12.1.0.1/db\_1

chown -R oracle:oinstall /u01

chmod -R 775 /u01/

**Login with oracle and create a .bash\_profile in /home/oracle/**

export TMP=/tmp

export TMPDIR=$TMP

export ORACLE\_HOSTNAME=oinfo12c-rac1.localdomain

export ORACLE\_UNQNAME=RACDB

export ORACLE\_BASE=/u01/app/oracle

export GRID\_HOME=/u01/app/12.1.0.1/grid

export DB\_HOME=$ORACLE\_BASE/product/12.1.0.1/db\_1

export ORACLE\_HOME=$DB\_HOME

export ORACLE\_SID=RACDB1

export ORACLE\_TERM=xterm

export BASE\_PATH=/usr/sbin:$PATH

export PATH=$ORACLE\_HOME/bin:$BASE\_PATH

export LD\_LIBRARY\_PATH=$ORACLE\_HOME/lib:/lib:/usr/lib

export CLASSPATH=$ORACLE\_HOME/JRE:$ORACLE\_HOME/jlib:$ORACLE\_HOME/rdbms/jlib

**Install Guest Additions from VIrtualBox 🡪 Devices 🡪 Install Guest Additions this will mount and package in /media, if you have any other mount in /media, dismount and eject it.**

Note: Without this the shared storage will not work

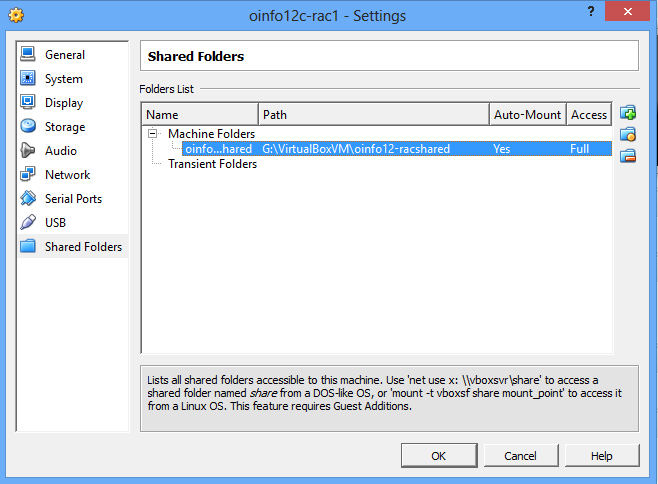
**Restart the oinfo12c-rac1**

# shutdown –r now

**Create Shared Storage path for RAC Shared storage**

Go to Setting for oinfo12c-rac1 and then click on shared storage and then create a directory , I have created a directory in my windows machine

**G:virtualboxvmoinfo12c-racshared**



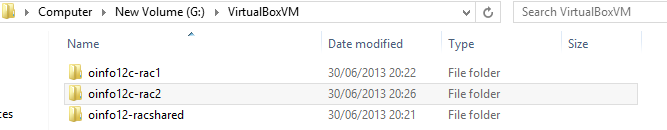
**Create the directory in windows for Node 2 and clone the harddisk. So my directory structure is like**

Host: oinfo12c-rac1 files will be in oinfo12c-rac1 folder

Host: oinfo12c-rac1 files will be in oinfo12c-rac1 folder

Shared storage will be at oinfor12c-racshared folder

Screenshot as below



Shutdown the machine

# 4. Create Shared folders for RAC

**Create the disks and associate them with VirtualBox as virtual media.**

VBoxManage createhd --filename G:\VirtualBoxVM\oinfo12c-shared\asm1.vdi --size 5120 --format VDI --variant Fixed

VBoxManage createhd --filename G:\VirtualBoxVM\oinfo12c-shared\asm2.vdi --size 5120 --format VDI --variant Fixed

VBoxManage createhd --filename G:\VirtualBoxVM\oinfo12c-shared\asm3.vdi --size 5120 --format VDI --variant Fixed

VBoxManage createhd --filename G:\VirtualBoxVM\oinfo12c-shared\asm4.vdi --size 5120 --format VDI --variant Fixed

**Sample output:-**

C:\Program Files\Oracle\VirtualBox>VBoxManage createhd --filename G:\VirtualBoxVM\oinfo12c-shared\asm1.vdi --size 5120 -

-format VDI --variant Fixed

0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%

Disk image created. UUID: 199e7910-bc1a-40d7-91fb-226326537506

C:\Program Files\Oracle\VirtualBox>VBoxManage createhd --filename G:\VirtualBoxVM\oinfo12c-shared\asm2.vdi --size 5120 -

-format VDI --variant Fixed

0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%

Disk image created. UUID: db15a49a-1609-4a16-bea9-24859449fdf8

C:\Program Files\Oracle\VirtualBox>VBoxManage createhd --filename G:\VirtualBoxVM\oinfo12c-shared\asm3.vdi --size 5120 -

-format VDI --variant Fixed

0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%

Disk image created. UUID: 13e177f9-60ba-47b7-846b-0522b3ae0080

C:\Program Files\Oracle\VirtualBox>VBoxManage createhd --filename G:\VirtualBoxVM\oinfo12c-shared\asm4.vdi --size 5120 -

-format VDI --variant Fixed

0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%

Disk image created. UUID: 16268d1b-6087-4408-9211-f1bbf039d6e3

**Connect them to the VM.**

VBoxManage storageattach oinfo12c-rac1 --storagectl "SATA Controller" --port 1 --device 0 --type hdd --medium G:\VirtualBoxVM\oinfo12c-shared\asm1.vdi --mtype shareable

VBoxManage storageattach oinfo12c-rac1 --storagectl "SATA Controller" --port 2 --device 0 --type hdd --medium G:\VirtualBoxVM\oinfo12c-shared\asm2.vdi --mtype shareable

VBoxManage storageattach oinfo12c-rac1 --storagectl "SATA Controller" --port 3 --device 0 --type hdd --medium G:\VirtualBoxVM\oinfo12c-shared\asm3.vdi --mtype shareable

VBoxManage storageattach oinfo12c-rac1 --storagectl "SATA Controller" --port 4 --device 0 --type hdd --medium G:\VirtualBoxVM\oinfo12c-shared\asm4.vdi --mtype shareable

