

Instalação do Oracle Grid Infrastructure e Oracle Database 12c sobre Oracle Enterprise Linux 6.7 com VirtualBox.



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INTRODUÇÃO

Os procedimento descritos nesse tutorial se aplicam a criação de um ambiente para testes e estudos. NÃO devem ser seguidos para instalação em ambiente de produção, nesse caso siga os procedimentos do site “My Oracle Support”.

As telas podem ser um pouco diferentes dependendo da versão do VirtualBox utilizada (Recomenda-se utilizar a última versão disponível de cada release).

Software necessário:

VirtualBox instalado (versão 4 ou superior).

Arquivo de imagem ISO do Oracle Enterprise Linux 6.7.

Instalador do Oracle Grid Infrastructure 12c (12.1.0.2).

Instalador do Oracle Database 12c (12.1.0.2).

Acesso a internet (Para configuração do linux através do yum).

Hardware necessário:

Computador com 8GB de memória (6GB no mínimo).

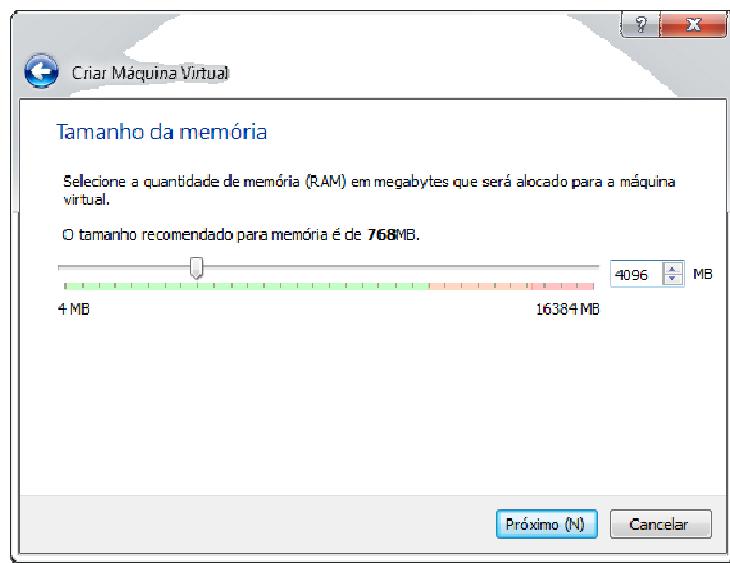
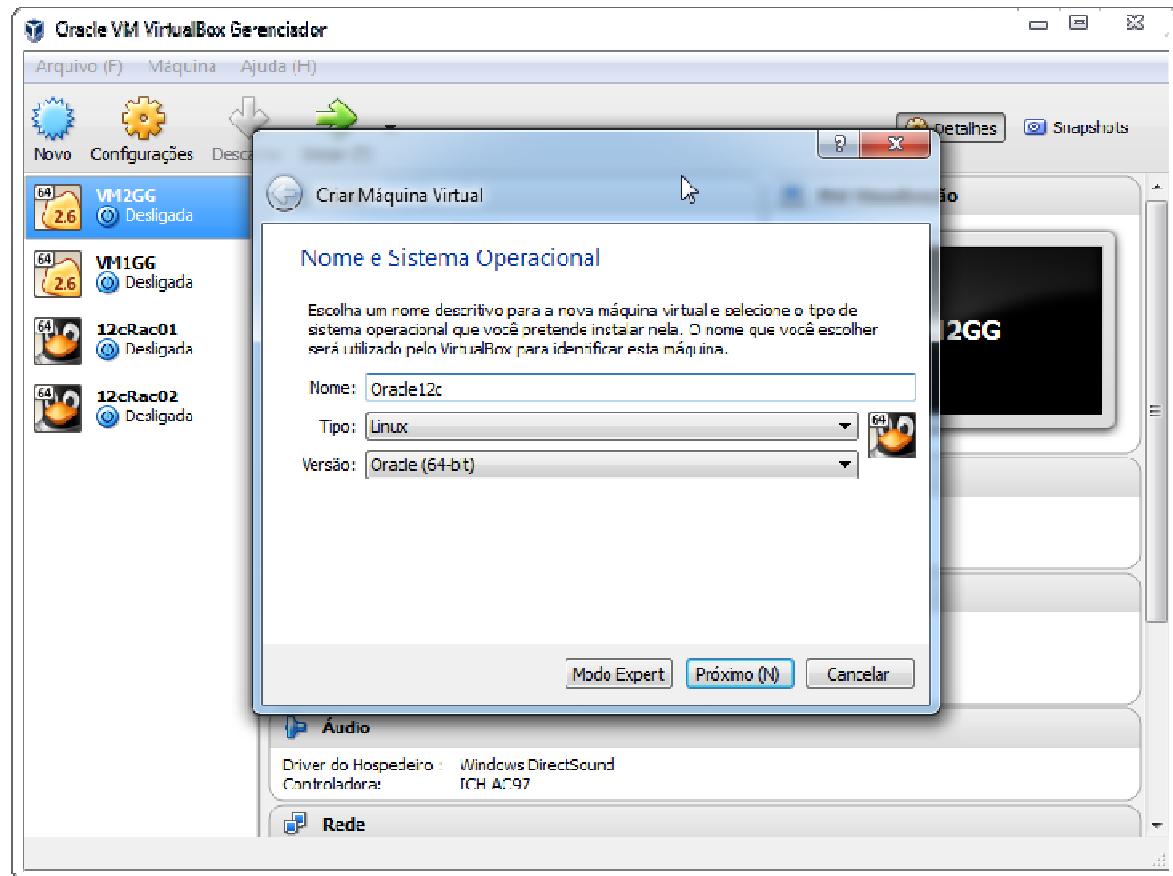
100GB de espaço livre em disco.

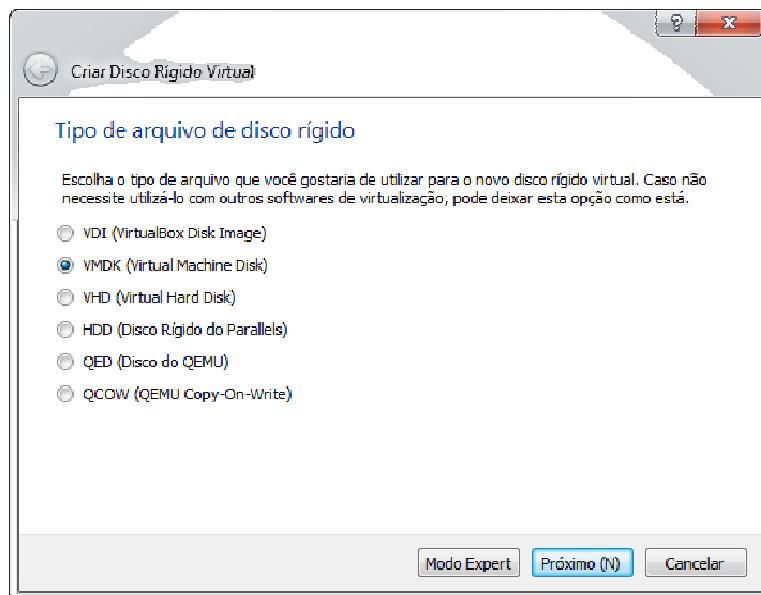
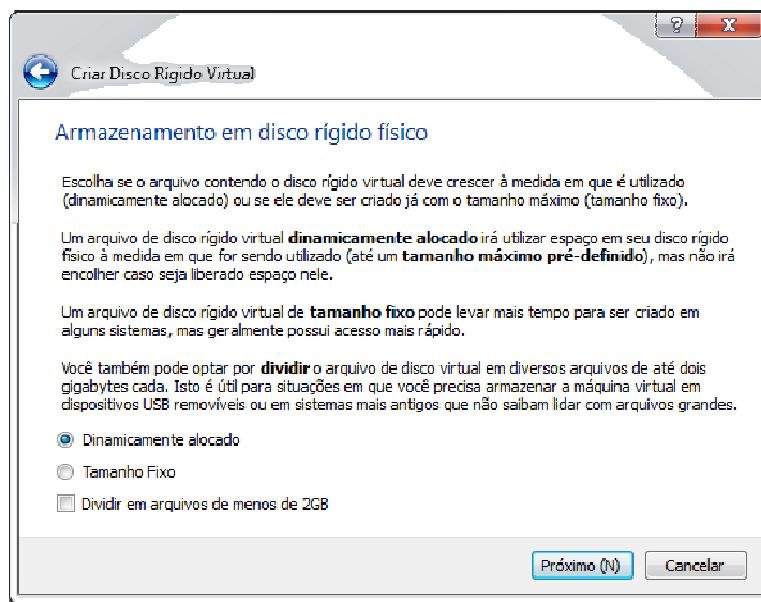
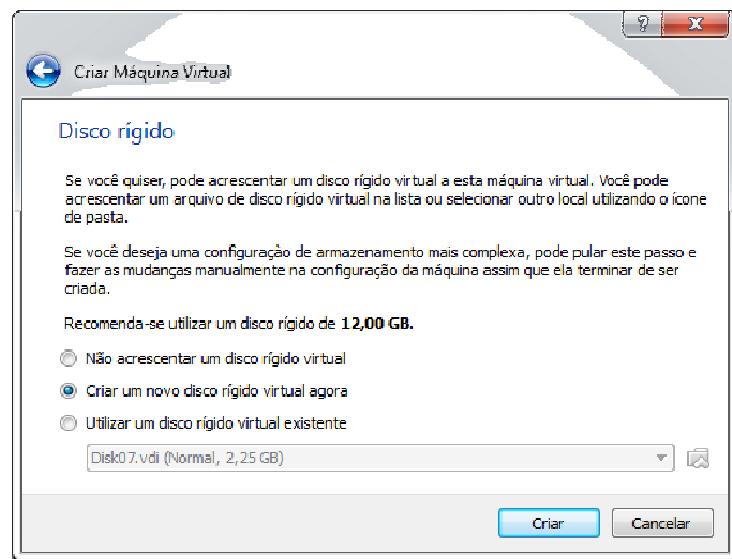
Deixe todos os instaladores em uma pasta que será compartilhada com a máquina virtual.

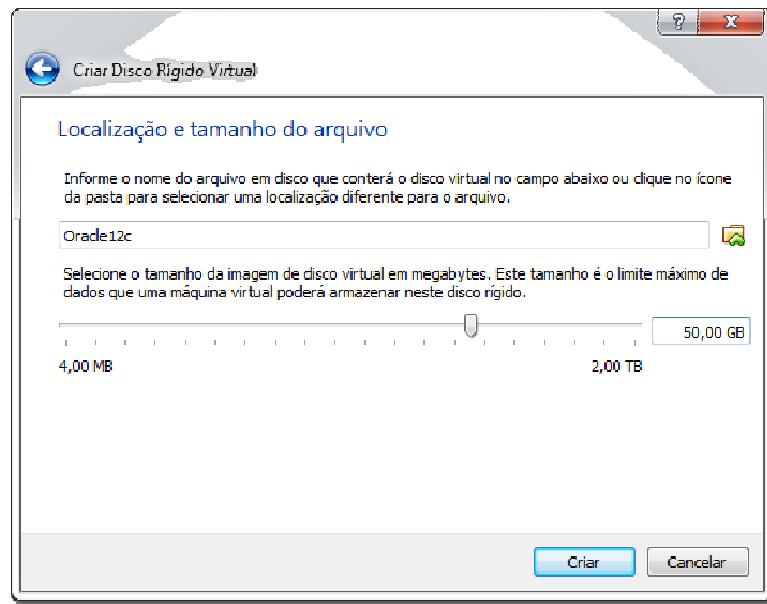
CRIAÇÃO DA VM

As telas podem ser um pouco diferentes devido ao idioma da instalação e a versão do software instalada.

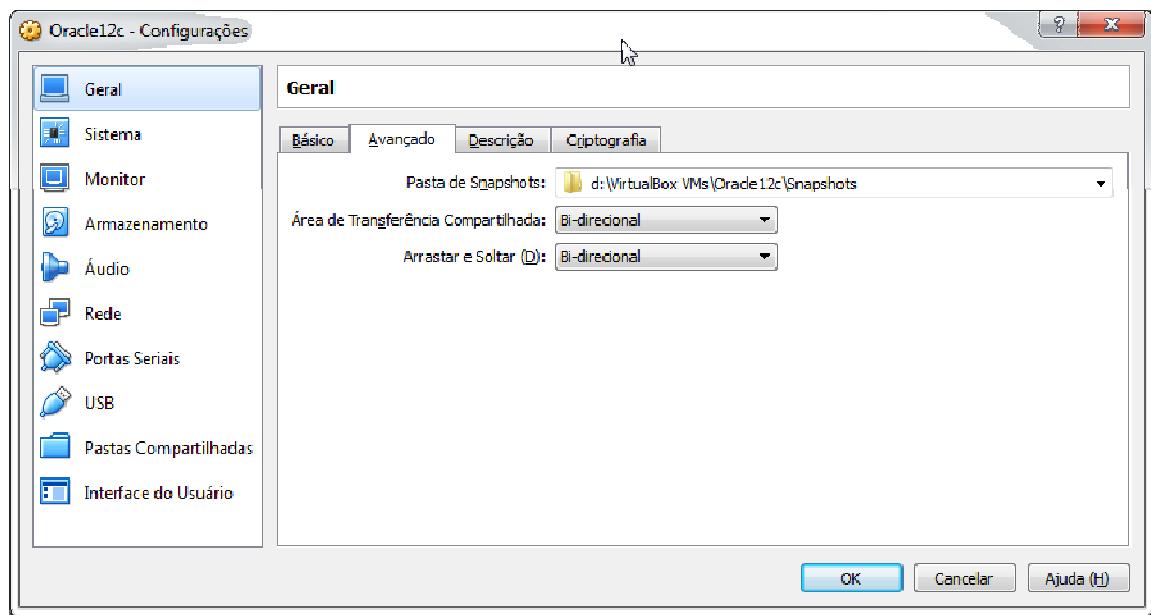
Abra o VirtualBox e clique em Novo. Crie uma Máquina Virtual conforme as imagens a seguir. Clique em Próximo (N).



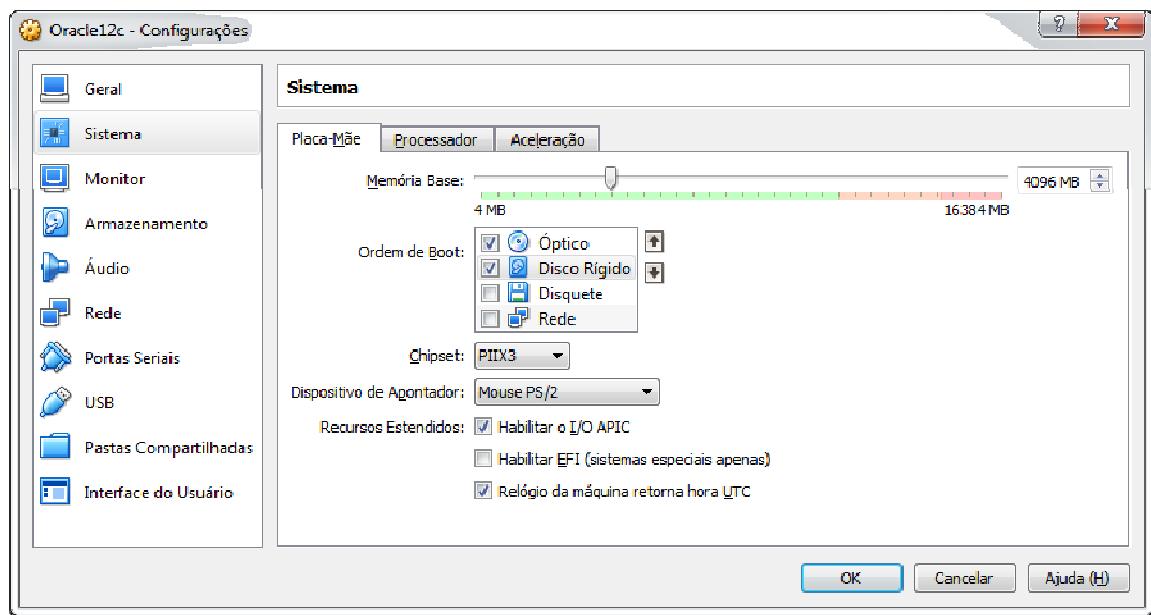




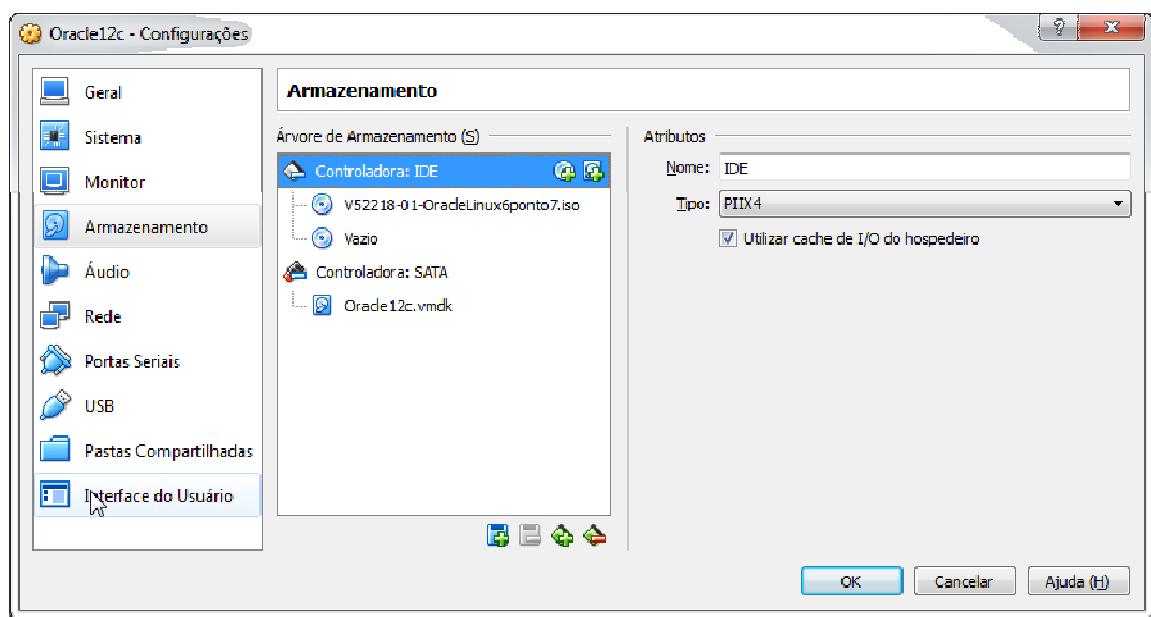
Selecione a máquina virtual criada e clique em Configurações.



Remova a opção Disquete e coloque Óptico como primeira opção.