**Make shareable.**

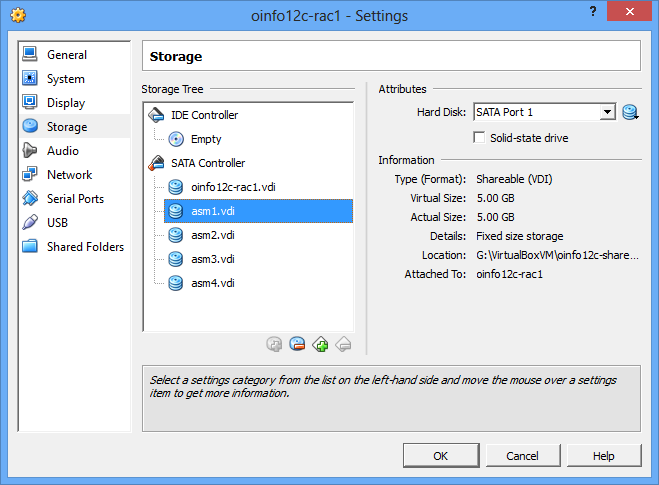
VBoxManage modifyhd G:\VirtualBoxVM\oinfo12c-shared\asm1.vdi --type shareable

VBoxManage modifyhd G:\VirtualBoxVM\oinfo12c-shared\asm2.vdi --type shareable

VBoxManage modifyhd G:\VirtualBoxVM\oinfo12c-shared\asm3.vdi --type shareable

VBoxManage modifyhd G:\VirtualBoxVM\oinfo12c-shared\asm4.vdi --type shareable

**After addition the storage looks like below**



**Start the Virtual Machine Node 1 and then proceed to add disks**

For this Shared storage I will be using ASM LIB, in order to get the asmlib used, we will need the correct ASM Library drivers . Create the partitions to the shared disks, I have got four partitions from sdb,sdc,sdd,sde,

# 5. Creating Partitions for shared Disk Storage

**Create them as appropriate, Replace \* with letter above and repeat for all 4 disks**

[root@oinfo12c-rac1 ~]# fdisk /dev/sd\*

Device contains neither a valid DOS partition table, nor Sun, SGI or OSF disklabel

Building a new DOS disklabel with disk identifier 0x299c5f14.

Changes will remain in memory only, until you decide to write them.

After that, of course, the previous content won't be recoverable.

Warning: invalid flag 0x0000 of partition table 4 will be corrected by w(rite)

WARNING: DOS-compatible mode is deprecated. It's strongly recommended to

switch off the mode (command 'c') and change display units to

sectors (command 'u').

Command (m for help): n

Command action

e extended

p primary partition (1-4)

p

Partition number (1-4): 1

First cylinder (1-652, default 1):

Using default value 1

Last cylinder, +cylinders or +size{K,M,G} (1-652, default 652):

Using default value 652

Command (m for help): w

The partition table has been altered!

Calling ioctl() to re-read partition table.

Syncing disks.

[root@oinfo12c-rac1 ~]#

Download ASM Lib support and package from here for your kernel Type,

**Please note from Linux 6 onwards the the ASMlib driver is included in the UEK kernel**

[root@oinfo12c-rac1 oracle]# uname -a

Linux oinfo12c-rac1.localdomain 2.6.39-400.17.1.el6uek.x86\_64 #1 SMP Fri Feb 22 18:16:18 PST 2013 x86\_64 x86\_64 x86\_64 GNU/Linux

**So I assume asmlib driver is already installed,the rest two I have done now**

[root@oinfo12c-rac1 oracle]# rpm -ivh oracleasmlib-2.0.4-1.el5.x86\_64.rpm oracleasm-support-2.1.8-1.el5.x86\_64.rpm

warning: oracleasmlib-2.0.4-1.el5.x86\_64.rpm: Header V3 DSA/SHA1 Signature, key ID 1e5e0159: NOKEY

Preparing... ########################################### [100%]

1:oracleasm-support ########################################### [ 50%]

2:oracleasmlib ########################################### [100%]

[root@oinfo12c-rac1 oracle]#

**Configure the ASMLIB**

[root@oinfo12c-rac1 oracle]# oracleasm configure -i

Configuring the Oracle ASM library driver.

This will configure the on-boot properties of the Oracle ASM library

driver. The following questions will determine whether the driver is

loaded on boot and what permissions it will have. The current values

will be shown in brackets ('[]'). Hitting <ENTER> without typing an

answer will keep that current value. Ctrl-C will abort.

Default user to own the driver interface []: oracle

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]: y

Writing Oracle ASM library driver configuration: done

[root@oinfo12c-rac1 oracle]# 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

**Create/Stamp the Disks with ASMLib and label them with Disk names**

[root@oinfo12c-rac1 oracle]# oracleasm createdisk DISK1 /dev/sdb1

Writing disk header: done

Instantiating disk: done

[root@oinfo12c-rac1 oracle]# oracleasm createdisk DISK2 /dev/sdc1

Writing disk header: done

Instantiating disk: done

[root@oinfo12c-rac1 oracle]# oracleasm createdisk DISK4 /dev/sdd1

Writing disk header: done

Instantiating disk: done

[root@oinfo12c-rac1 oracle]# oracleasm createdisk DISK3 /dev/sde1

Writing disk header: done

Instantiating disk: done

**Scan the Disks**

[root@oinfo12c-rac1 oracle]# oracleasm scandisks

Reloading disk partitions: done

Cleaning any stale ASM disks...

Scanning system for ASM disks...

**List the Disks**

[root@oinfo12c-rac1 oracle]# oracleasm listdisks

DISK1

DISK2

DISK3

DISK4

[root@oinfo12c-rac1 oracle]#

Shutdown the Node

# 6. Clone the Virtual Machine & Prepare second node

**Shutdown the node 1**

#Shutdown -h now

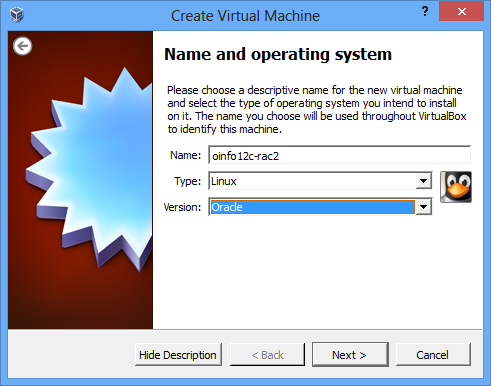
**Clone the harddisk of node1 to node2, Select the folder path where you have created the empty folder above in my case it is**

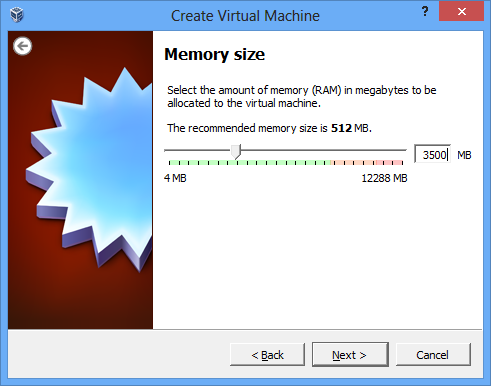
**In the host operating system command prompt**

VBoxManage clonehd G:\VirtualBoxVM\oinfo12c-rac1\oinfo12c-rac1.vdi G:\VirtualBoxVM\oinfo12c-rac2\oinfo12c-rac2.vdi

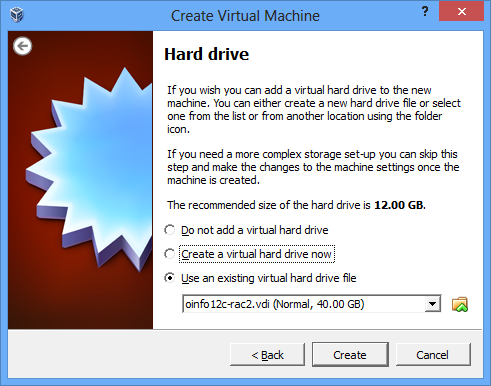
A harddisk will now be cloned to G:\VirtualBoxVM\oinfo12c-rac2\oinfo12c-rac2.vdi

Create a New Virtual Machine as follows

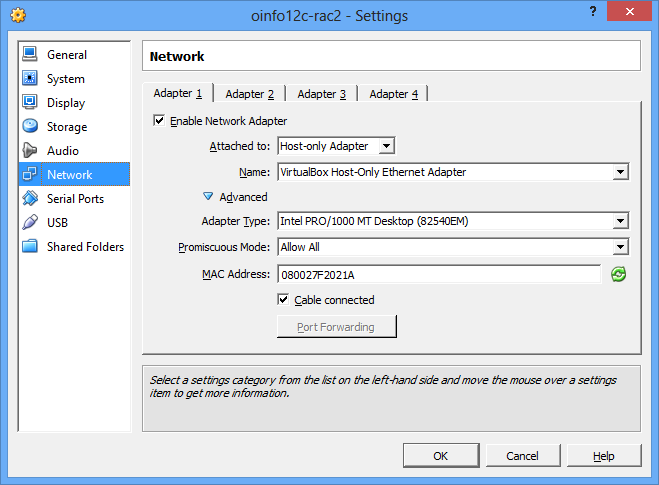


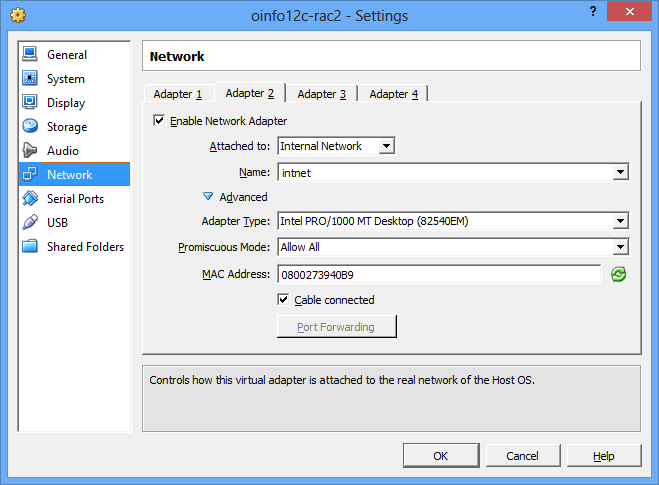


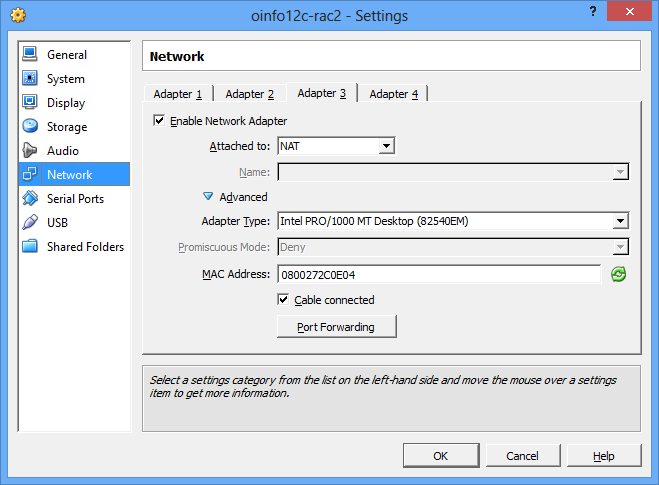
Here select the disk that has cloned just before



**Cick on settings for node 2 and add network adapters and also the shared storages**







**Add shared storages to Node 2**

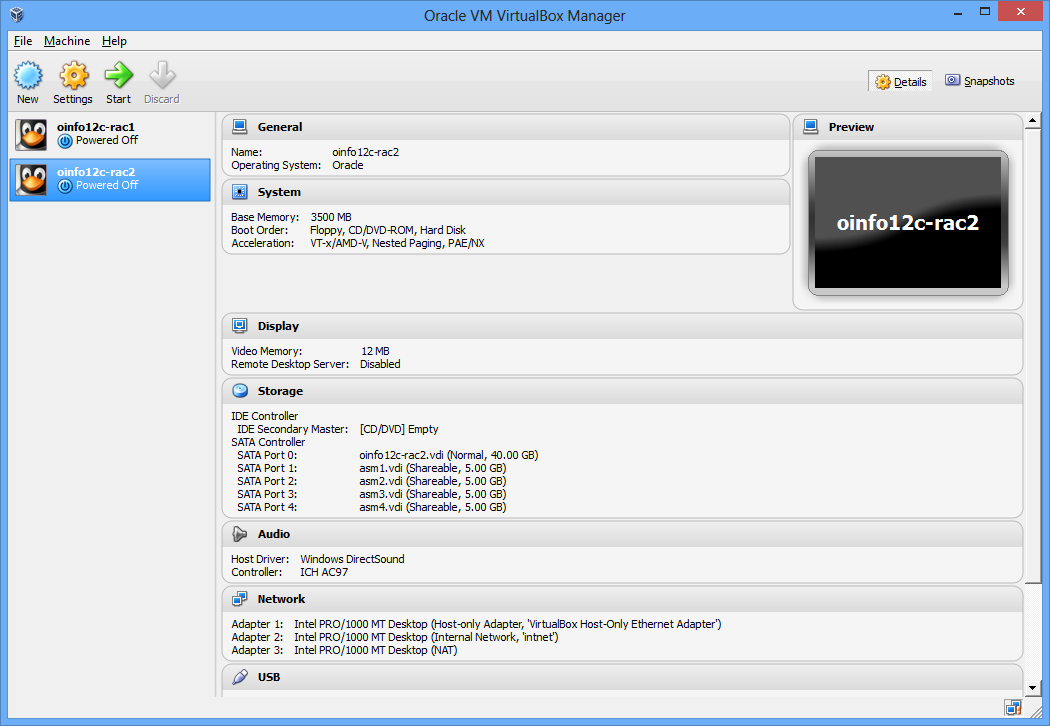
VBoxManage storageattach oinfo12c-rac2 --storagectl "SATA Controller" --port 1 --device 0 --type hdd --medium G:\VirtualBoxVM\oinfo12c-shared\asm1.vdi --mtype shareable