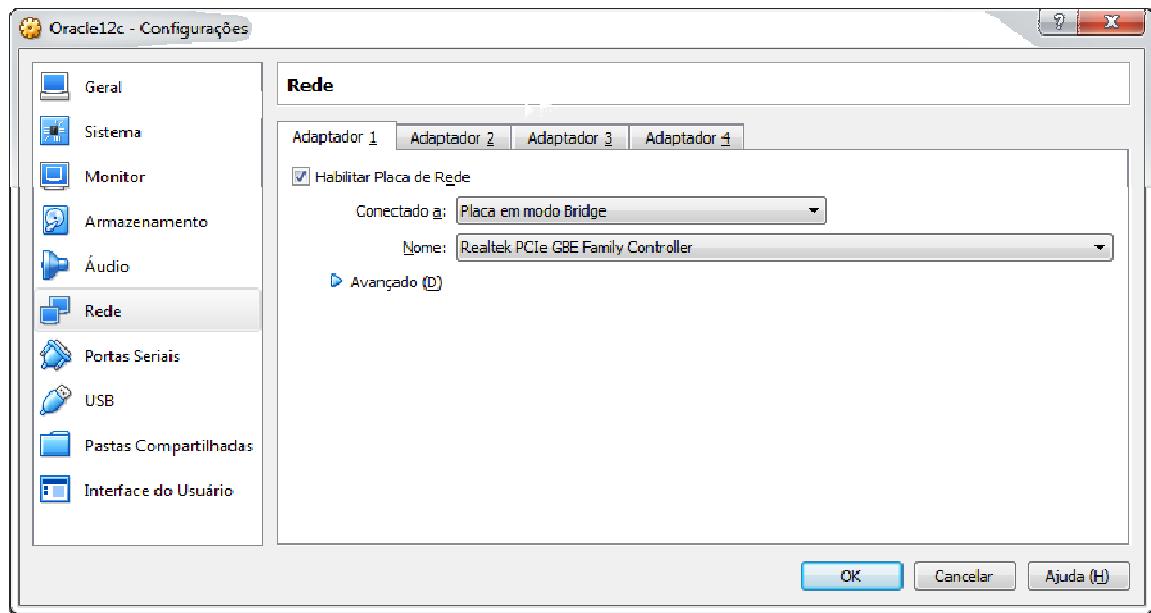


Clique em acrescentar disco óptico e adicione o arquivo “ISO” do linux.

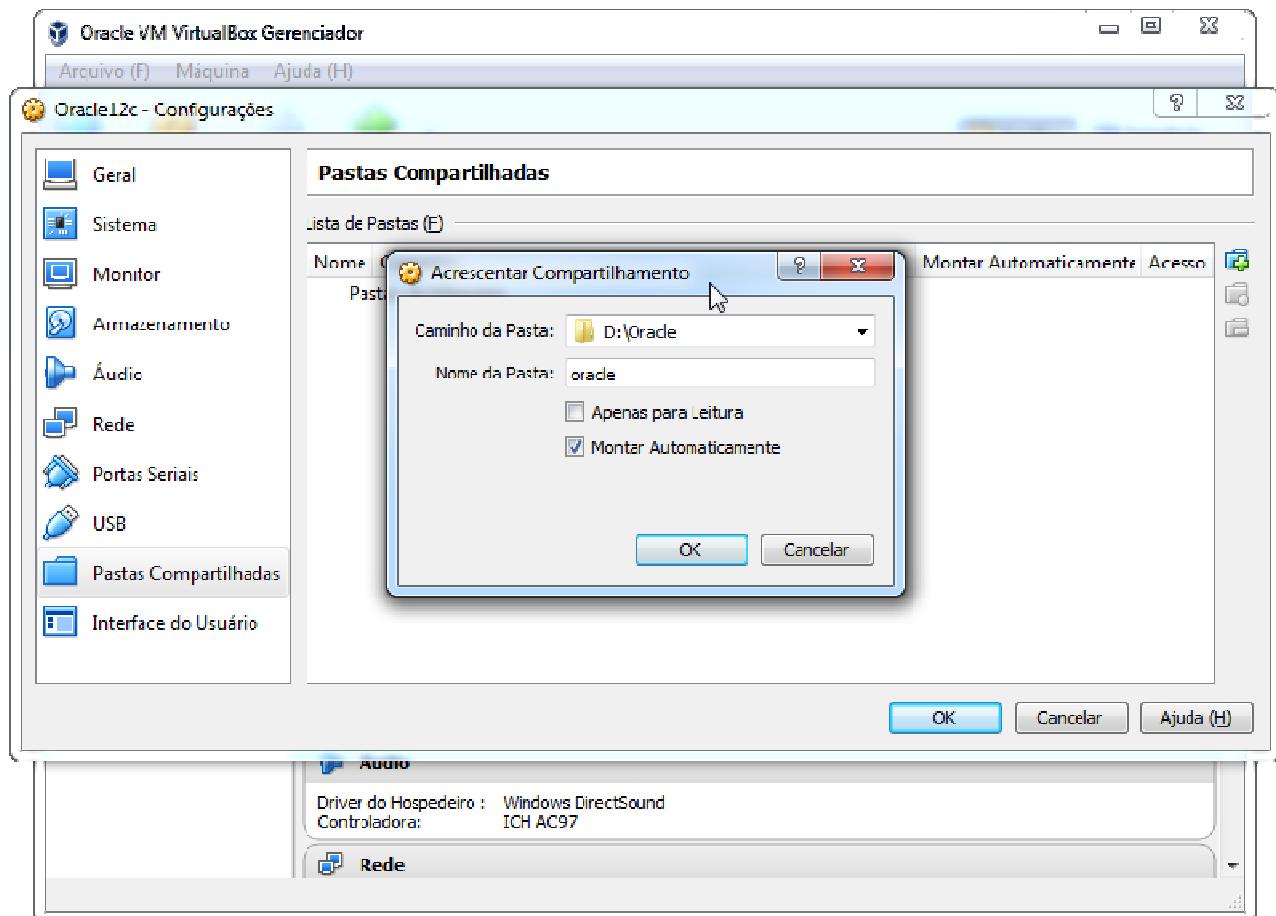


Adaptador 1 como Conectado a: Placa em modo Bridge.

Adaptador 2 como Conectado a: Rede Interna.



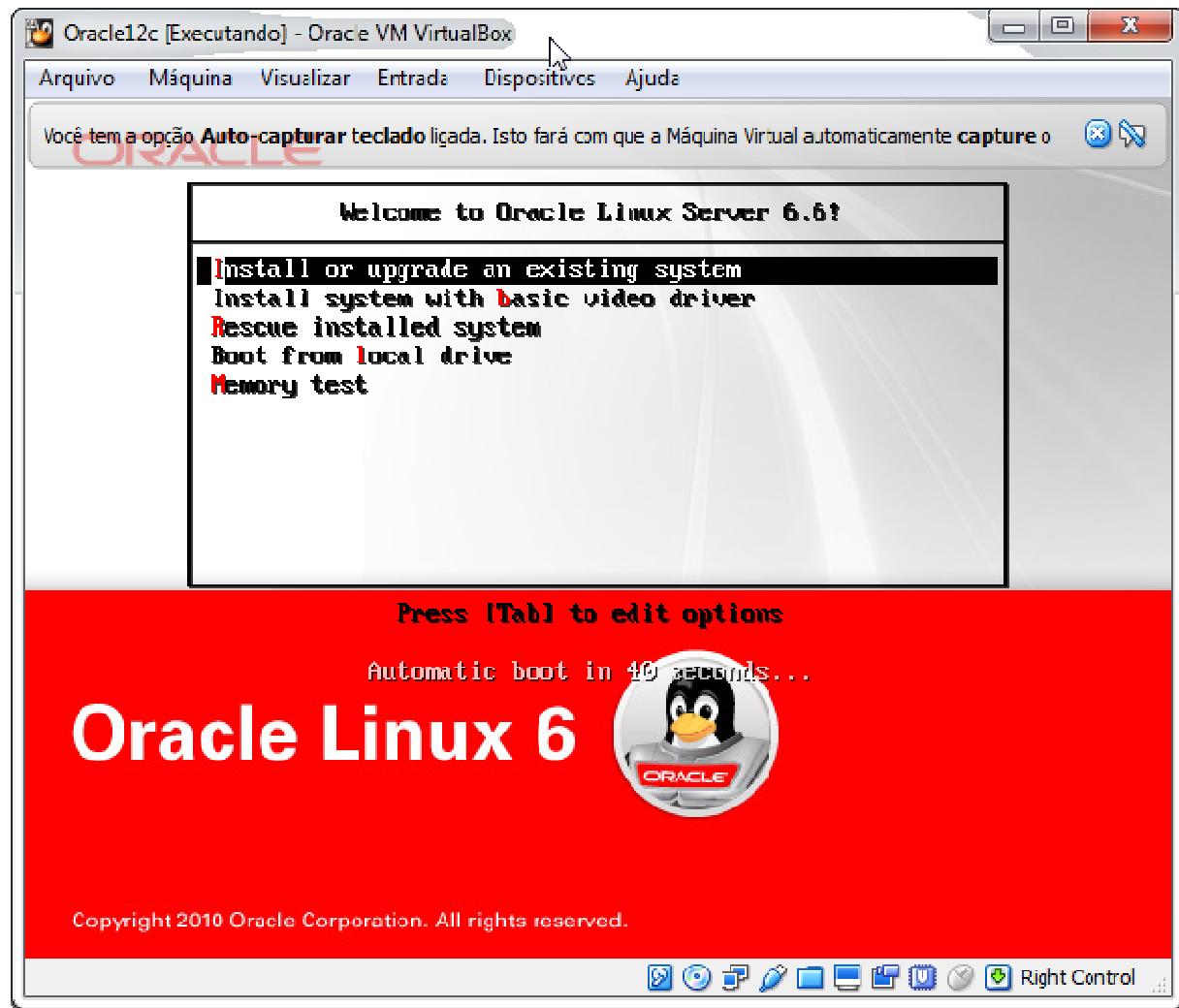
Acrescente uma pasta compartilhada para a pasta onde se encontra os instaladores do oracle, mantenha o nome como “oracle” em letras minúsculas.



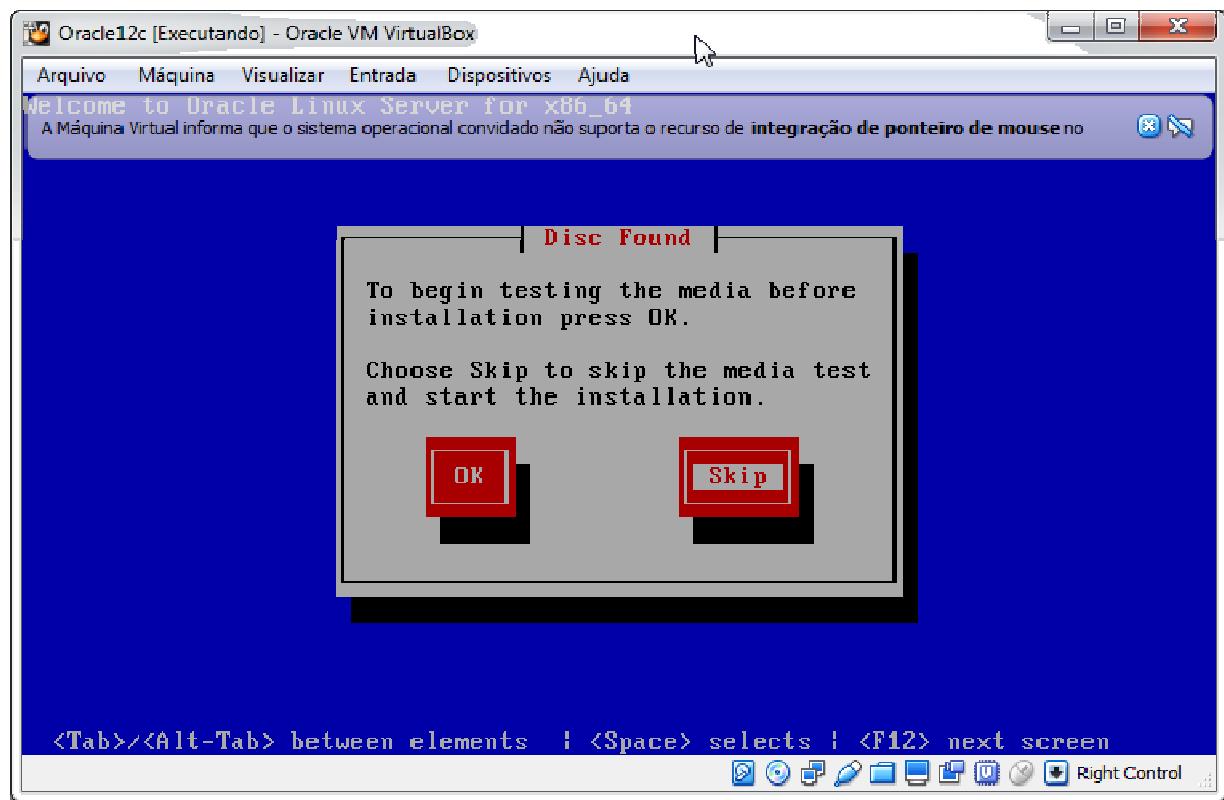
Inicie a máquina virtual.

INSTALAÇÃO DO LINUX

Entre na primeira opção. A instalação do Linux iniciará.



Escolha opção Skip.



Em seguida:

Next.

Next.

Escolha o padrão de teclado (U.S. English ou Brazilian (ABNT2)) e Next.



Escolha "Yes, discard any data".



Defina o Hostname: dbserver.localdomain e clique em Configure Network.

Edite as duas placas de rede.

Placa eth0 selecione a opção “Connect automatically”, Method: “Automatic (DHCP)” conforme imagem.
Clique em Apply.



Placa eth1, selecione a opção “Connect automatically”, Method: “Manual” e adicione o IP conforme imagem. Clique em Apply.



Em seguida Close e Next.

Selecione o fuso horário.



Next.

Defina senha de root (Será necessário posteriormente).

Next.

Which type of installation would you like?

Use All Space



Removes all partitions on the selected device(s). This includes partitions created by other operating systems.

Tip: This option will remove data from the selected device(s). Make sure you have backups.

Replace Existing Linux System(s)



Removes only Linux partitions (created from a previous Linux installation). This does not remove other partitions you may have on your storage device(s) (such as VFAT or FAT32).

Tip: This option will remove data from the selected device(s). Make sure you have backups.

Shrink Current System



Shrinks existing partitions to create free space for the default layout.

Use Free Space



Retains your current data and partitions and uses only the unpartitioned space on the selected device(s), assuming you have enough free space available.

Create Custom Layout

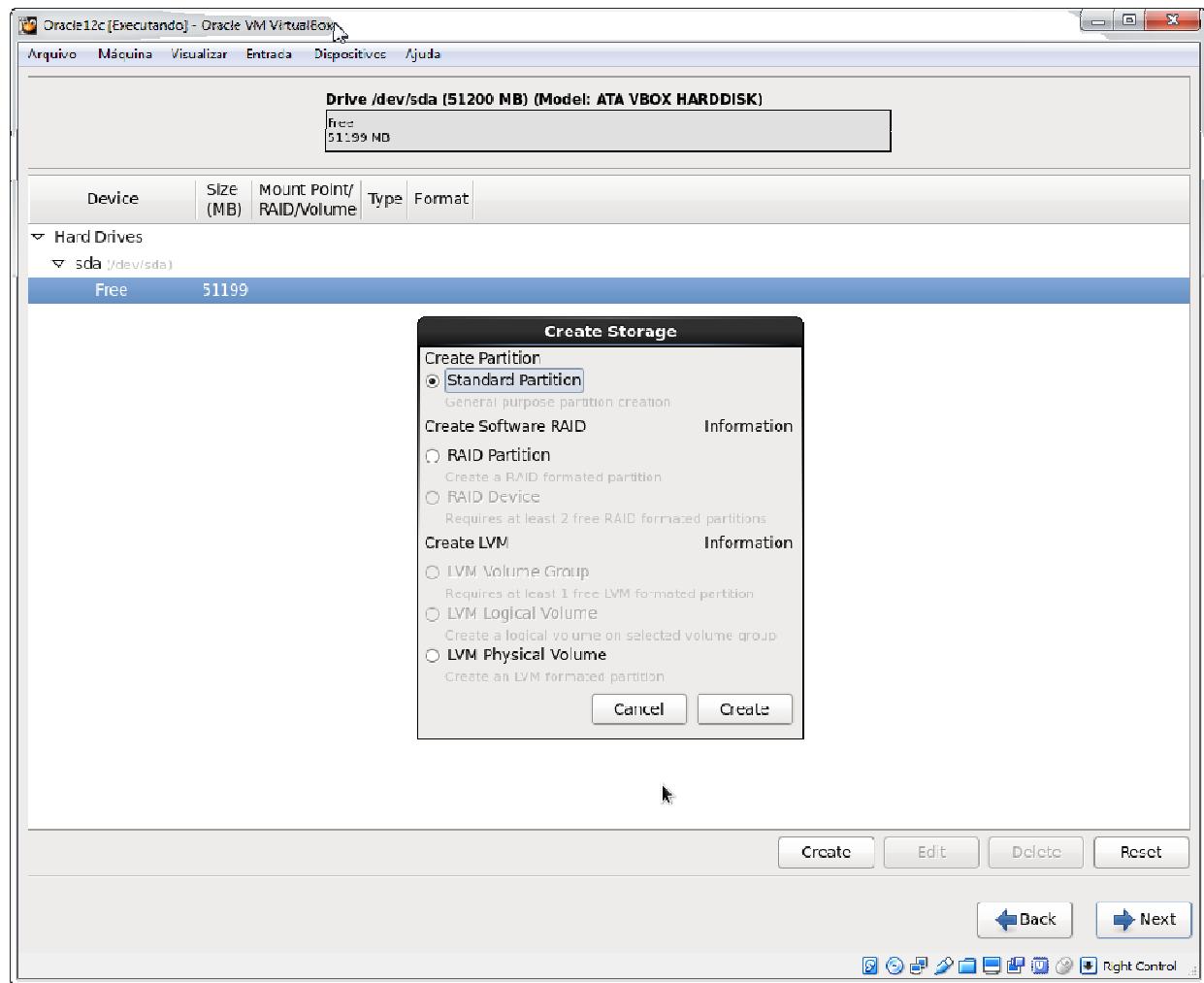
Manually create your own custom layout on the selected device(s) using our partitioning tool.



Next.

Seleciona a partição livre e Create.

Standard Partition. Create.