VBoxManage storageattach oinfo12c-rac2 --storagectl "SATA Controller" --port 2 --device 0 --type hdd --medium G:\VirtualBoxVM\oinfo12c-shared\asm2.vdi --mtype shareable

VBoxManage storageattach oinfo12c-rac2 --storagectl "SATA Controller" --port 3 --device 0 --type hdd --medium G:\VirtualBoxVM\oinfo12c-shared\asm3.vdi --mtype shareable

VBoxManage storageattach oinfo12c-rac2 --storagectl "SATA Controller" --port 4 --device 0 --type hdd --medium G:\VirtualBoxVM\oinfo12c-shared\asm4.vdi --mtype shareable

**Finally the node 2 looks like**



**Startup the Node 2 by clicking start 🡪, once started do the following**

**Change Network configuration for Node 2**

Ensure you delete all network interfaces and add them again and also delete any files that has .bak in /etc/sysconfig/network-scripts/ifcfg\*.bak

Go to System - Preferences - Network connections and delete all three eth interfaces and them again

Once done do a network restart

#service network restart

After adding eth interfaces, Make the configuration as follows:-

eth0: IP=192.168.56.102, Subnet=255.255.255.0, Gateway=192.168.56.1, DNS=192.168.56.1, Search=localdomain (Connect Automatically)

eth1: IP=192.168.1.102, Subnet=255.255.255.0, Gateway=<blank>, DNS=<blank>, Search=<blank> (Connect Automatically)

eth3: DHCP (\*Not\* Connect Automatically)

**Change the hostname in /etc/sysconfig/network**

NETWORKING=yes

HOSTNAME=oinfo12c-rac2.localdomain

**Change the /home/oracle/.bash\_profile**

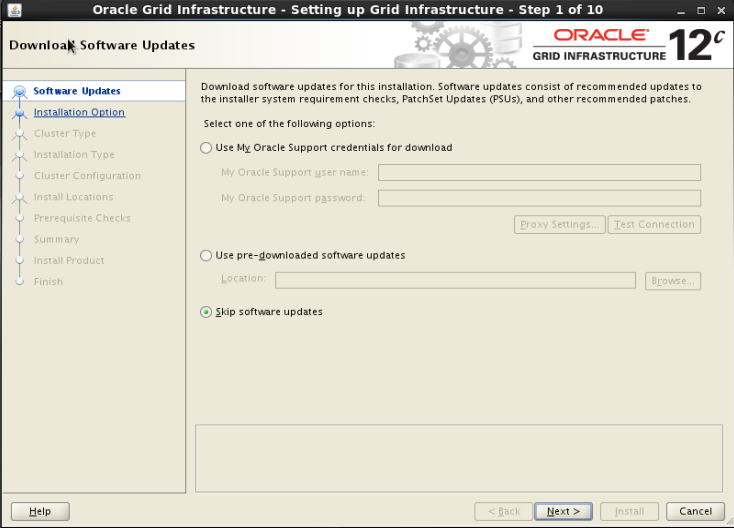
export ORACLE\_SID=rac12cdb2

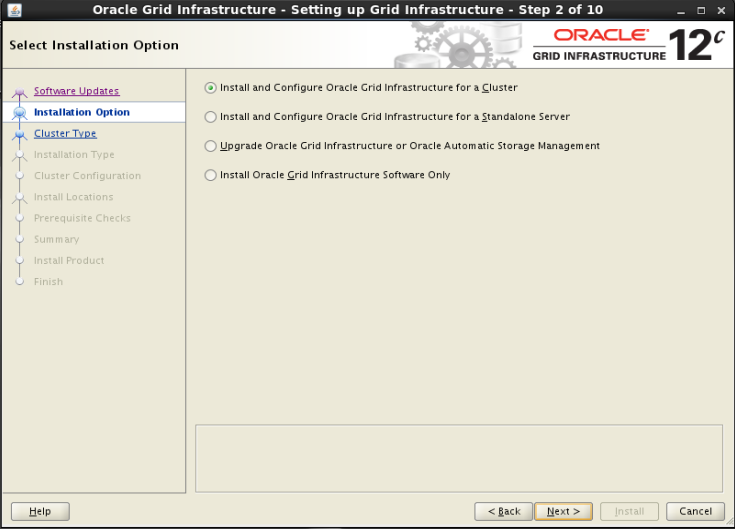
export ORACLE\_HOSTNAME=oinfo12c-rac2.localdomain

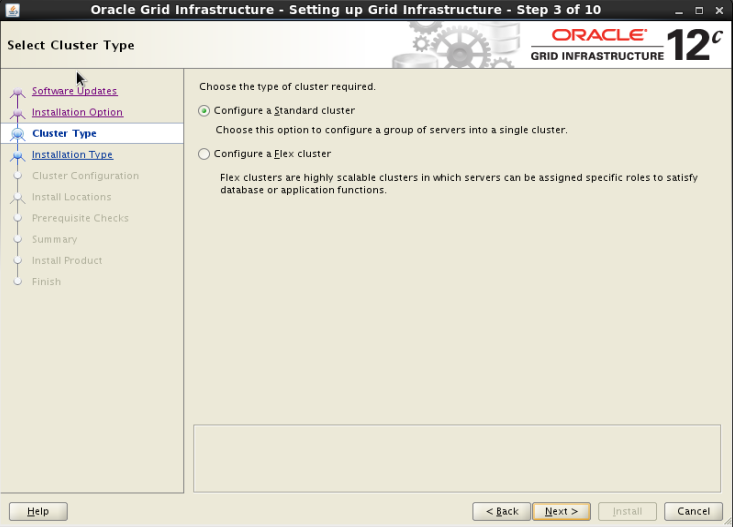
**Now restart the oinfo12c-rac2 and start the oinfo12c-rac1, once they started do a network reachable test and also verify asm disks availability**

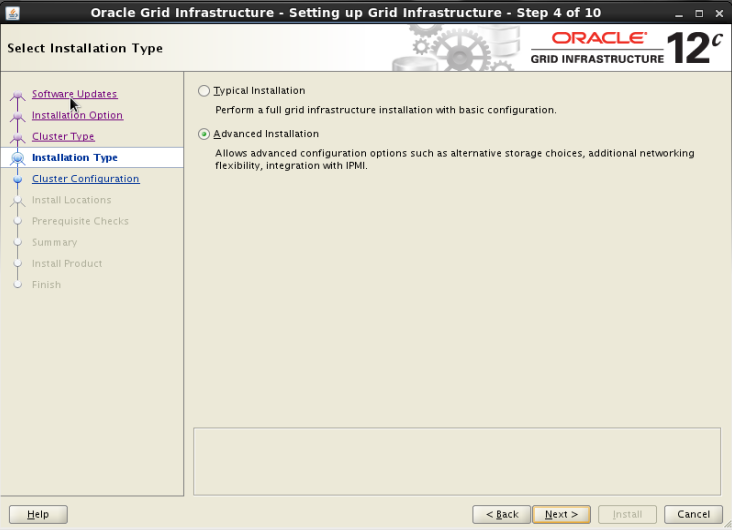
# 7. Installing Grid Infrastructure/Clusterware