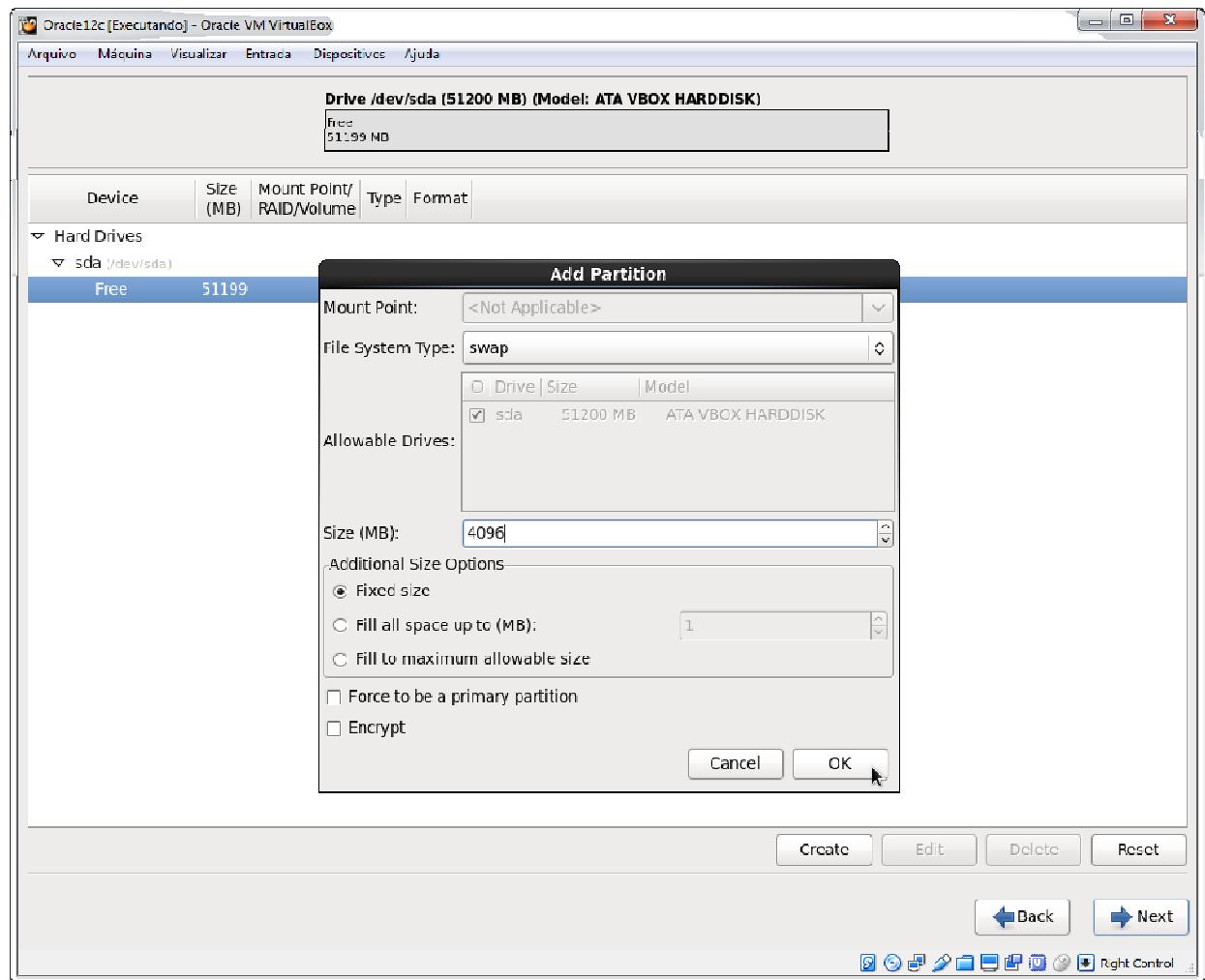


Defina:

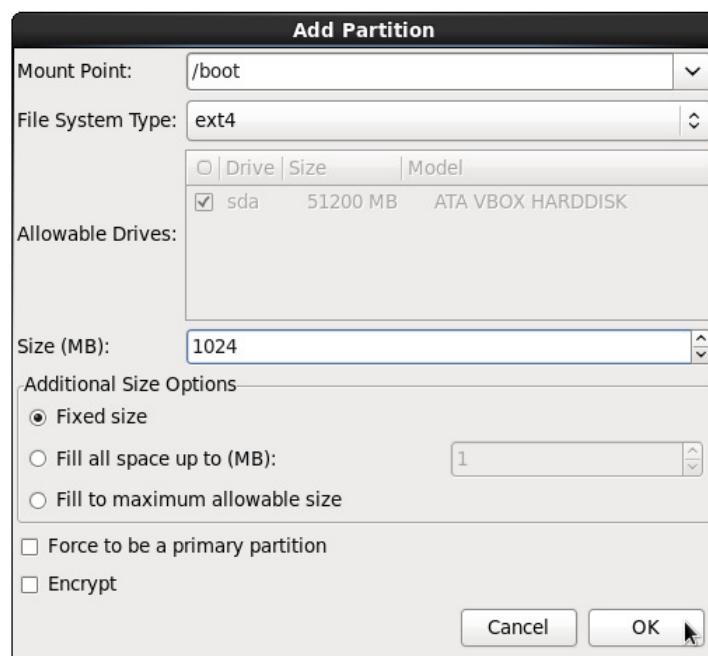
File System Type: swat.

Size (MB) 4096.

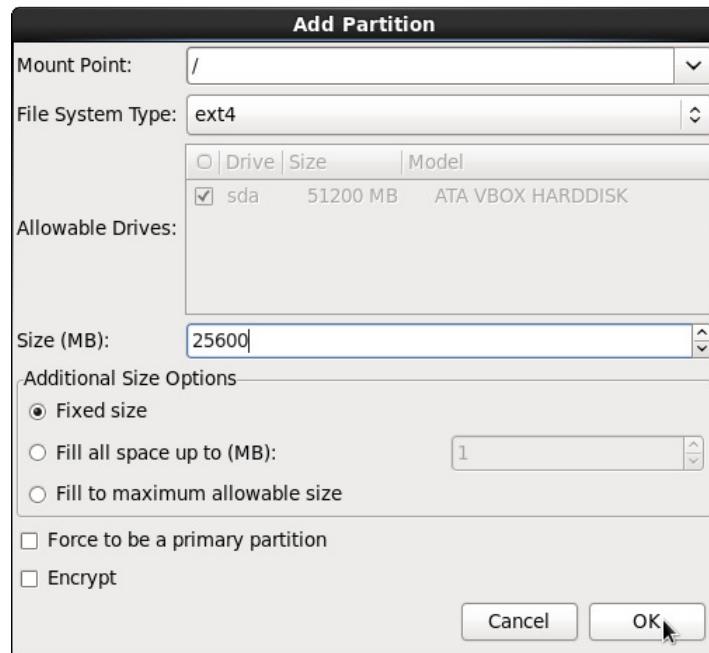
OK



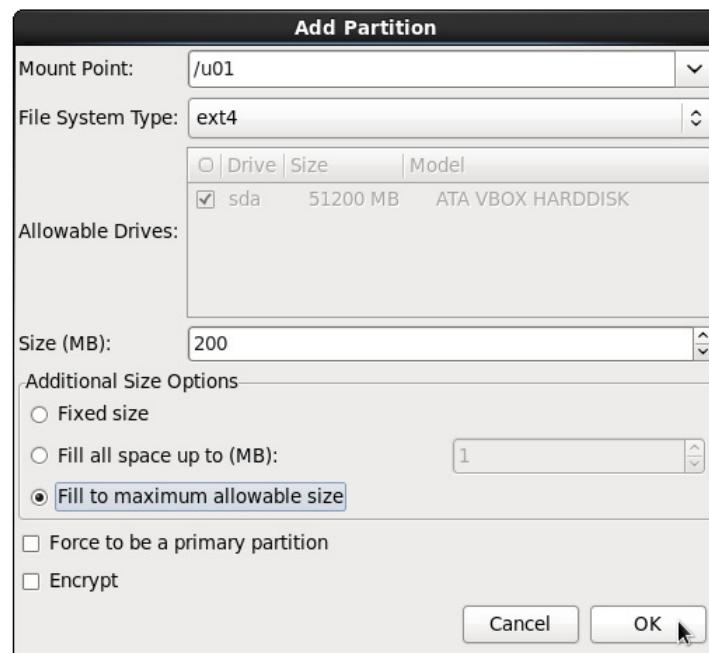
Todas as demais partições serão com File System Type: ext4
Partição /boot com 1024MB.



Partição / com 25600MB.



Partição /u01 com “Fill to maximum allowable size”.



Tudo pronto deve ficar como imagem seguinte. Se estiver diferente corrija o necessário:

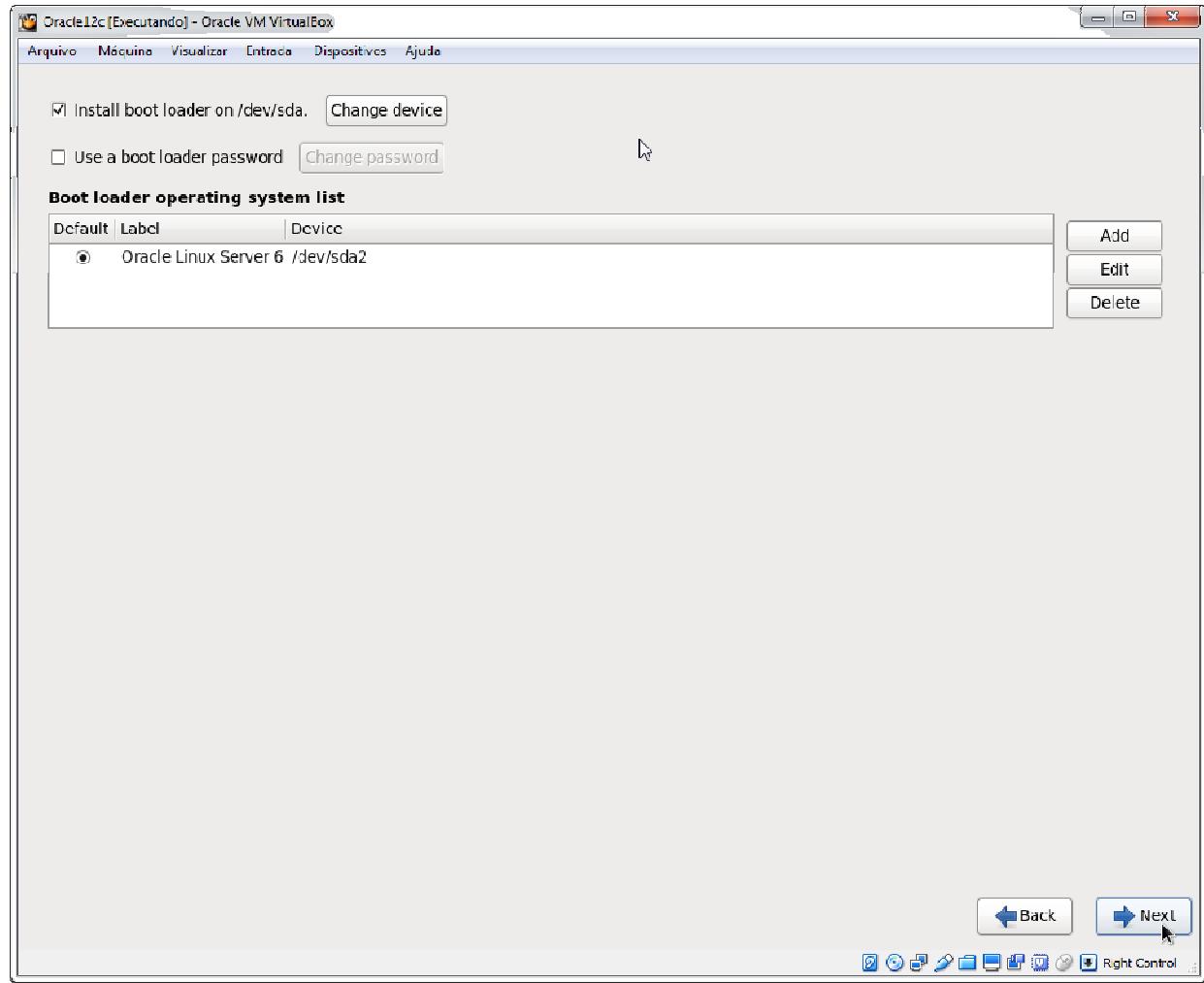
Device	Size (MB)	Mount Point/ RAID/Volume	Type	Format
Hard Drives				
sda (/dev/sda)				
sda1	1024	/boot	ext4	✓
sda2	25600	/	ext4	✓
sda3	4096		swap	✓
sda4		20479	Extended	
sda5	20478	/u01	ext4	✓

Next.

Format.

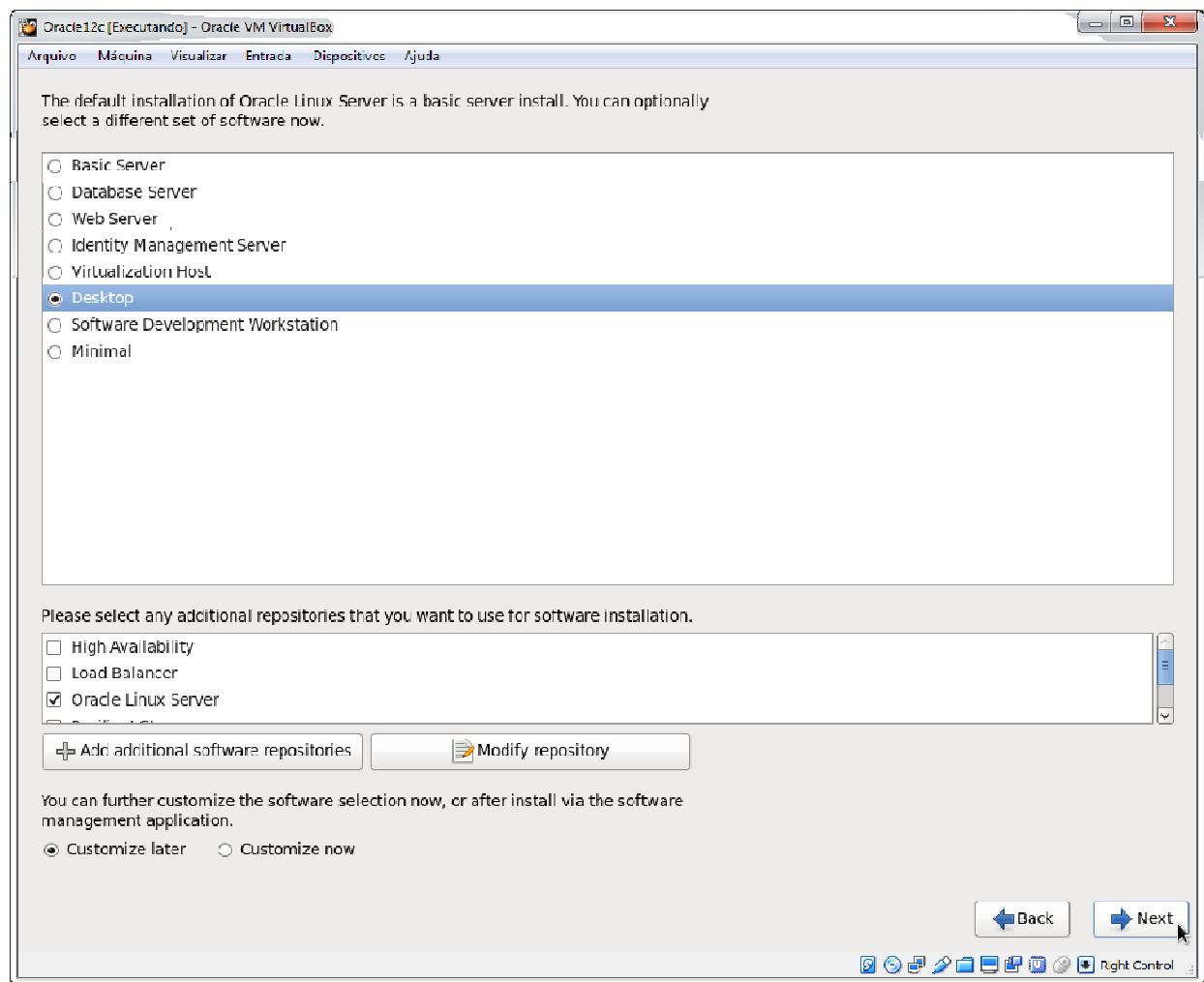
Write changes to disk.

Next.

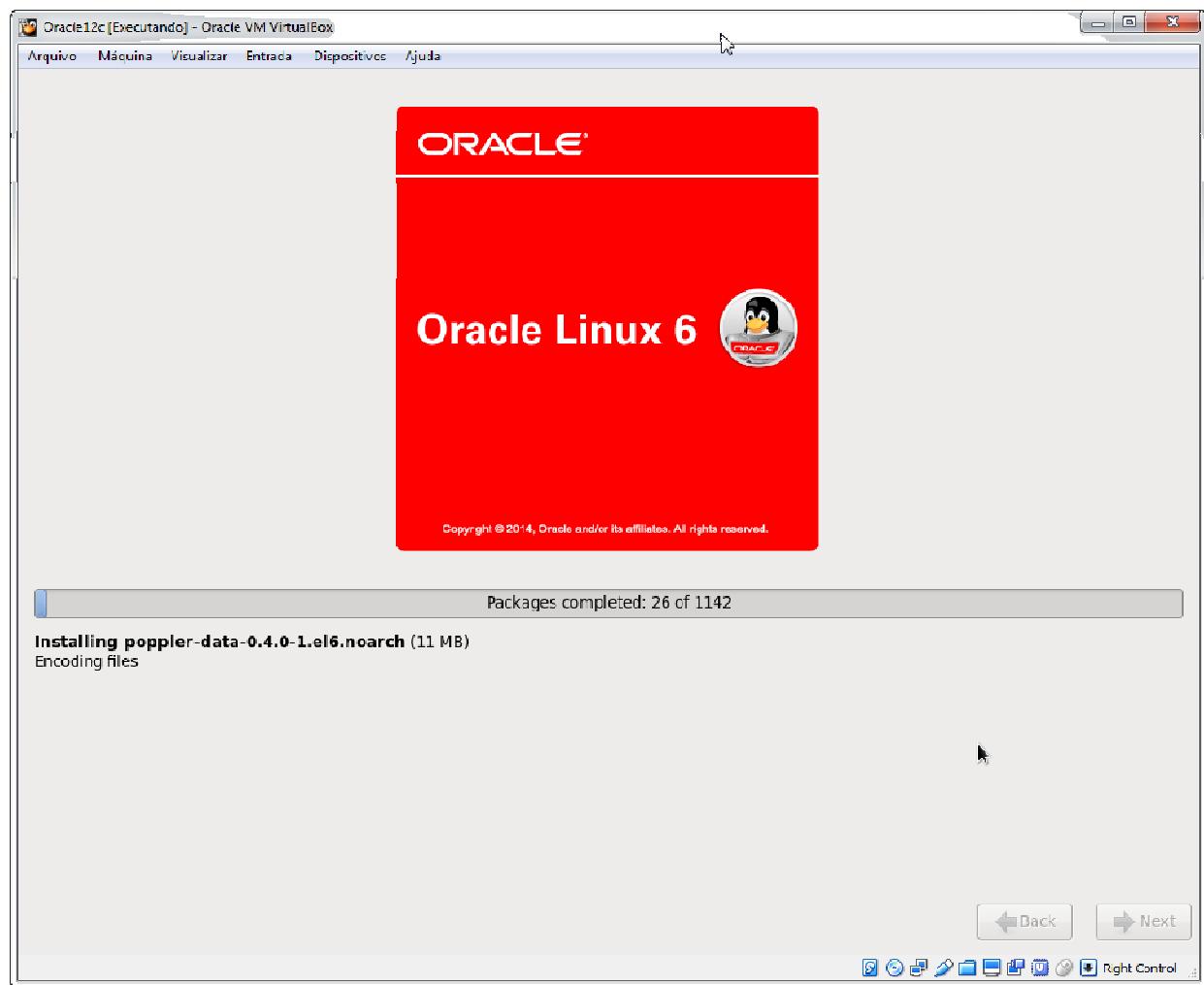


Seleccione "Desktop".

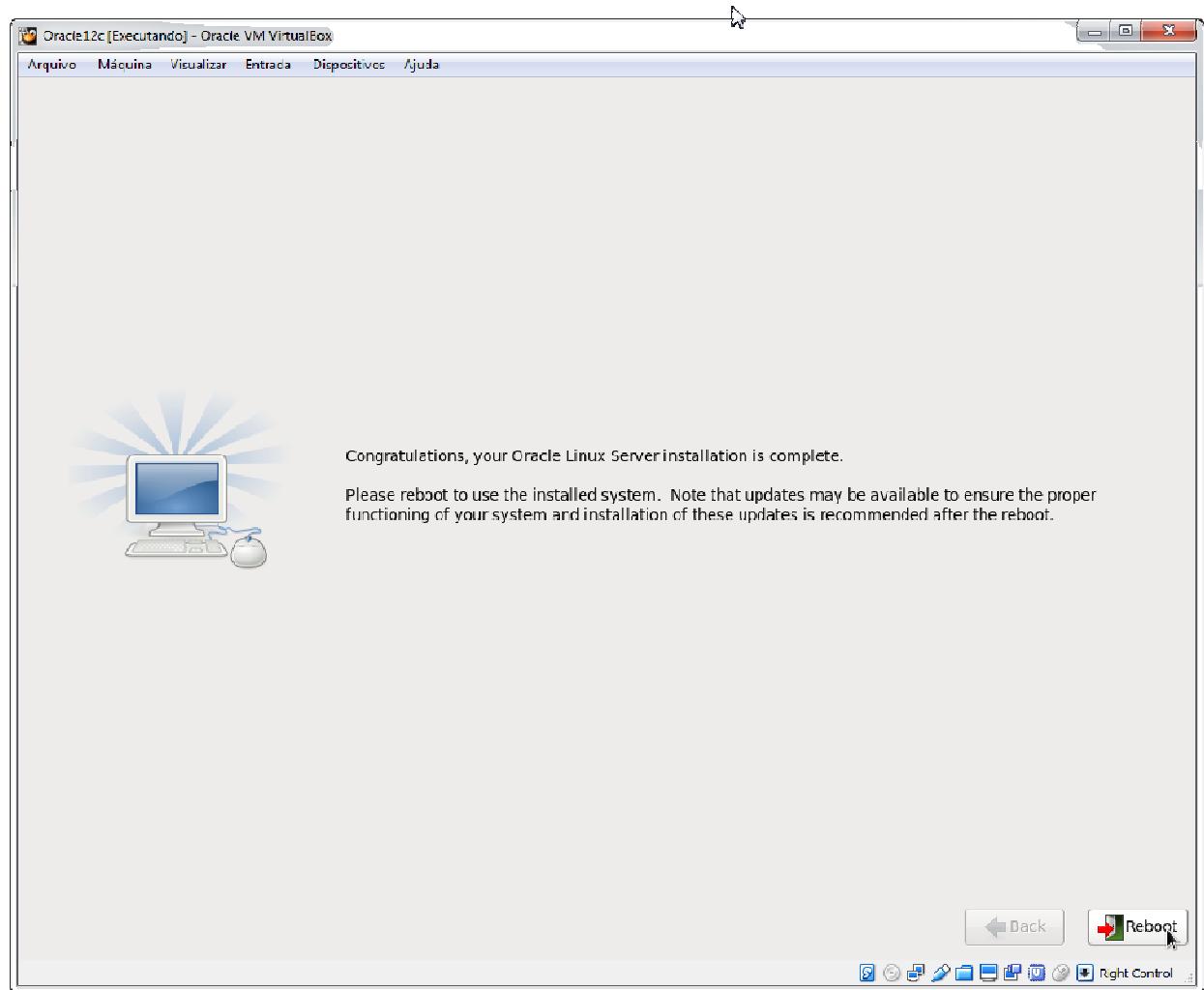
Next.



Aguarde a instalação ser concluída.

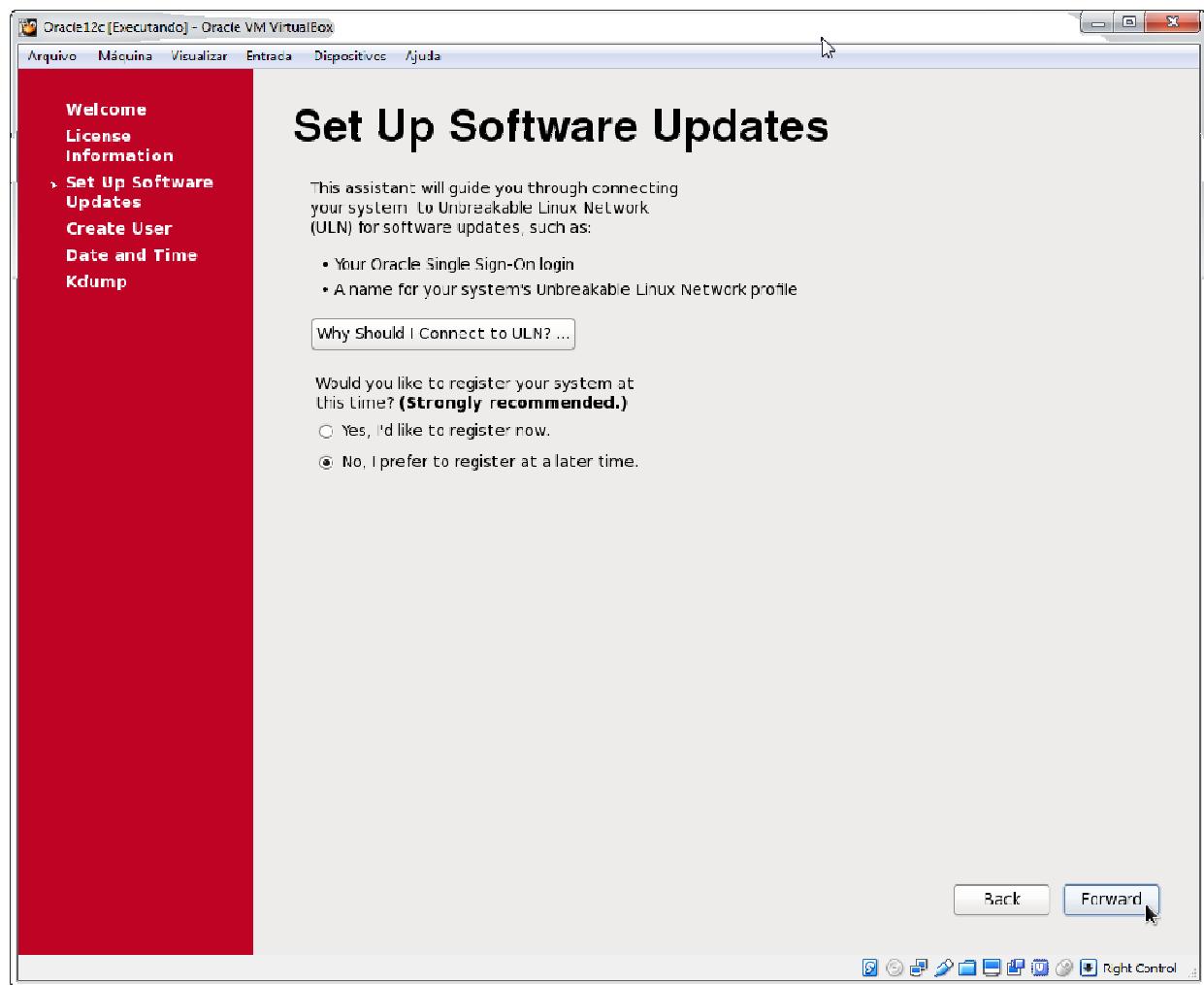


Reboot.



Forward

Selecione “Yes, I Agree to the license Agreement” e clique em “Forward”.
Selecione “No I prefer to register at a later time.” E clique em “Forward”.



"No thanks, I'll connect later."

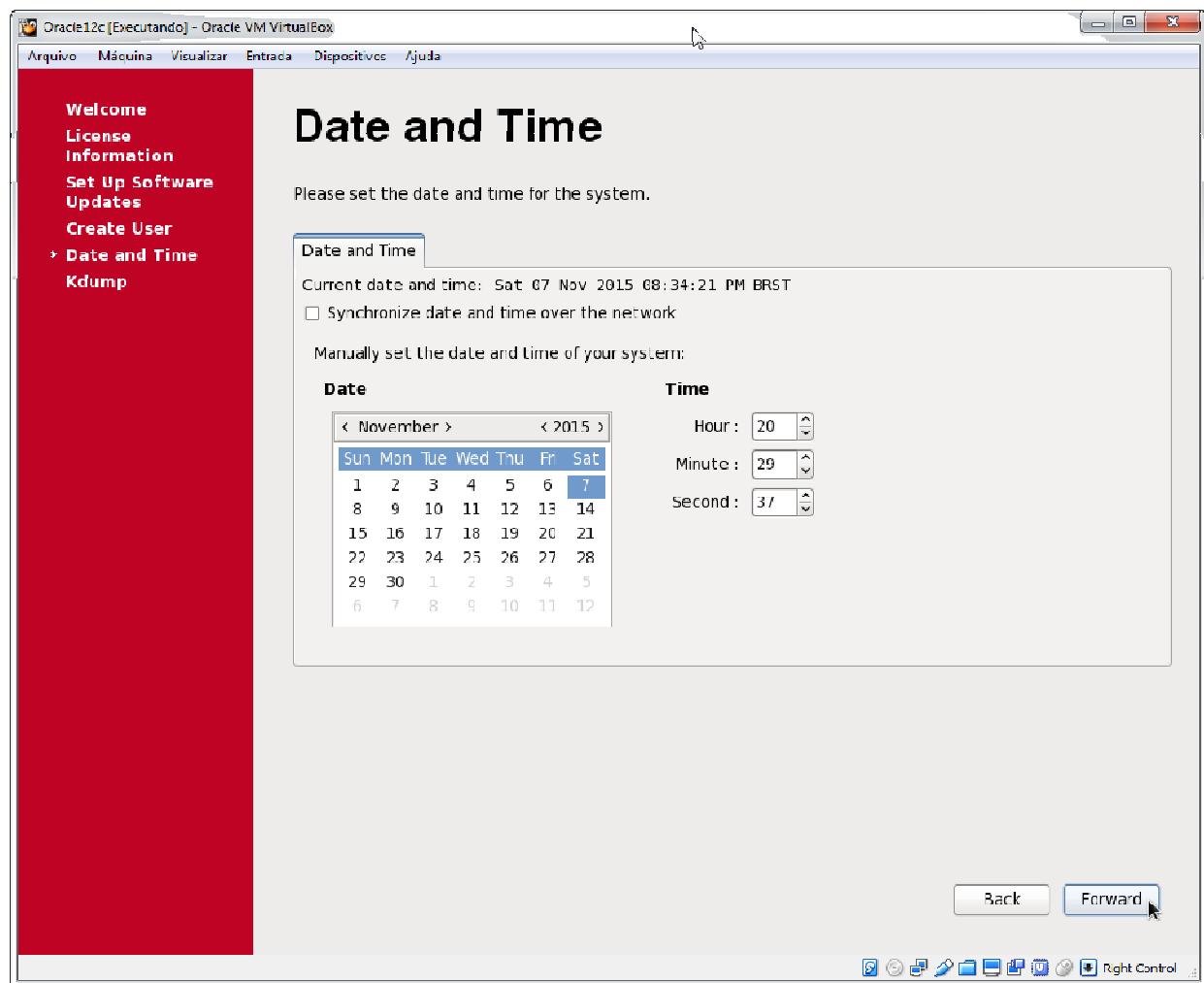


Forward.

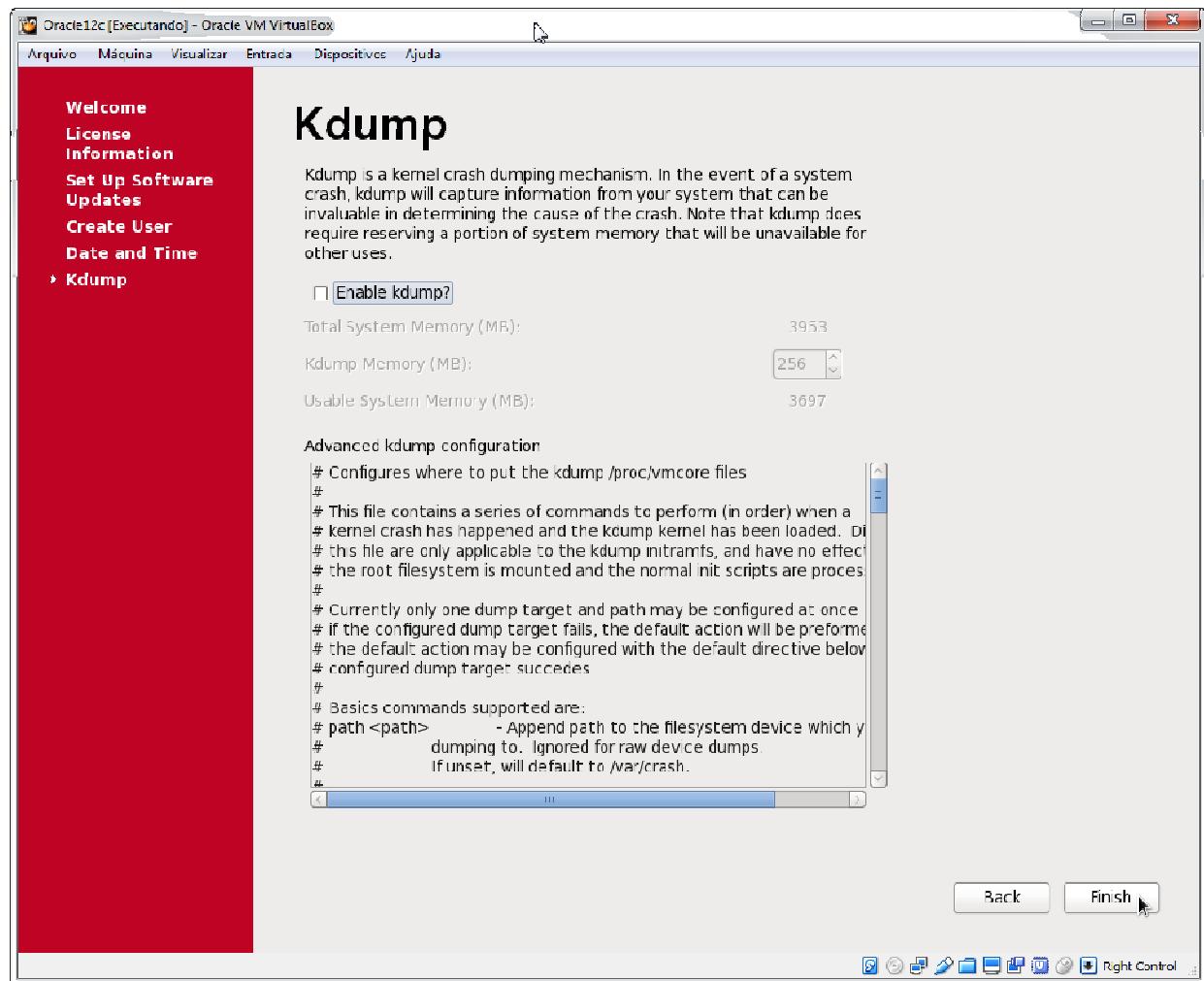
Forward.

Yes.

Forward.



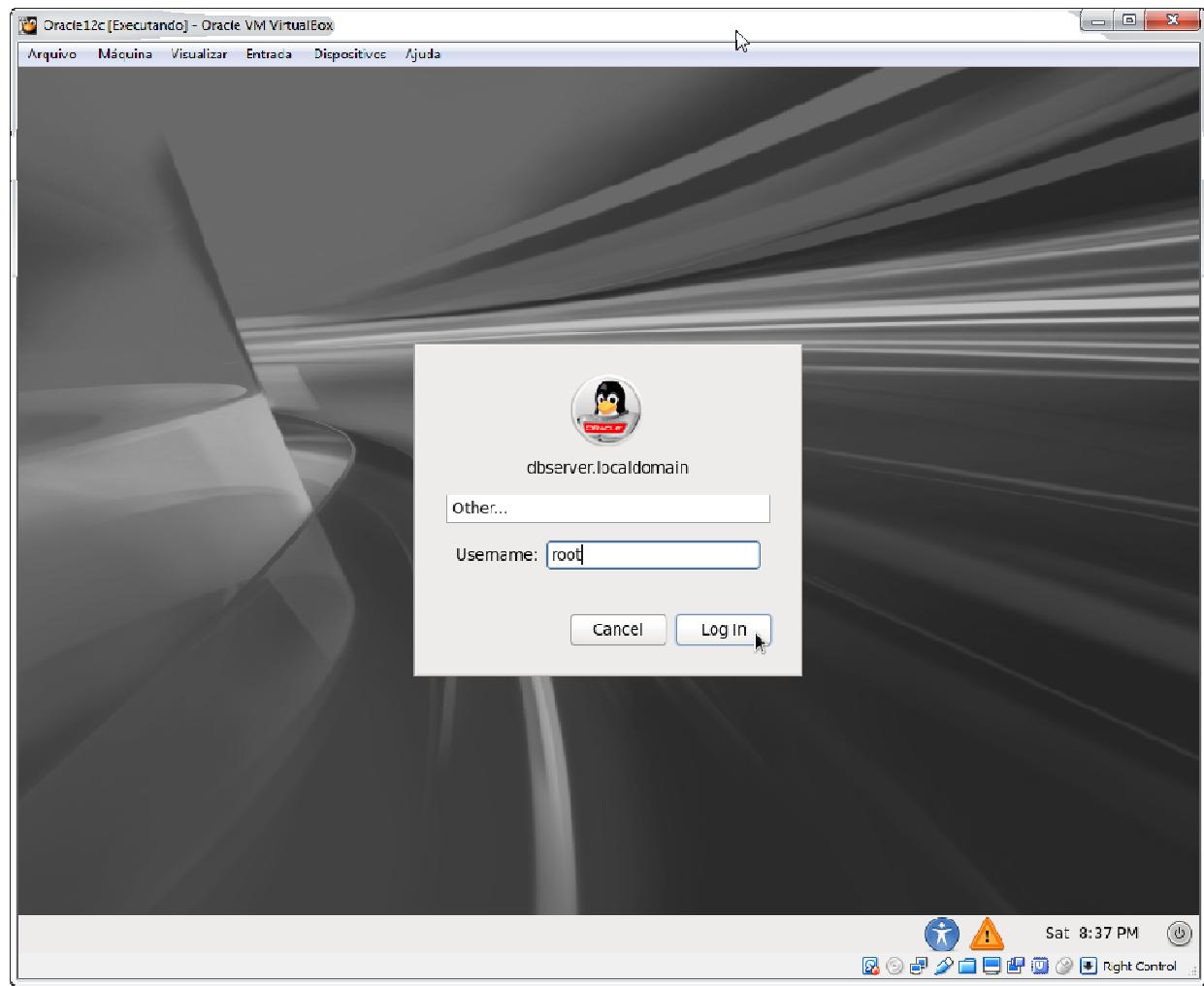
Deixe o kdump desabilitado e clique em “Finish”.