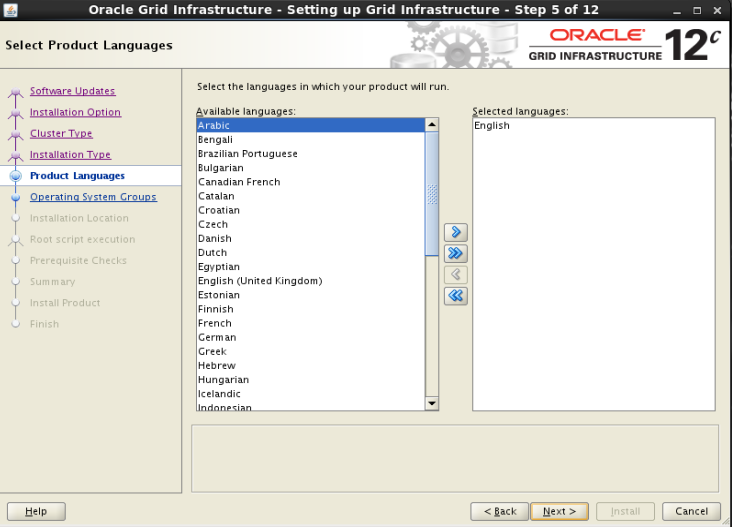
./runInstaller

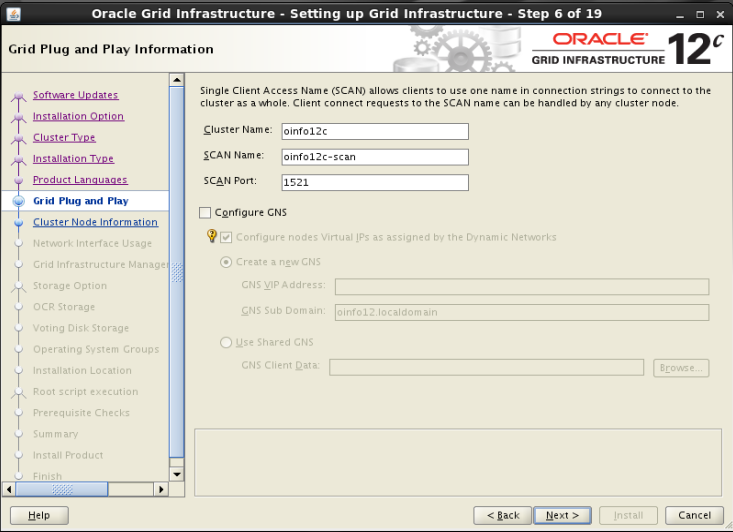


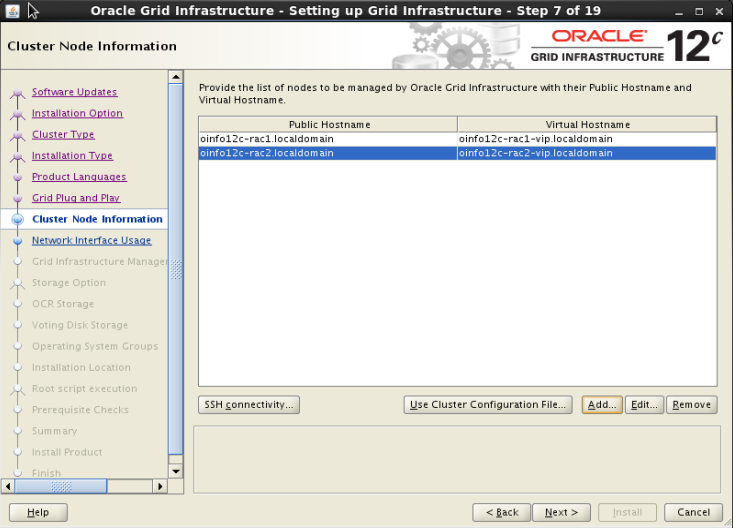


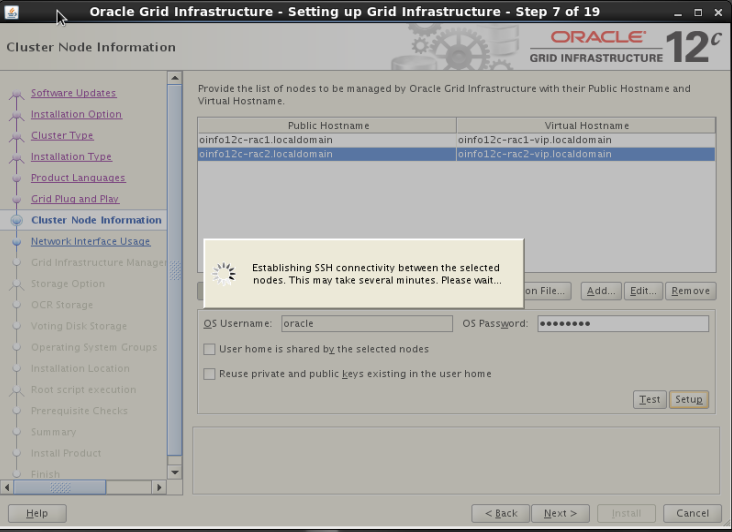




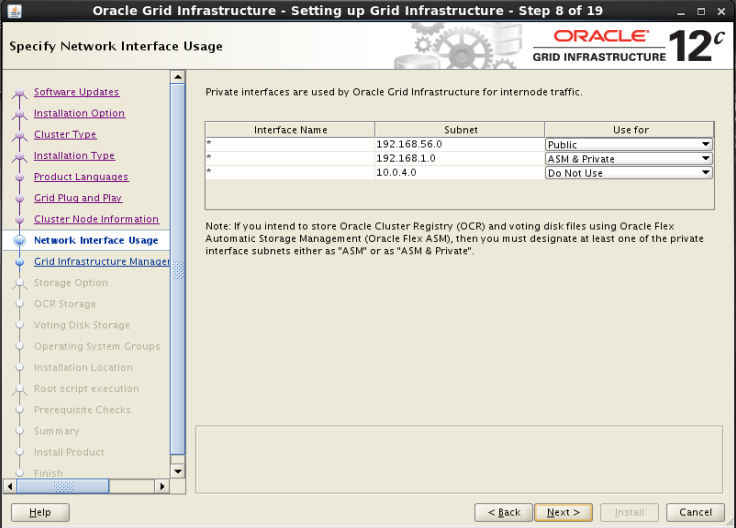


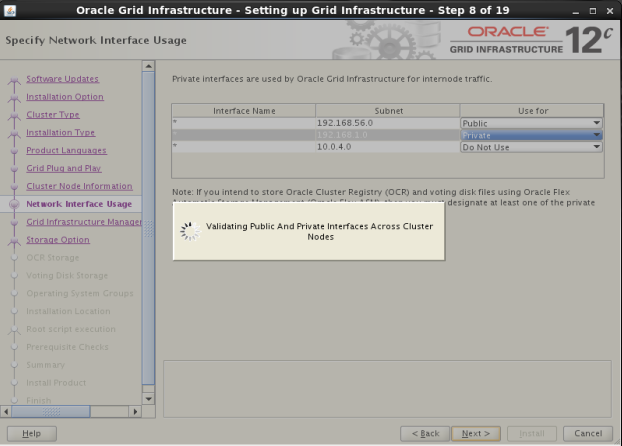


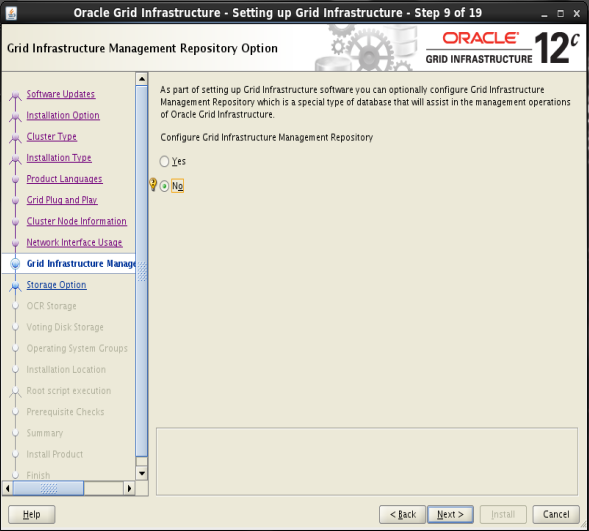


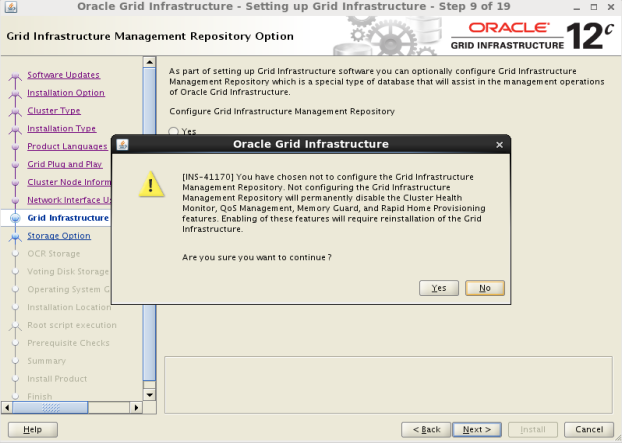


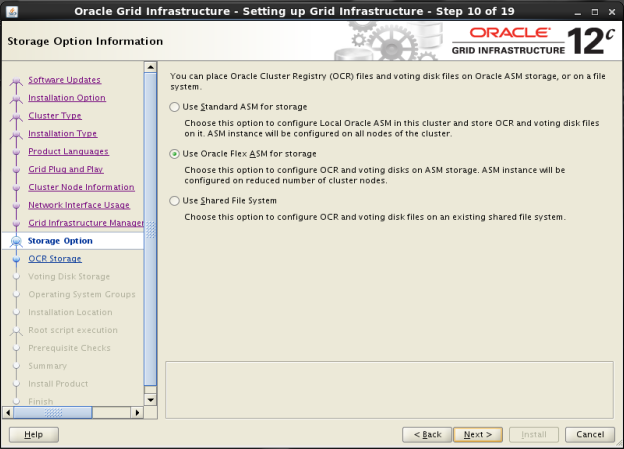
Do not select ASM & Private if you are not planning to USE FlexASM (this is new concept will discuss in ASM section), this will fail in next