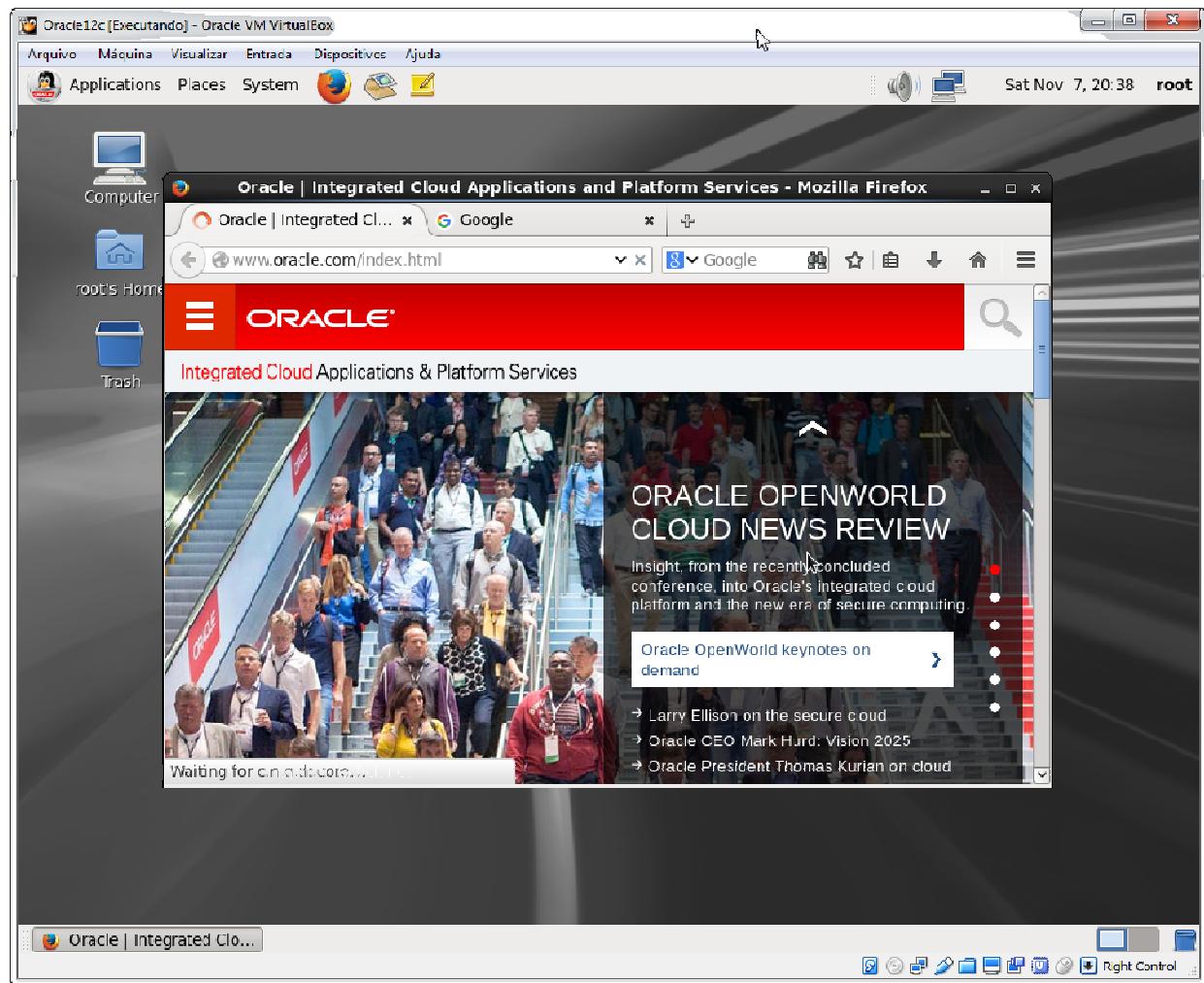
Yes.

OK.

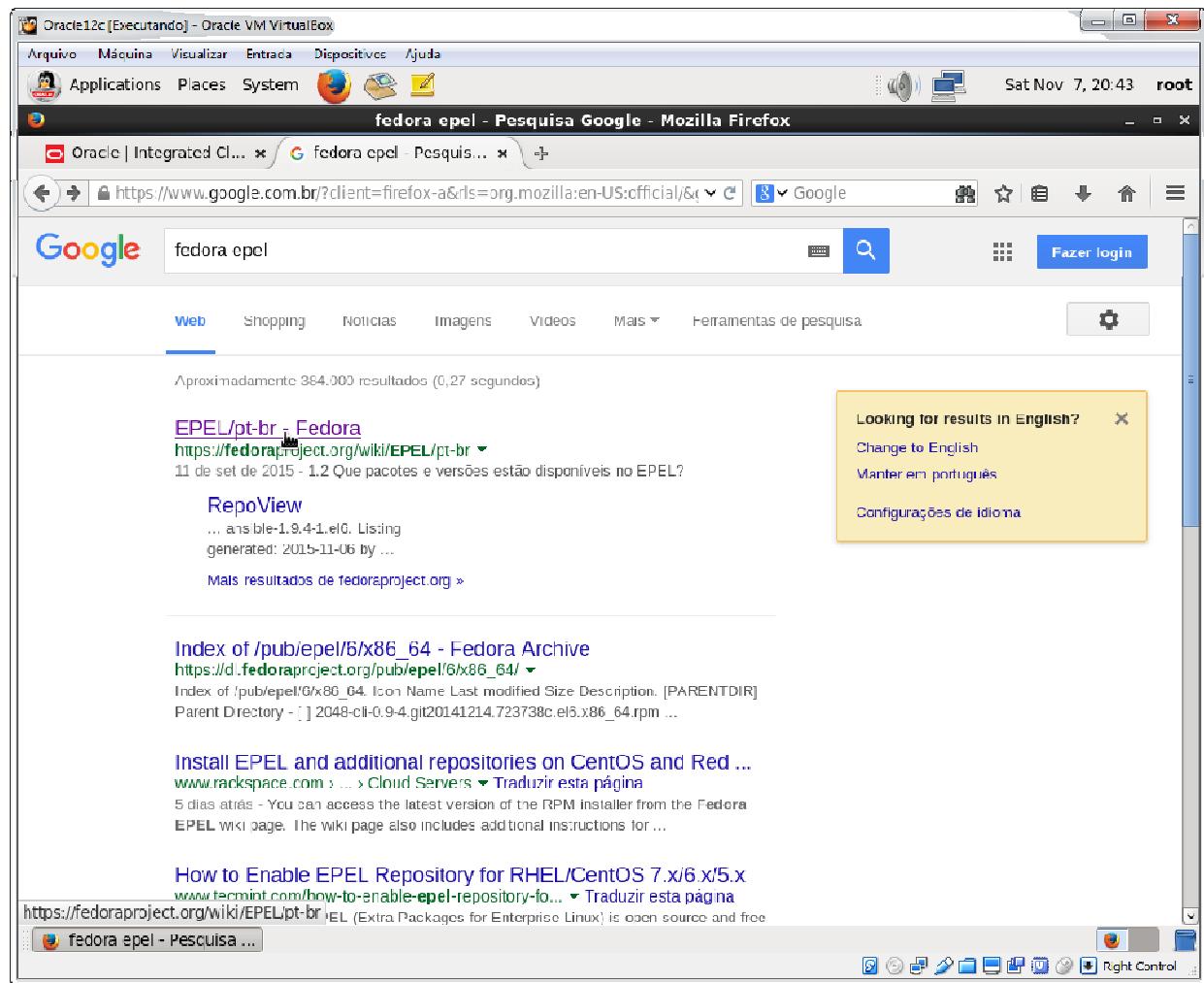
Logue como usuário root.



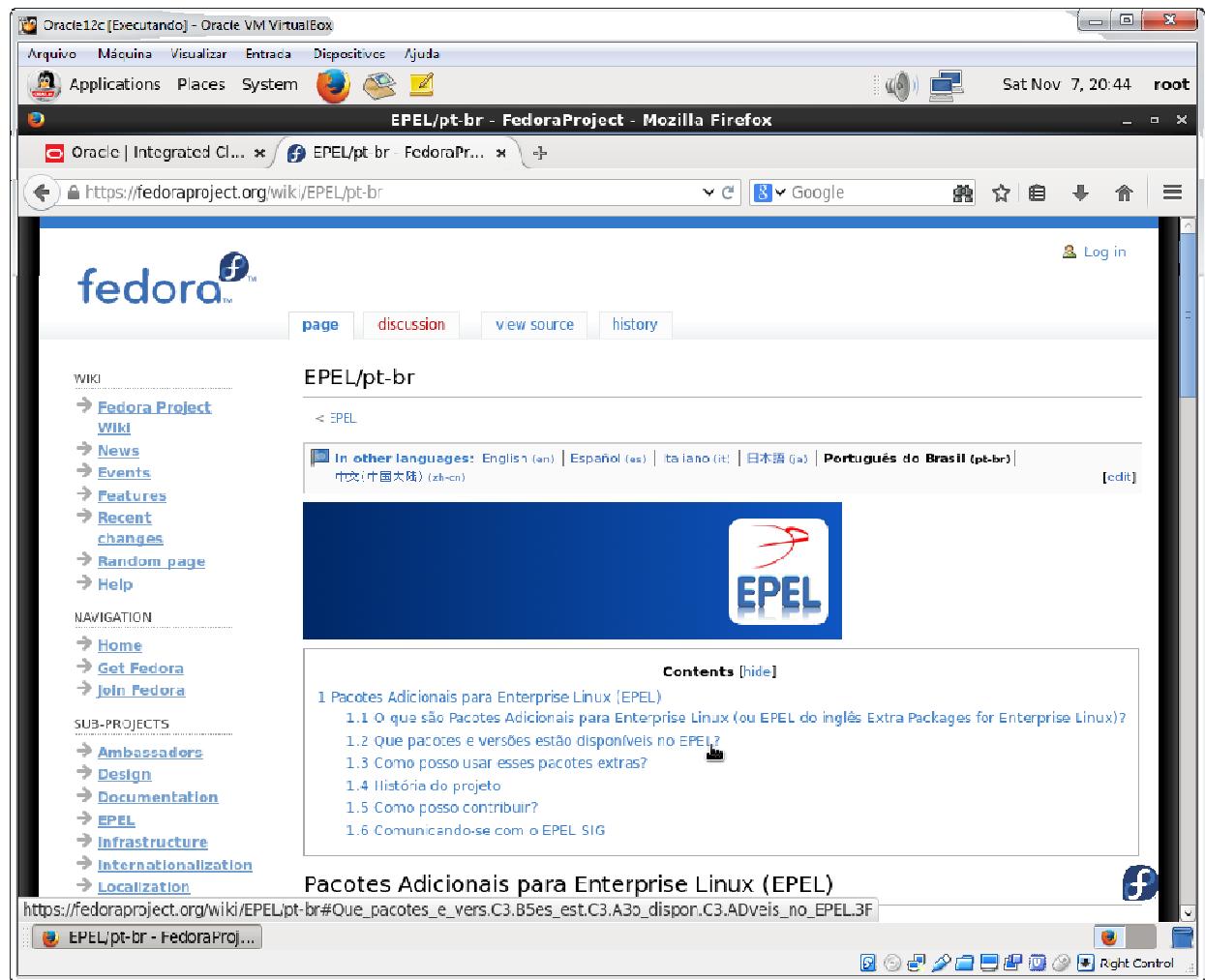
Teste sua conexão com a internet.



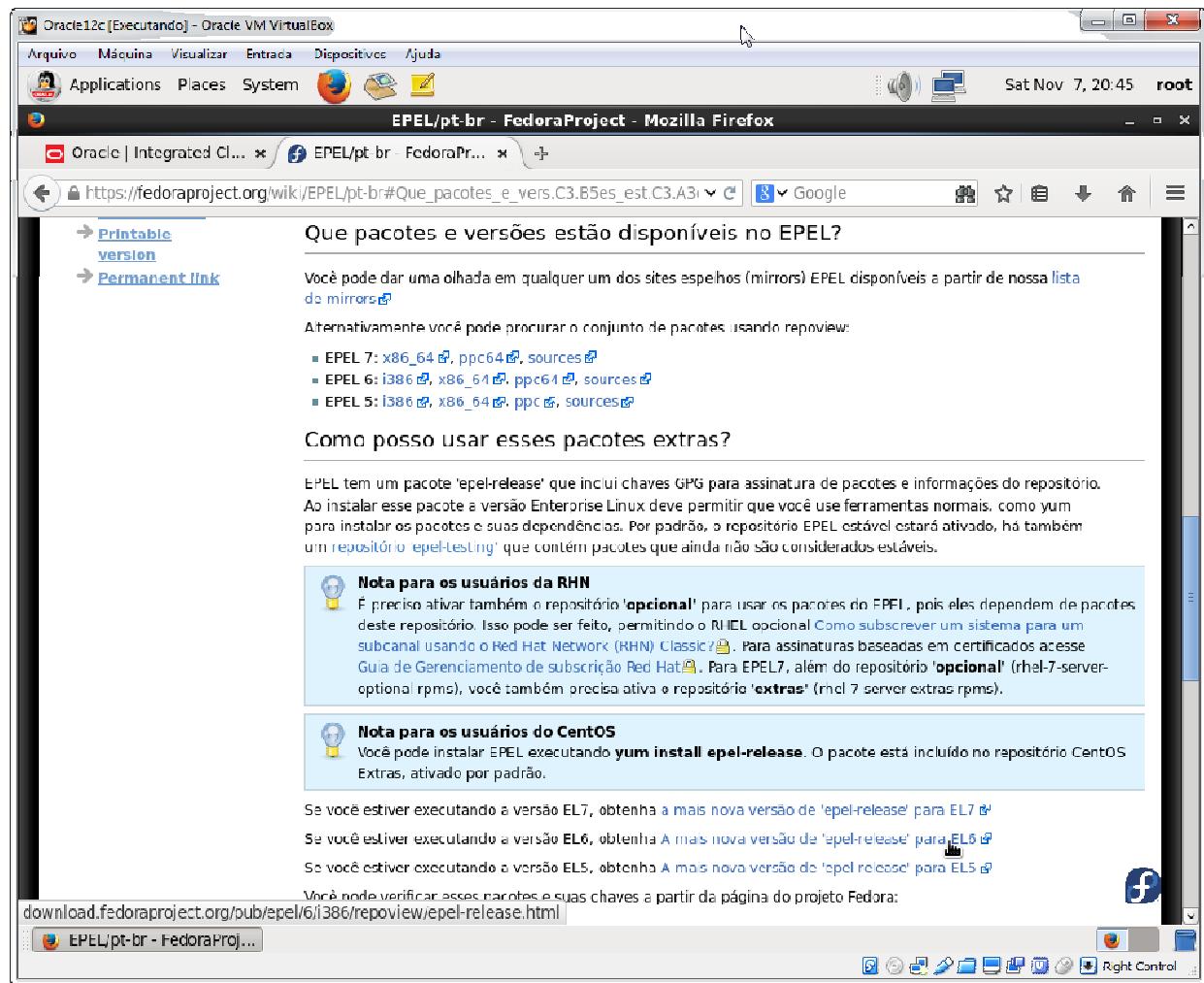
Na máquina virtual, abra o Google e procure por “fedora epel”, acesse o primeiro link.



Selecione o tópico 1.2.



Selecione a versão a versão EL6.

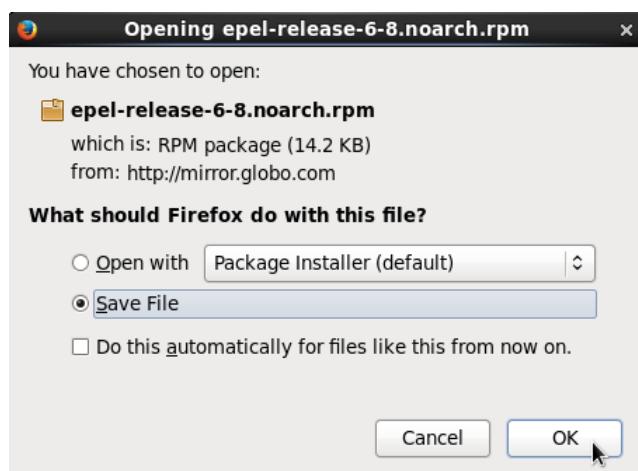


Faça o download do pacote e salve o arquivo.

Packages

[epel-release-6-8.noarch \[14 KiB\]](#) **Changelog by (2012-11-04):**

- Fix URL bz #870686



Obs: Os procedimentos relacionados ao Fedora Epel são opcionais e não altera em nada a instalação do Oracle ou Oracle RAC. A principal função é dar uma maior estabilidade ao Linux e corrigir alguns bugs. Como root edite o /etc/hosts conforme imagem.

```
[root@dbserver ~]# vi /etc/hosts
[root@dbserver ~]# cat /etc/hosts
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1          localhost localhost.localdomain localhost6 localhost6.localdomain6

#Public
192.168.56.201 dbserver.localdomain      dbserver
192.168.56.202 rac02.localdomain        rac02
192.168.56.203 rac03.localdomain        rac03
192.168.56.204 rac04.localdomain        rac04

#Private Interconnect
#192.168.10.1   dbserver-priv.localdomain  dbserver-priv
#192.168.10.2   rac02-priv.localdomain    rac02-priv
#192.168.10.3   rac03-priv.localdomain    rac03-priv
#192.168.10.4   rac04-priv.localdomain    rac04-priv

#Virtual
192.168.56.101 dbserver-vip.localdomain  dbserver-vip
192.168.56.102 rac02-vip.localdomain    rac02-vip
192.168.56.103 rac03-vip.localdomain    rac03-vip
192.168.56.104 rac04-vip.localdomain    rac04-vip

#SCAN
192.168.56.115 rac-scan.localdomain    rac-scan
192.168.56.116 rac-scan.localdomain    rac-scan
192.168.56.117 rac-scan.localdomain    rac-scan
[root@dbserver ~]# yum install rlwrap
```

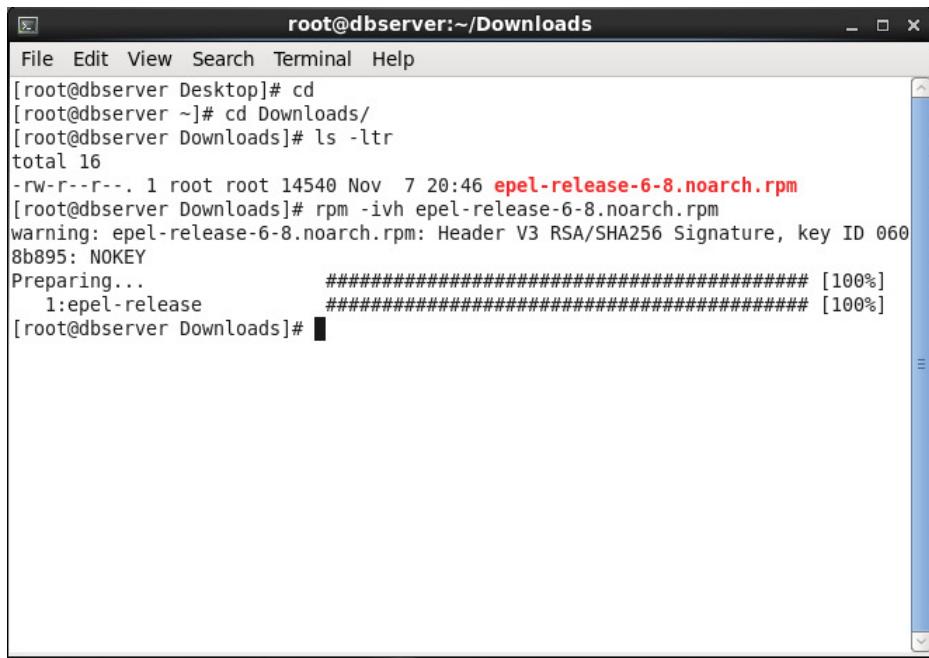
```
#Public
192.168.56.201 dbserver.localdomain      dbserver
192.168.56.202 rac02.localdomain        rac02
192.168.56.203 rac03.localdomain        rac03
192.168.56.204 rac04.localdomain        rac04

#Private Interconnect
#192.168.10.1   dbserver-priv.localdomain  dbserver-priv
#192.168.10.2   rac02-priv.localdomain    rac02-priv
#192.168.10.3   rac03-priv.localdomain    rac03-priv
#192.168.10.4   rac04-priv.localdomain    rac04-priv

#Virtual
192.168.56.101 dbserver-vip.localdomain  dbserver-vip
192.168.56.102 rac02-vip.localdomain    rac02-vip
192.168.56.103 rac03-vip.localdomain    rac03-vip
192.168.56.104 rac04-vip.localdomain    rac04-vip

#SCAN
192.168.56.115 rac-scan.localdomain    rac-scan
192.168.56.116 rac-scan.localdomain    rac-scan
192.168.56.117 rac-scan.localdomain    rac-scan
```

A partir do diretório de downloads do root instale o pacote epel baixado.

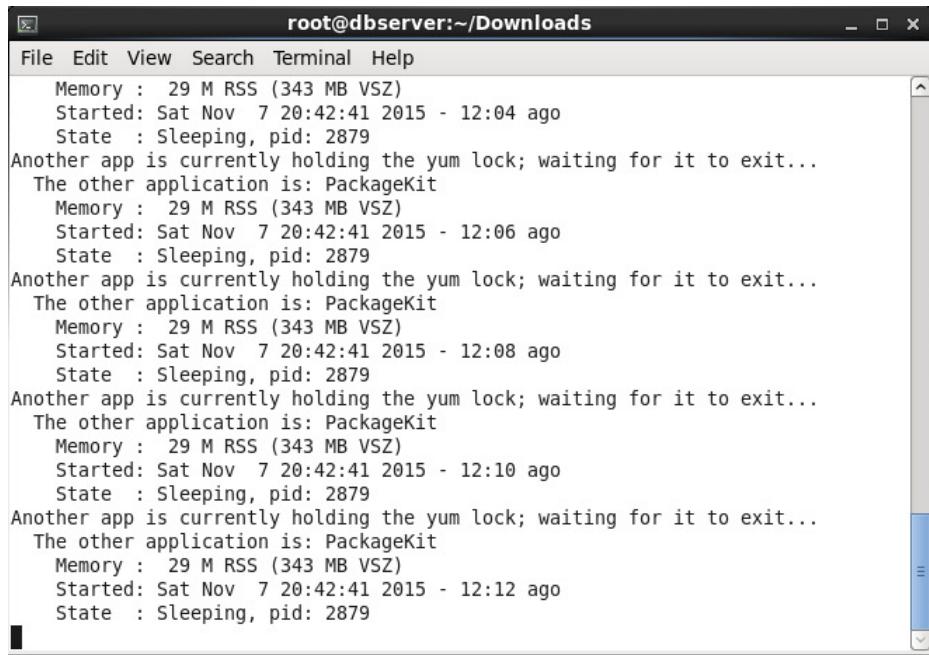


```
root@dbserver:~/Downloads
File Edit View Search Terminal Help
[root@dbserver Desktop]# cd
[root@dbserver ~]# cd Downloads/
[root@dbserver Downloads]# ls -ltr
total 16
-rw-r--r-- 1 root root 14540 Nov  7 20:46 epel-release-6-8.noarch.rpm
[root@dbserver Downloads]# rpm -ivh epel-release-6-8.noarch.rpm
warning: epel-release-6-8.noarch.rpm: Header V3 RSA/SHA256 Signature, key ID 060
8b895: NOKEY
Preparing... ################################ [100%]
1:epel-release ################################ [100%]
[root@dbserver Downloads]#
```

Instale o pacote rlwrap.

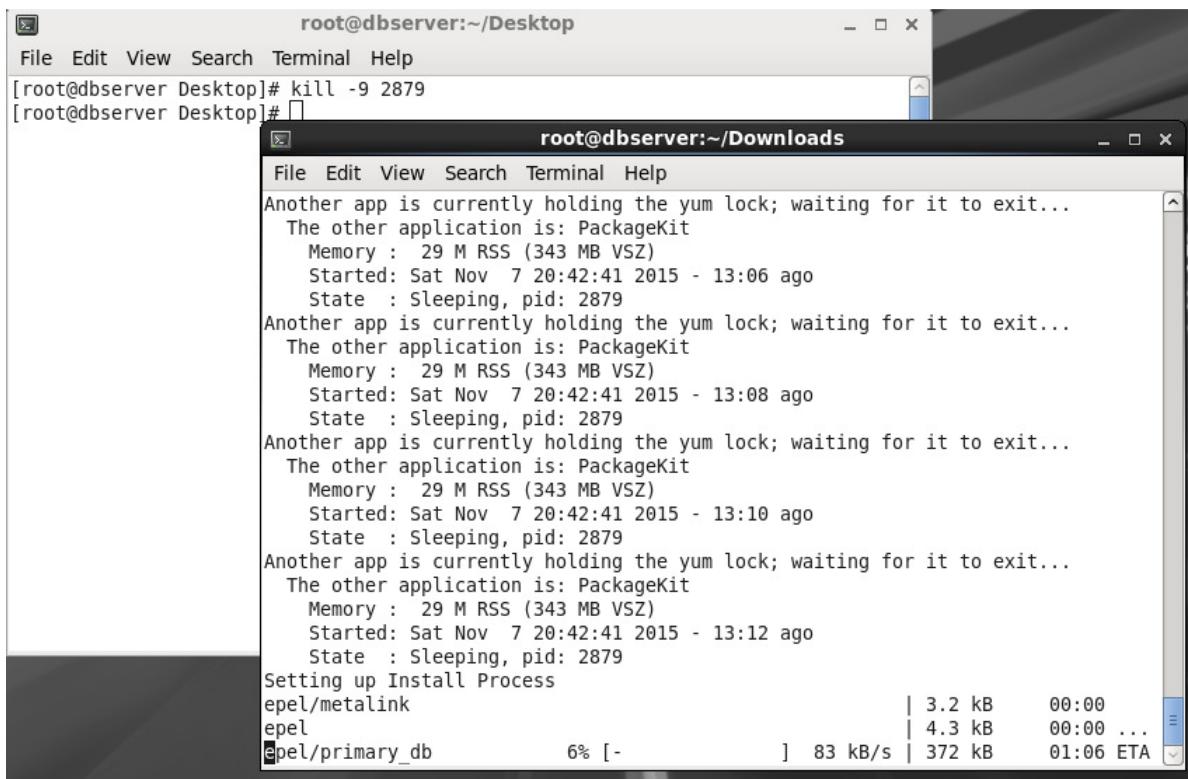
```
[root@dbserver ~]# yum install rlwrap
```

Caso ocorra esse erro:



```
root@dbserver:~/Downloads
File Edit View Search Terminal Help
Memory : 29 M RSS (343 MB VSZ)
Started: Sat Nov  7 20:42:41 2015 - 12:04 ago
State   : Sleeping, pid: 2879
Another app is currently holding the yum lock; waiting for it to exit...
The other application is: PackageKit
Memory : 29 M RSS (343 MB VSZ)
Started: Sat Nov  7 20:42:41 2015 - 12:06 ago
State   : Sleeping, pid: 2879
Another app is currently holding the yum lock; waiting for it to exit...
The other application is: PackageKit
Memory : 29 M RSS (343 MB VSZ)
Started: Sat Nov  7 20:42:41 2015 - 12:08 ago
State   : Sleeping, pid: 2879
Another app is currently holding the yum lock; waiting for it to exit...
The other application is: PackageKit
Memory : 29 M RSS (343 MB VSZ)
Started: Sat Nov  7 20:42:41 2015 - 12:10 ago
State   : Sleeping, pid: 2879
Another app is currently holding the yum lock; waiting for it to exit...
The other application is: PackageKit
Memory : 29 M RSS (343 MB VSZ)
Started: Sat Nov  7 20:42:41 2015 - 12:12 ago
State   : Sleeping, pid: 2879
```

Basta abrir um segundo terminal e matar o usuário com o pid informado, no caso 2879.



Atualize o Linux.

```
[root@dbserver Desktop]# yum update
```

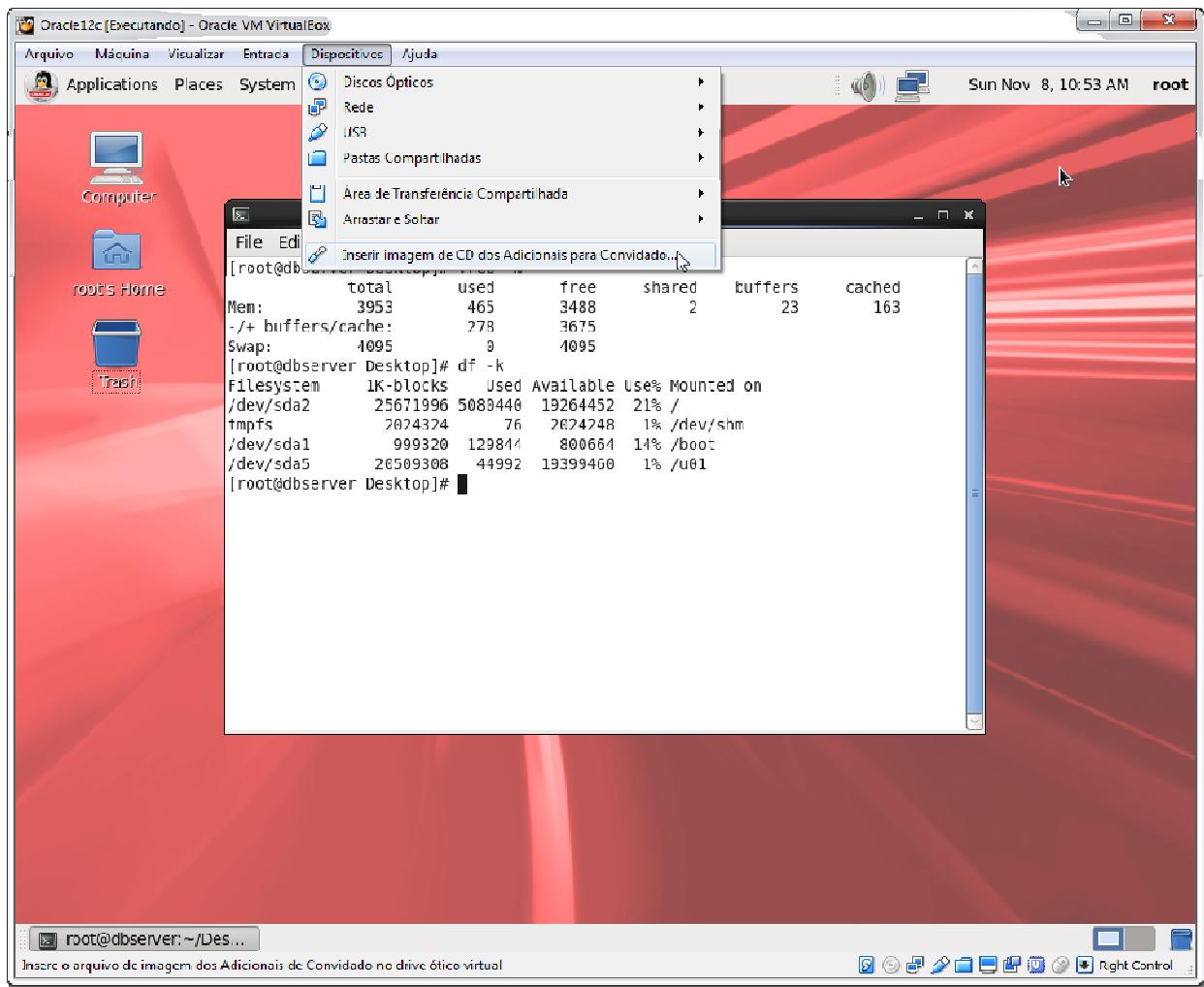
Confirme com “y” e aguarde finalizar.

```
Transaction Summary
=====
Install      17 Package(s)
Upgrade     376 Package(s)

Total download size: 529 M
Is this ok [y/N]:
```

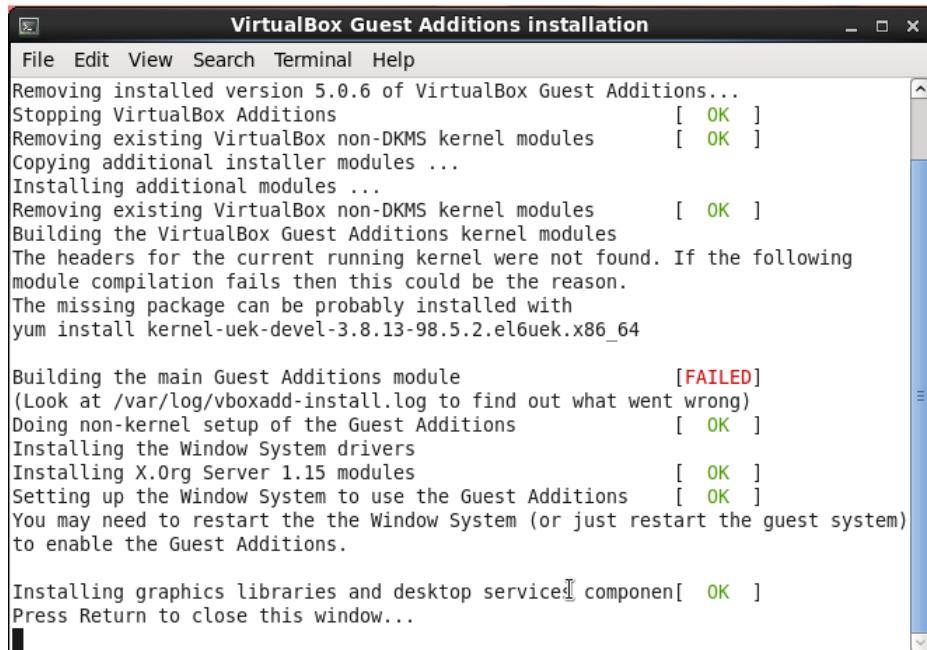
Caso a operação não seja totalmente concluída pode ser realizada novamente. Apenas a parte pendente será realizada.

Ná máquina virtual clique em “Dispositivos” e “Inserir imagem de CD dos Adicionais para Convidado...”



Clique em OK e em Run.