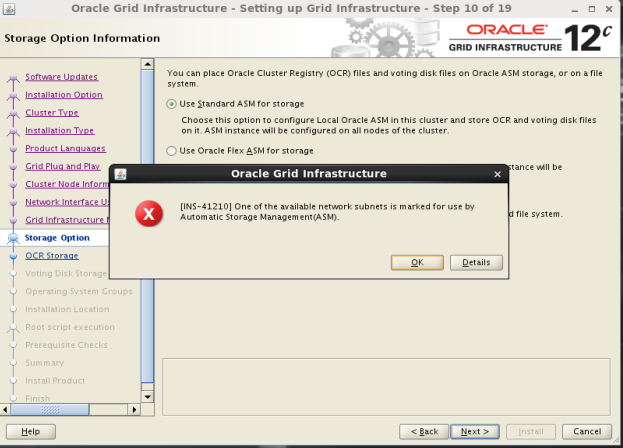






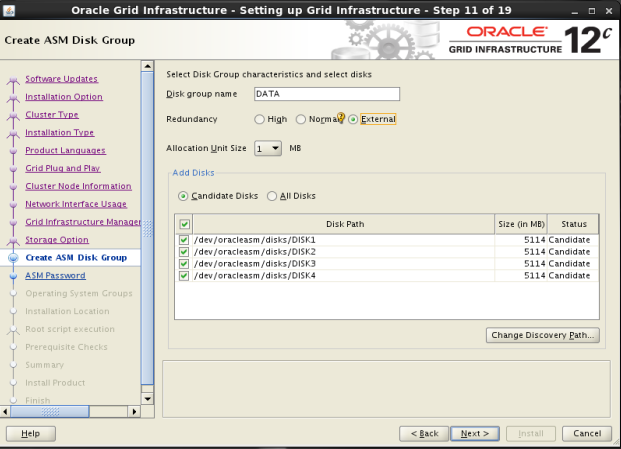


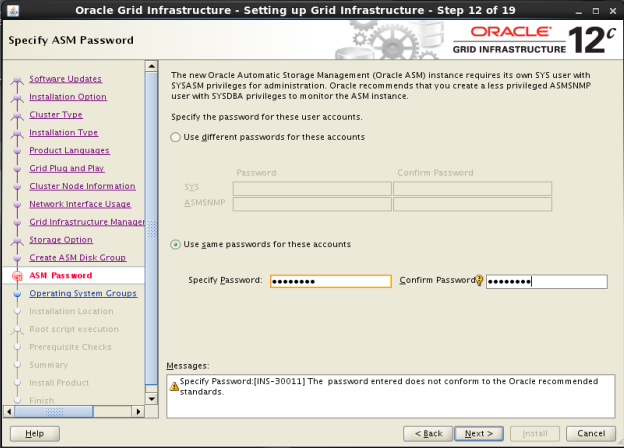
As you saw the installation is telling that For using standard asm storage (not flexASM) the clusterinterconnect should not marked as ASM, (as above I did and went back and changed to Private interconnect only)

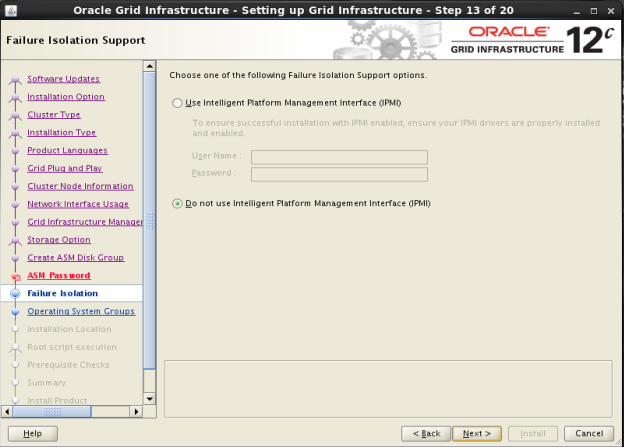


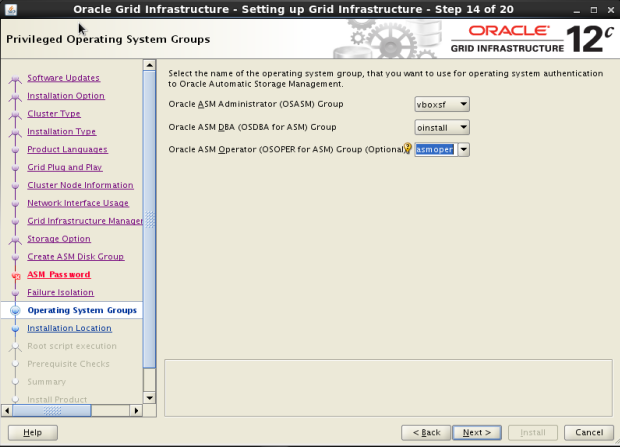
Now, I have modified the cluster interconnect to Private (only) in previous screens and this errors go away.

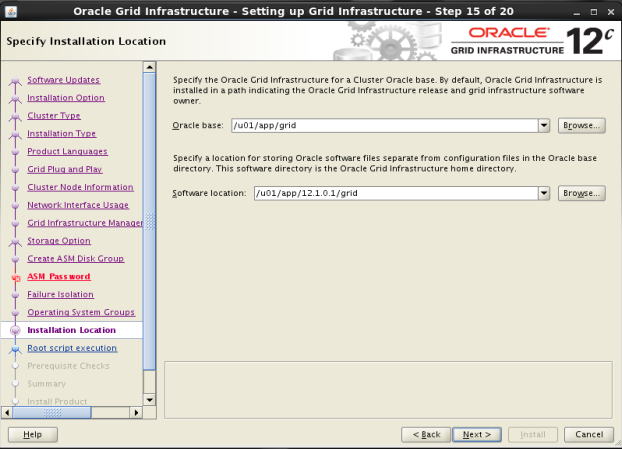
The next screen shows, Disk group name and the disks, I have selected all disks and also ensure to change the Disk Discovery Path to “/dev/oracleasm/disks/\*”