Para corrigir o problema, siga os seguintes passos:

```
cd /etc/yum.repos.d/
```

```
wget http://public-yum.oracle.com/public-yum-ol6.repo
[root@dbserver Desktop]# cd /etc/yum.repos.d/
[root@dbserver yum.repos.d]# wget http://public-yum.oracle.com/public-yum-ol6.repo
--2015-11-08 11:06:31--  http://public-yum.oracle.com/public-yum-ol6.repo
Resolving public-yum.oracle.com... 190.98.140.89, 190.98.140.96
Connecting to public-yum.oracle.com|190.98.140.89|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 5772 (5.6K) [text/plain]
Saving to: "public-yum-ol6.repo.1"

100%[=====] 5,772          --.-K/s   in 0.006s

2015-11-08 11:06:32 (980 KB/s) - "public-yum-ol6.repo.1" saved [5772/5772]

[root@dbserver yum.repos.d]#
```

```
yum install kernel-uek-devel
yum install kernel-devel
```

Na máquina virtual acesse o diretório/media/VBOXADDITIONS_5.0.6_103037 e execute o comando sh VBoxLinuxAdditions.run

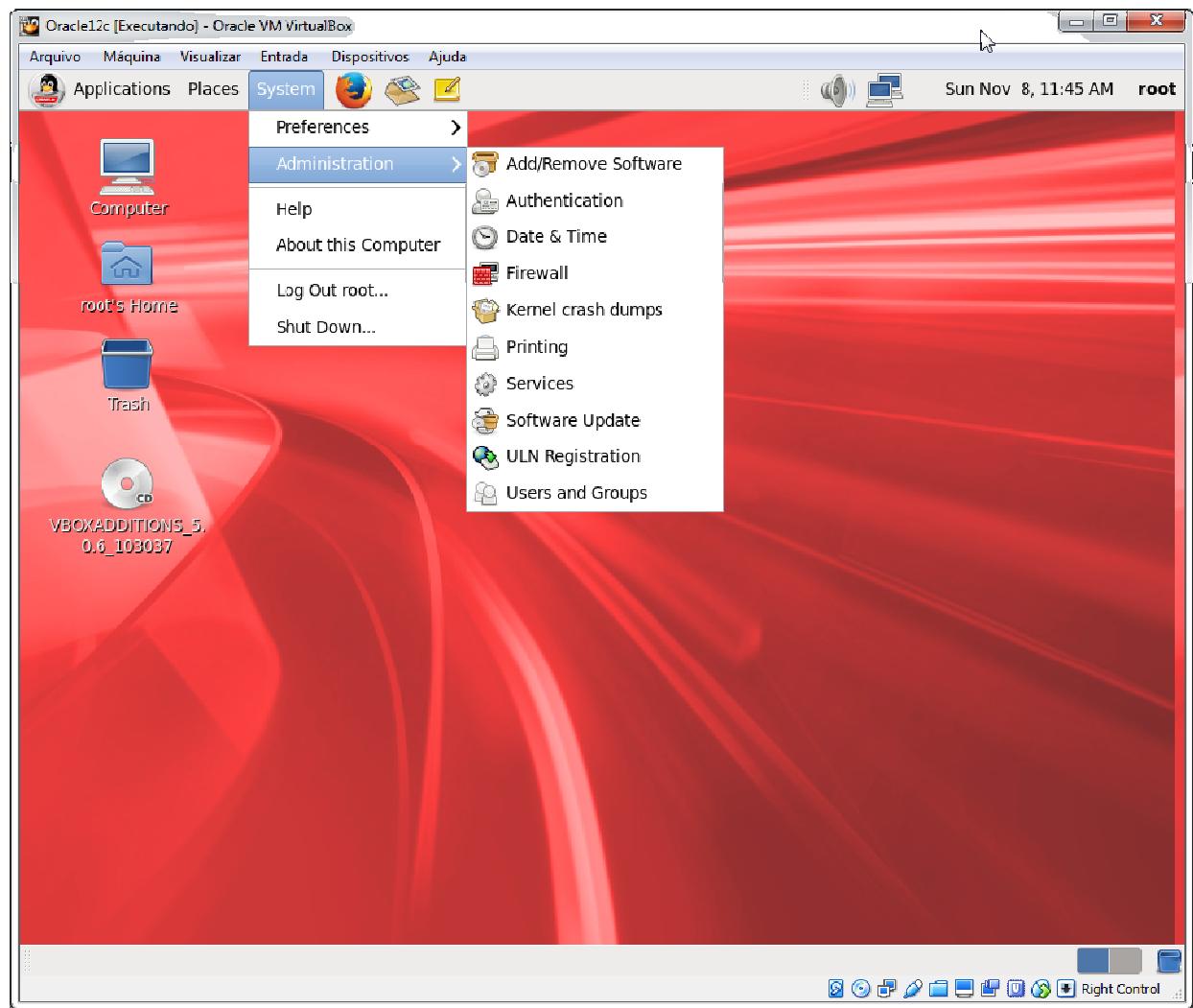
```
[root@dbserver VBOXADDITIONS_5.0.6_103037]# sh VBoxLinuxAdditions.run
Verifying archive integrity... All good.
Uncompressing VirtualBox 5.0.6 Guest Additions for Linux.....
VirtualBox Guest Additions installer
Removing installed version 5.0.6 of VirtualBox Guest Additions...
Stopping VirtualBox Additions [ OK ]
Removing existing VirtualBox non-DKMS kernel modules [ OK ]
Copying additional installer modules ...
Installing additional modules ...
Removing existing VirtualBox non-DKMS kernel modules [ OK ]
Building the VirtualBox Guest Additions kernel modules
Building the main Guest Additions module
```

Se o erro persistir, reinicie a máquina e repita o procedimento.

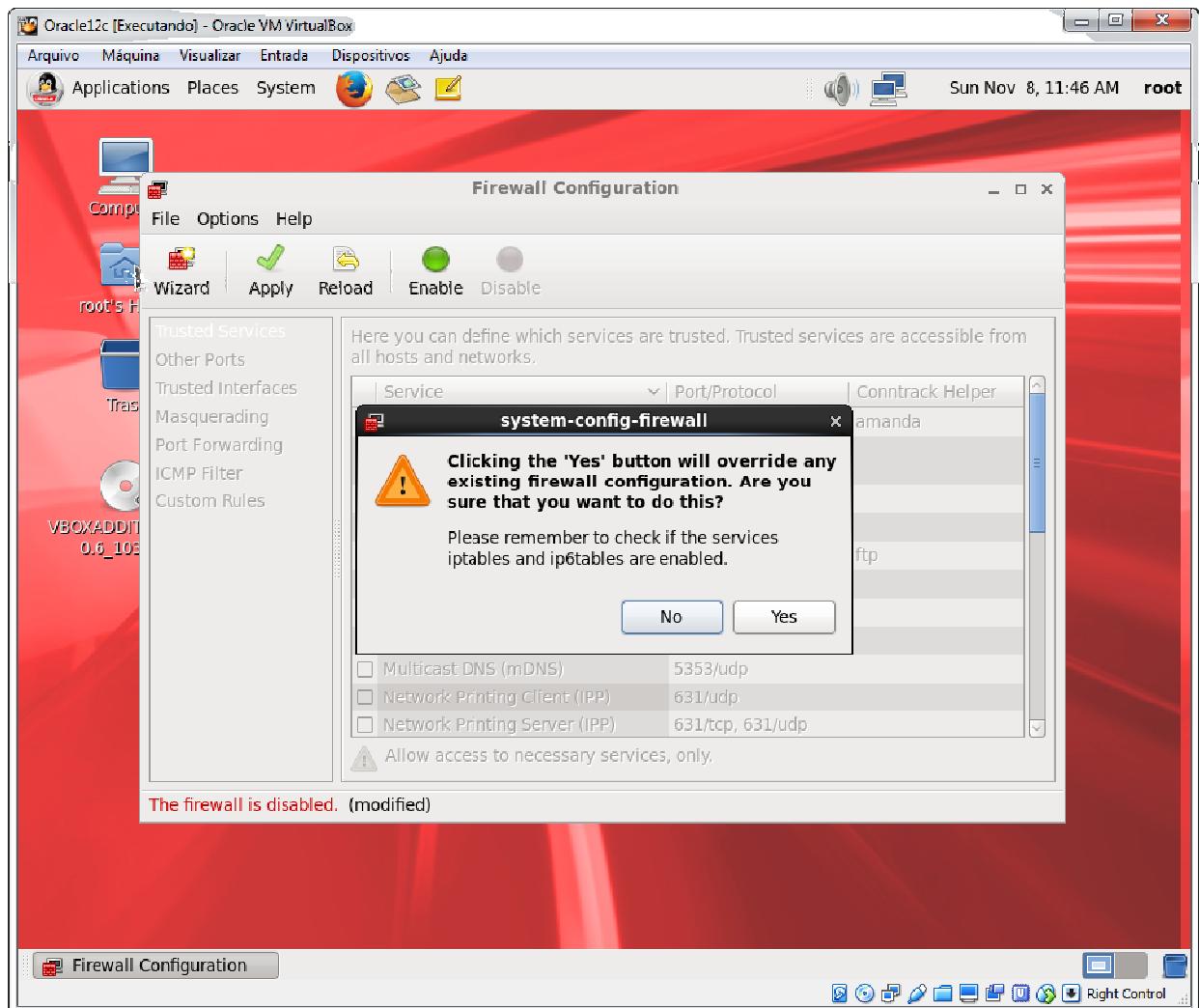
Reinic peace a máquina virtual.

Nesse momento algumas melhorias na interface foram implementadas, agora é possível copiar/colar para o desktop da VM e também é possível expandir a tela.

Como root, desabilite o firewall.



Clique em Apply e em seguida em Yes.



Note que agora há um diretório compartilhado montado no Linux (/media/sf_oracle).

```
[root@dbserver Desktop]# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/sda2        25G  5.0G  19G  22% /
tmpfs           2.0G  76K  2.0G   1% /dev/shm
/dev/sda1       976M 127M  782M  14% /boot
/dev/sda5        20G  44M  19G   1% /u01
oracle          1.9T  1.4T  520G  73% /media/sf_oracle
/dev/sr0          57M  57M     0 100% /media/VBOXADDITIONS_5.0.6_103037
[root@dbserver Desktop]#
```

Copie os instaladores do Oracle Database e do Grid para essa pasta compartilhada em seguida copie os arquivos para o /u01.

```
[root@dbserver u01]# pwd
/u01
[root@dbserver u01]# ls -ltr
total 4963024
drwx----- 2 root root 16384 Nov 7 19:52 lost+found
-rw-r-x--- 1 root root 1747043545 Nov 8 11:52 linuxamd64_12102_grid_1of2.zip
-rw-r-x--- 1 root root 646972897 Nov 8 11:52 linuxamd64_12102_grid_2of2.zip
-rw-r-x--- 1 root root 1673544724 Nov 8 11:54 linuxamd64_12102_database_1of2.zip
-rw-r-x--- 1 root root 1014530602 Nov 8 11:54 linuxamd64_12102_database_2of2.zip
[root@dbserver u01]# █
```

Instale os pré reqs do Oracle 12c Release 1.

```
[root@dbserver u01]# yum -y install oracle-rdbms-server-12cR1-preinstall
```

OBS: O processo manual para os pré-reqs podem ser encontrados no seguinte documento do My Oracle Support: Requirements for Installing Oracle Database 12.1 on RHEL6 or OL6 64-bit (x86-64) (Doc ID 1529864.1)

Instale o ASM.

```
[root@dbserver u01]# yum -y install oracleasm-support
```

Siga o procedimento para instalar o ASM LIB.

```
wget http://download.oracle.com/otn_software/asmlib/oracleasmlib-2.0.4-1.el6.x86_64.rpm
rpm -ivh oracleasmlib-2.0.4-1.el6.x86_64.rpm
```

```
[root@dbserver u01]# wget http://download.oracle.com/otn_software/asmlib/oracleasmlib-2.0.4-1.el6.x86_64.rpm
--2015-11-08 12:07:49-- http://download.oracle.com/otn_software/asmlib/oracleasmlib-2.0.4-1.el6.x86_64.rpm
Resolving download.oracle.com... 190.98.131.50, 190.98.131.65
Connecting to download.oracle.com|190.98.131.50|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 13300 (13K) [application/x-redhat-package-manager]
Saving to: "oracleasmlib-2.0.4-1.el6.x86_64.rpm"

100%[=====] 13,300      --.-K/s   in 0.007s

2015-11-08 12:07:50 (1.84 MB/s) - "oracleasmlib-2.0.4-1.el6.x86_64.rpm" saved [13300/13300]
```

```
[root@dbserver u01]# rpm -ivh oracleasmlib-2.0.4-1.el6.x86_64.rpm
Preparing...               #####[100%
1:oracleasmlib           #####[100%
```

Edite o fstab no /tmpfs adicionando o size=4g na linha tmpfs.

OBS: Não deve haver espaços antes e nem depois da vírgula, exatamente como na imagem.

```
[root@dbserver u01]# cat /etc/fstab
#
# /etc/fstab
# Created by anaconda on Sat Nov  7 19:54:43 2015
#
# Accessible filesystems, by reference, are maintained under '/dev/disk'
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info
#
UUID=85add15c-05db-443b-95aa-64d849342701 / ext4 defaults 1 1
UUID=01a409c2-5394-4d24-9975-8a2bfca331c5 /boot ext4 defaults 1 2
UUID=26ada6d9-7013-45f9-adca-e469083149ab /u01 ext4 defaults 1 2
UUID=57a86502-18c5-4ae9-8b50-70b99e440172 swap swap defaults 0 0
tmpfs /dev/shm tmpfs defaults,size=4g 0 0
devpts /dev/pts devpts gid=5,mode=620 0 0
sysfs /sys sysfs defaults 0 0
proc - /proc proc defaults 0 0
```

Instale os pacotes restantes.

```
yum -y install unixODBC unixODBC.i686 unixODBC-devel unixODBC-devel.i686
```

Modifique a senha do usuário oracle. (Foi criado automaticamente durante a instalação dos pre-reqs do 12cR1).

```
[root@dbserver u01]# passwd oracle
Changing password for user oracle.
New password:
BAD PASSWORD: it is based on a dictionary word
BAD PASSWORD: is too simple
Retype new password:
passwd: all authentication tokens updated successfully.
```

Altere o SELINUX para “permissive”

```
[root@dbserver u01]# vi /etc/selinux/config
[root@dbserver u01]# cat /etc/selinux/config

# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#       enforcing - SELinux security policy is enforced.
#       permissive - SELinux prints warnings instead of enforcing.
#       disabled - No SELinux policy is loaded.
SELINUX=permissive
# SELINUXTYPE= can take one of these two values:
#       targeted - Targeted processes are protected,
#       mls - Multi Level Security protection.
SELINUXTYPE=targeted
```

Execute os comandos conforme a imagem.

```
[root@dbserver u01]# service ntpd stop
Shutting down ntpd: [FAILED]
[root@dbserver u01]# chkconfig ntpd off
[root@dbserver u01]# service ntpd stop
Shutting down ntpd: [FAILED]
[root@dbserver u01]# service ntpd restart
Shutting down ntpd: [FAILED]
Starting ntpd: [OK]
[root@dbserver u01]# service ntpd stop
Shutting down ntpd: [OK]
[root@dbserver u01]# chkconfig ntpd off
[root@dbserver u01]# mv /etc/ntp.conf /etc/ntp.conf.orig
[root@dbserver u01]# rm /var/run/ntp.pid
rm: cannot remove '/var/run/ntp.pid': No such file or directory
```

Instale o DNSMasq.

```
[root@dbserver ~]# yum install dnsmasq
```

Crie um arquivo chamado racdns com o mesmo conteúdo do /etc/hosts

```
[root@dbserver ~]# cp /etc/hosts /etc/racdns
[root@dbserver ~]#
```

```
[oracle@dbserver Desktop]$ cat /etc/racdns
127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4
::1 localhost localhost.localdomain localhost6 localhost6.localdomain6

#Public
192.168.56.201 dbserver.localdomain dbserver
192.168.56.202 rac02.localdomain rac02
192.168.56.203 rac03.localdomain rac03
192.168.56.204 rac04.localdomain rac04

#Private Interconnect
#192.168.10.1 dbserver-priv.localdomain dbserver-priv
#192.168.10.2 rac02-priv.localdomain rac02-priv
#192.168.10.3 rac03-priv.localdomain rac03-priv
#192.168.10.4 rac04-priv.localdomain rac04-priv

#Virtual
192.168.56.101 dbserver-vip.localdomain dbserver-vip
192.168.56.102 rac02-vip.localdomain rac02-vip
192.168.56.103 rac03-vip.localdomain rac03-vip
192.168.56.104 rac04-vip.localdomain rac04-vip

#SCAN
192.168.56.115 rac-scan.localdomain rac-scan
192.168.56.116 rac-scan.localdomain rac-scan
192.168.56.117 rac-scan.localdomain rac-scan
```

Edite o arquivo /etc/dnsmasq.conf no parâmetro addn-hosts.

Antes:

```
#addn-hosts=/etc/banner_add_hosts
```

Depois:

```
addn-hosts=/etc/racdns
```

Ative o dnsmasq.

```
[root@dbserver ~]# service dnsmasq start
Starting dnsmasq: [ OK ]
[root@dbserver ~]# chkconfig dnsmasq on
```

Altere o /etc/resolv.conf da seguinte forma:

```
[root@dbserver ~]# lsattr /etc/resolv.conf
-----e--- /etc/resolv.conf
[root@dbserver ~]# chattr -a /etc/resolv.conf
[root@dbserver ~]# lsattr /etc/resolv.conf
-----e--- /etc/resolv.conf
[root@dbserver ~]# chattr -i /etc/resolv.conf
[root@dbserver ~]# lsattr /etc/resolv.conf
-----e--- /etc/resolv.conf
```

vi /etc/resolv.conf

Antes:

```
[root@dbserver ~]# cat /etc/resolv.conf
# Generated by NetworkManager
search localdomain
nameserver 192.168.1.1
```

Depois:

```
[root@dbserver ~]# cat /etc/resolv.conf
# Generated by NetworkManager
nameserver 127.0.0.1
search localdomain
nameserver 192.168.56.201
```

Teste o SCAN.

```
[root@dbserver ~]# nslookup rac-scan
Server:      127.0.0.1
Address:     127.0.0.1#53

Name:   rac-scan.localdomain
Address: 192.168.56.117
Name:   rac-scan.localdomain
Address: 192.168.56.115
Name:   rac-scan.localdomain
Address: 192.168.56.116
Name:   rac-scan.localdomain
Address: 192.168.56.117
Name:   rac-scan.localdomain
Address: 192.168.56.116
Name:   rac-scan.localdomain
Address: 192.168.56.115
```

Deve retornar duas saídas para cada IP.