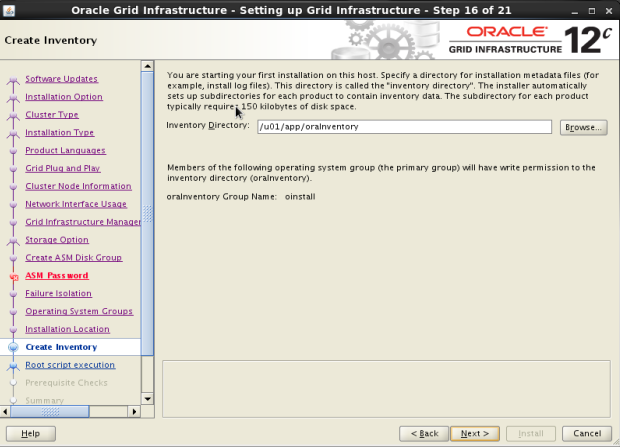


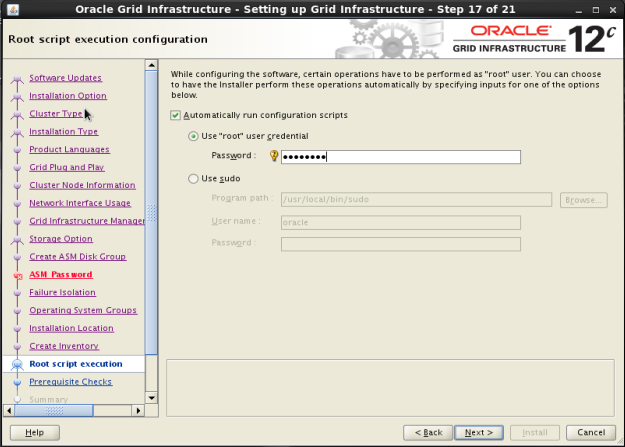


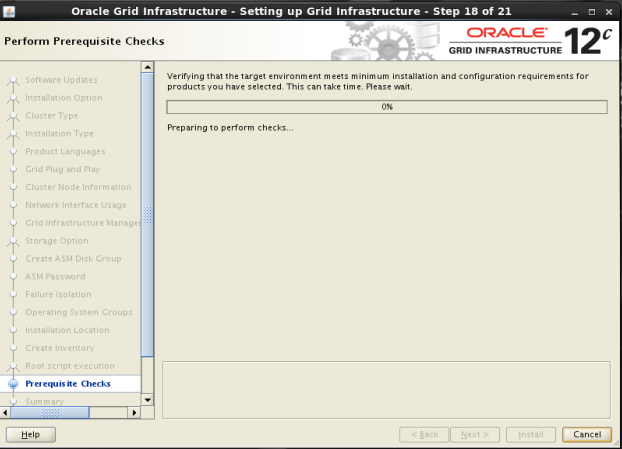




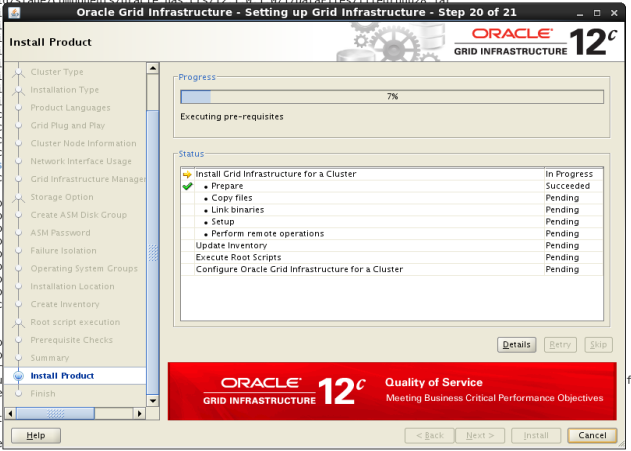


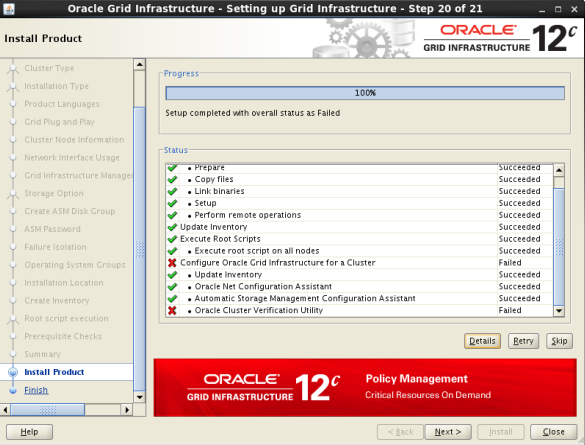






Once checks proceeded I have some prereqs failed, fix them up and rechecked and proceed for final go.





[oracle@oinfo12c-rac1 ~]$ crsctl stat resource -t

--------------------------------------------------------------------------------

Name Target State Server State details

--------------------------------------------------------------------------------

Local Resources

--------------------------------------------------------------------------------

ora.DATA.dg

ONLINE ONLINE oinfo12c-rac1 STABLE

ONLINE ONLINE oinfo12c-rac2 STABLE

ora.LISTENER.lsnr

ONLINE ONLINE oinfo12c-rac1 STABLE

ONLINE ONLINE oinfo12c-rac2 STABLE

ora.asm

ONLINE ONLINE oinfo12c-rac1 STABLE

ONLINE ONLINE oinfo12c-rac2 Started,STABLE

ora.net1.network

ONLINE ONLINE oinfo12c-rac1 STABLE

ONLINE ONLINE oinfo12c-rac2 STABLE

ora.ons

ONLINE ONLINE oinfo12c-rac1 STABLE

ONLINE ONLINE oinfo12c-rac2 STABLE

--------------------------------------------------------------------------------

Cluster Resources

--------------------------------------------------------------------------------

ora.LISTENER\_SCAN1.lsnr

1 ONLINE ONLINE oinfo12c-rac2 STABLE

ora.LISTENER\_SCAN2.lsnr

1 ONLINE ONLINE oinfo12c-rac1 STABLE

ora.LISTENER\_SCAN3.lsnr

1 ONLINE ONLINE oinfo12c-rac1 STABLE

ora.cvu

1 ONLINE ONLINE oinfo12c-rac1 STABLE

ora.oc4j

1 OFFLINE OFFLINE STABLE

ora.oinfo12c-rac1.vip

1 ONLINE ONLINE oinfo12c-rac1 STABLE

ora.oinfo12c-rac2.vip

1 ONLINE ONLINE oinfo12c-rac2 STABLE

ora.scan1.vip

1 ONLINE ONLINE oinfo12c-rac2 STABLE

ora.scan2.vip

1 ONLINE ONLINE oinfo12c-rac1 STABLE

ora.scan3.vip

1 ONLINE ONLINE oinfo12c-rac1 STABLE

--------------------------------------------------------------------------------

[oracle@oinfo12c-rac1 ~]$

**OUI- Command (Silent)**

INFO: /u01/app/12.1.0.1/grid/oui/bin/runInstaller -jreLoc /u01/app/12.1.0.1/grid/jdk/jre -paramFile /u01/app/12.1.0.1/grid/oui/clusterparam.ini -silent -ignoreSysPrereqs -updateNodeList -setCustomNodelist -noClusterEnabled ORACLE\_HOME=/u01/app/12.1.0.1/grid CLUSTER\_NODES=oinfo12c-rac1,oinfo12c-rac2 "NODES\_TO\_SET={oinfo12c-rac1,oinfo12c-rac2}" CRS=false "INVENTORY\_LOCATION=/u01/app/oraInventory" LOCAL\_NODE=oinfo12c-rac2 -remoteInvocation -invokingNodeName oinfo12c-rac1 -logFilePath "/u01/app/oraInventory/logs" -timestamp 2013-07-01\_08-01-09PM

**Noticed that cssd starting in hub mode (flex cluster) need to explore on this.**

[ohasd(15272)]CRS-1301:Oracle High Availability Service started on node oinfo12c-rac1.

2013-07-01 23:11:40.418:

[gpnpd(15405)]CRS-2328:GPNPD started on node oinfo12c-rac1.

2013-07-01 23:11:48.391:

[cssd(15462)]CRS-1713:CSSD daemon is started in hub mode

2013-07-01 23:11:51.254:

# Next Install Orace RAC on this Grid Infrastructure nodes.