Execute os comandos:

```
[root@dbserver ~]# chattr +i /etc/resolv.conf
[root@dbserver ~]# lsattr /etc/resolv.conf
----i-----e--- /etc/resolv.conf
```

Adicione os grupos do ASM e em seguida adicione o user oracle aos grupos (Sem espaços nas vírgulas).

```
[root@dbserver u01]# groupadd oper
[root@dbserver u01]# groupadd asmadmin
[root@dbserver u01]# groupadd asmdba
[root@dbserver u01]# groupadd asmoper
[root@dbserver u01]# usermod -g oinstall -G dba,oper,asmadmin,asmoper oracle
```

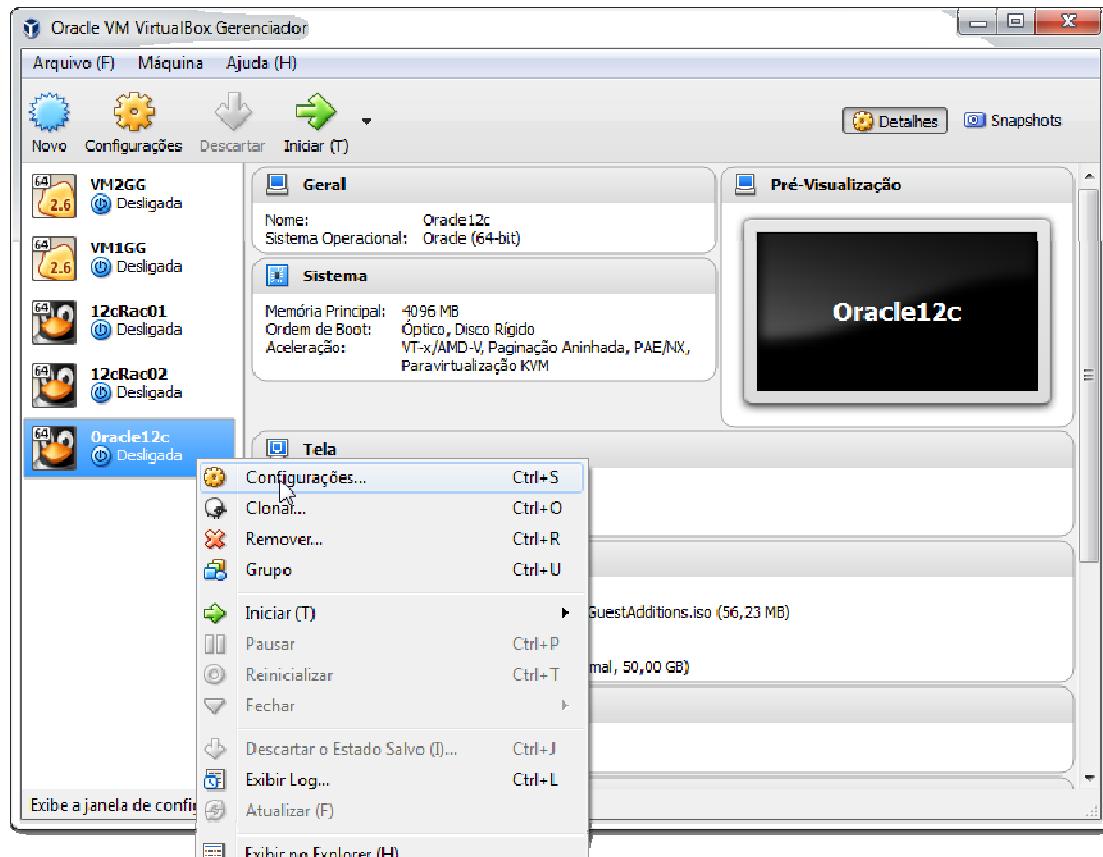
Crie os diretórios e dê permissões ao oracle e grupo oinstall.

```
[root@dbserver u01]# mkdir -p /u01/app/oracle/product/12.1.0.2/grid
[root@dbserver u01]# mkdir -p /u01/app/oracle/product/12.1.0.2/db
[root@dbserver u01]# chown -R oracle:oinstall /u01
[root@dbserver u01]# chmod -R 775 /u01
```

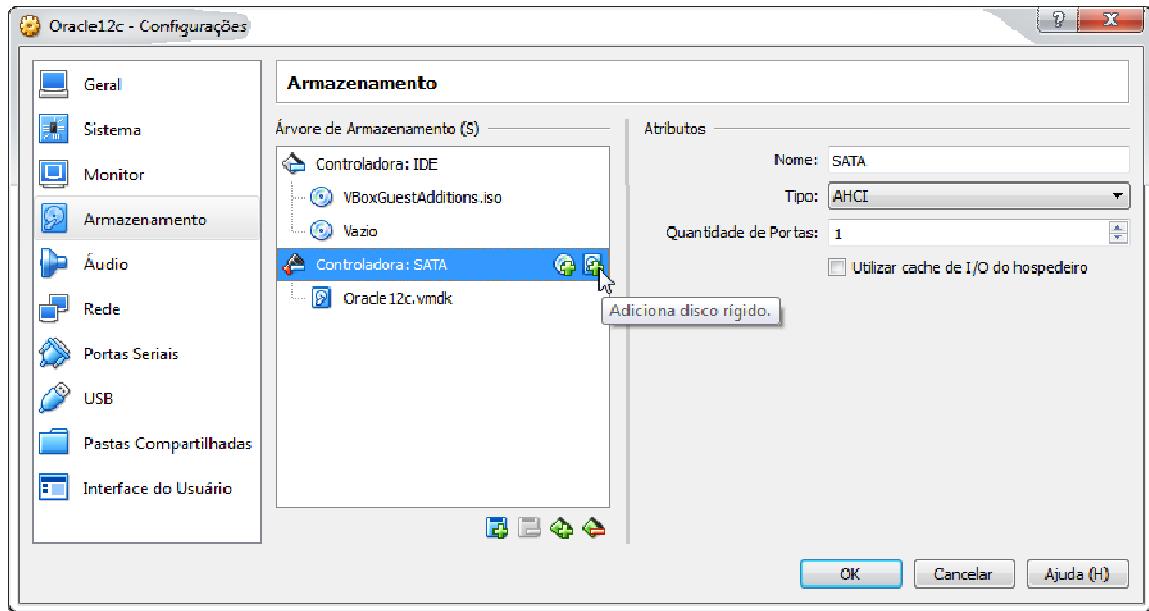
Desligue a máquina virtual.

```
[root@dbserver u01]# init 0
```

Nas configurações da máquina virtual.



Na aba Armazenamento na “Árvore de Armazenamento (S)” clique em “Adiciona disco rígido”.



Crie os discos do ASM com o formato VDI e Tamanho Fixo de 2GB.

VirtualBox - Pergunta

Você está prestes a remover a controla de discos virtual **SATA**. Gostaria de criar um arquivo novo (vazio) para armazenar o conteúdo do disco ou selecionar um arquivo existente?

Criar novo disco **Utilizar disco rígido existente (C)** **Cancelar**

Criar Disco Rígido Virtual

Localização do arquivo: D:\Oracle\12cTraining\DISK01.vdi

Tamanho do arquivo (S): 2,00 GB

Tipo de arquivo de disco rígido: VDI (VirtualBox Disk Image) VMDK (Virtual Machine Disk) VHD (Virtual Hard Disk) HDD (Disco Rígido do Parallels) QED (Disco do QEMU) QCOW (QEMU Copy-On-Write)

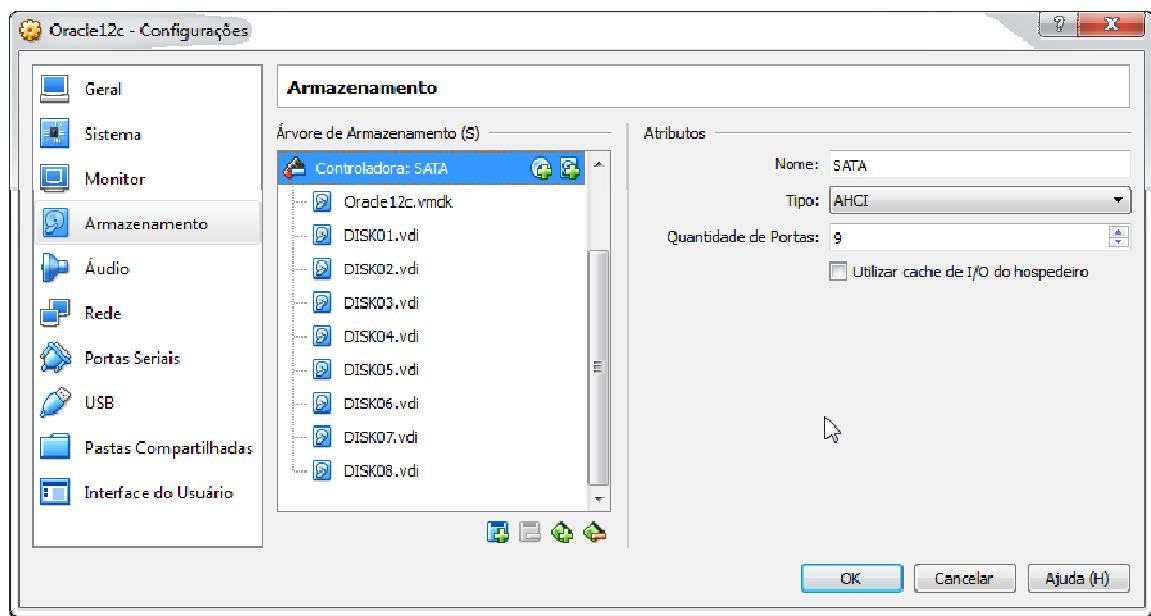
Armazenamento em disco rígido físico: Dinamicamente alocado Tamanho Fixo Dividir em arquivos de menos de 2GB

Modo Guidado **Criar** **Cancelar**

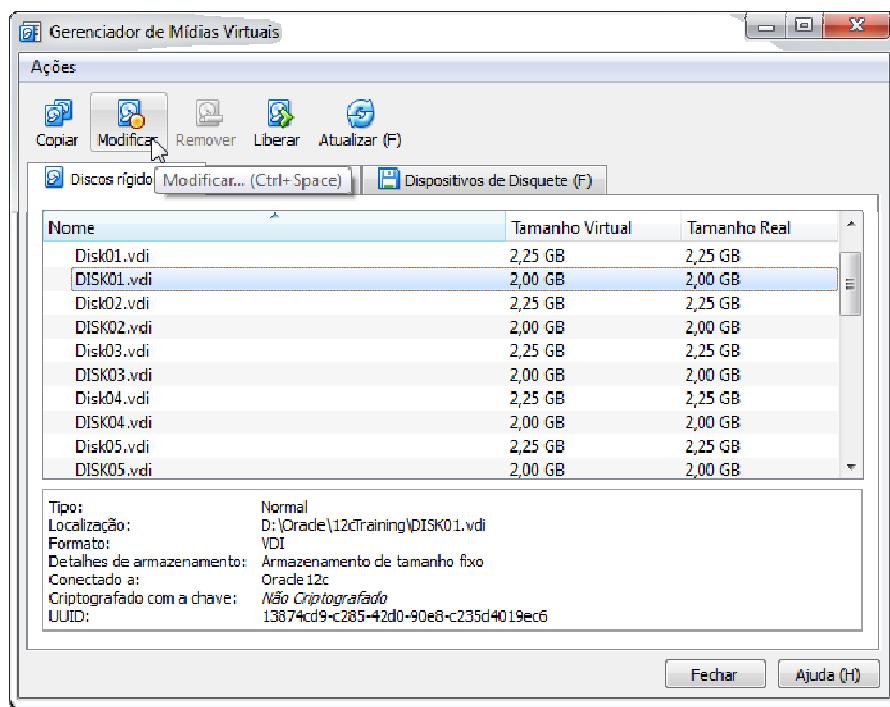
OBS: Obrigatório o tipo VDI e Tamanho Fixo.

Repita o procedimento até o DISK08 (8 discos no total).

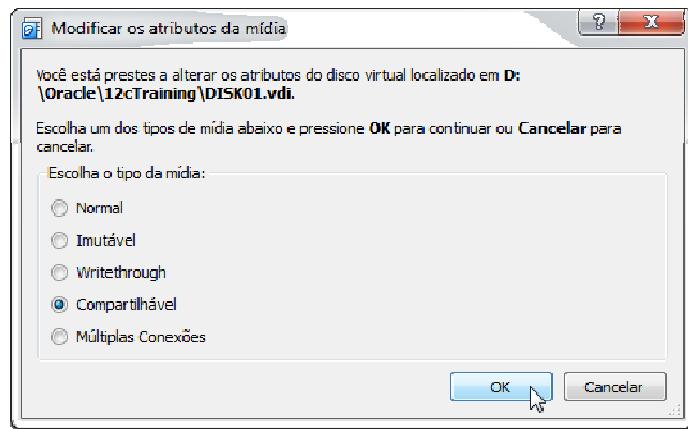
Ao final os discos devem ficar como na imagem.



Com a máquina virtual desligada clique em “Arquivo” e “Gerenciador de Mídias Virtuais”. Encontre os discos que você criou e clique em modificar.



Deixe-os com o tipo Compartilhável.



Repita o procedimento para todos os discos que serão do ASM.

Inicie a máquina virtual e logue com o usuário root.

Liste os discos.

```
[root@dbserver Desktop]# ls -ltr /dev/sd*
brw-rw----. 1 root disk 8,   0 Nov  8 13:16 /dev/sda
brw-rw----. 1 root disk 8,   4 Nov  8 13:16 /dev/sda4
brw-rw----. 1 root disk 8,  32 Nov  8 13:16 /dev/sdc
brw-rw----. 1 root disk 8, 112 Nov  8 13:16 /dev/sdh
brw-rw----. 1 root disk 8,  16 Nov  8 13:16 /dev/sdb
brw-rw----. 1 root disk 8,  80 Nov  8 13:16 /dev/sdf
brw-rw----. 1 root disk 8,  96 Nov  8 13:16 /dev/sdg
brw-rw----. 1 root disk 8,  64 Nov  8 13:16 /dev/sde
brw-rw----. 1 root disk 8, 128 Nov  8 13:16 /dev/sdi
brw-rw----. 1 root disk 8,  48 Nov  8 13:16 /dev/sdd
brw-rw----. 1 root disk 8,   3 Nov  8 13:16 /dev/sda3
brw-rw----. 1 root disk 8,   2 Nov  8 13:16 /dev/sda2
brw-rw----. 1 root disk 8,   1 Nov  8 13:16 /dev/sda1
brw-rw----. 1 root disk 8,   5 Nov  8 13:16 /dev/sda5
```

Execute o comando fdisk /dev/sdb. Escolha as opções: n, p, 1, <enter>, <enter>, w.

```
[root@dbserver Desktop]# fdisk /dev/sdb
Device contains neither a valid DOS partition table, nor Sun, SGI or OSF disklabel
Building a new DOS disklabel with disk identifier 0xb4b30494.
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 (1-261, default 1):
Using default value 1
Last cylinder, +cyinders or +size{K,M,G} (1-261, default 261):
Using default value 261

Command (m for help): w
The partition table has been altered!

Calling ioctl() to re-read partition table.
Syncing disks.
```

Repita para todas as letras (B até I). Discos sdb, sdc, sdd, sde, sdf, sdg, sdh e sdi.

Os discos devem ficar como na imagem.

```
[root@dbserver Desktop]# ls -l /dev/sd?
brw-rw----. 1 root disk 8,    1 Nov  8 13:16 /dev/sda1
brw-rw----. 1 root disk 8,   17 Nov  8 13:20 /dev/sdb1
brw-rw----. 1 root disk 8,   33 Nov  8 13:22 /dev/sdc1
brw-rw----. 1 root disk 8,   49 Nov  8 13:22 /dev/sdd1
brw-rw----. 1 root disk 8,   65 Nov  8 13:23 /dev/sde1
brw-rw----. 1 root disk 8,   81 Nov  8 13:23 /dev/sdf1
brw-rw----. 1 root disk 8,  97 Nov  8 13:23 /dev/sdg1
brw-rw----. 1 root disk 8, 113 Nov  8 13:23 /dev/sdh1
brw-rw----. 1 root disk 8, 129 Nov  8 13:23 /dev/sdi1
```

Configure o asmlib.

```
[root@dbserver Desktop]# /usr/sbin/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 []: asmadmin
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
```

Inicie o ASMLIB.

```
[root@dbserver Desktop]# /usr/sbin/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
```

Crie os discos ASM.

```
[root@dbserver Desktop]# /usr/sbin/oracleasm createdisk ASMDISK01 /dev/sdb1
Writing disk header: done
Instantiating disk: done
[root@dbserver Desktop]# /usr/sbin/oracleasm createdisk ASMDISK02 /dev/sdc1
Writing disk header: done
Instantiating disk: done
[root@dbserver Desktop]# /usr/sbin/oracleasm createdisk ASMDISK03 /dev/sdd1
Writing disk header: done
Instantiating disk: done
[root@dbserver Desktop]# /usr/sbin/oracleasm createdisk ASMDISK04 /dev/sde1
Writing disk header: done
Instantiating disk: done
[root@dbserver Desktop]# /usr/sbin/oracleasm createdisk ASMDISK05 /dev/sdf1
Writing disk header: done
Instantiating disk: done
[root@dbserver Desktop]# /usr/sbin/oracleasm createdisk ASMDISK06 /dev/sdg1
Writing disk header: done
Instantiating disk: done
[root@dbserver Desktop]# /usr/sbin/oracleasm createdisk ASMDISK07 /dev/sdh1
Writing disk header: done
Instantiating disk: done
[root@dbserver Desktop]# /usr/sbin/oracleasm createdisk ASMDISK08 /dev/sdil
Writing disk header: done
Instantiating disk: done
```

Escaneie os discos criados e liste-os para confirmar que foram criados com sucesso.

```
[root@dbserver Desktop]# /usr/sbin/oracleasm scandisks
Reloading disk partitions: done
Cleaning any stale ASM disks...
Scanning system for ASM disks...
[root@dbserver Desktop]# /usr/sbin/oracleasm listdisks
ASMDISK01
ASMDISK02
ASMDISK03
ASMDISK04
ASMDISK05
ASMDISK06
ASMDISK07
ASMDISK08
```

Adicione o nome do server no /etc/hosts.
dbserver.localhost

```
[root@dbserver ~]# vi /etc/hosts
[root@dbserver ~]# cat /etc/hosts
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4 dbserver.localdomain
::1          localhost localhost.localdomain localhost6 localhost6.localdomain6
```

Como usuário oracle descompacte os instaladores (.zip) do database e do grid localizados no diretório /u01. Todos os quatro arquivos precisam ser descompactados individualmente.

```
[root@dbserver Desktop]# su - oracle
[oracle@dbserver ~]$ cd /u01
[oracle@dbserver u01]$ ls -ltr
total 4963044
-rwxrwxr-x. 1 oracle oinstall      13300 Jun 28  2012 oracleasmlib-2.0.4-1.el6.x86_64.rpm
drwxrwxr-x. 2 oracle oinstall     16384 Nov  7 19:52 lost+found
-rwxrwxr-x. 1 oracle oinstall 1747043545 Nov  8 11:52 linuxamd64_12102_grid_1of2.zip
-rwxrwxr-x. 1 oracle oinstall  646972897 Nov  8 11:52 linuxamd64_12102_grid_2of2.zip
-rwxrwxr-x. 1 oracle oinstall 1673544724 Nov  8 11:54 linuxamd64_12102_database_1of2.zip
-rwxrwxr-x. 1 oracle oinstall 1014530602 Nov  8 11:54 linuxamd64_12102_database_2of2.zip
drwxrwxr-x. 3 oracle oinstall      4096 Nov  8 12:26 app
[oracle@dbserver u01]$ unzip linuxamd64_12102_grid_1of2.zip
```

Remova os instaladores.

```
[oracle@dbserver u01]$ ls -ltr
total 28
drwxr-xr-x. 7 oracle oinstall  4096 Jul  7  2014 database
drwxr-xr-x. 7 oracle oinstall  4096 Jul  7  2014 grid
drwxrwxr-x. 2 oracle oinstall 16384 Nov  7 19:52 lost+found
drwxrwxr-x. 3 oracle oinstall  4096 Nov  8 12:26 app
```

Como usuário Oracle adicione no arquivo .bash_profile no /home/oracle o conteúdo a seguir:

```
export TMP=/tmp
export TMPDIR=$TMP
export ORACLE_HOSTNAME=dbserver.localdomain
export ORACLE_UNQNAME=orcl
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/12.1.0.2/db
export GRID_HOME=$ORACLE_BASE/product/12.1.0.2/grid
export ORACLE_SID=orcl
export ORACLE_TERM=xterm
export PATH=/usr/sbin:$PATH
export PATH=$ORACLE_HOME/bin:$PATH
export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/lib:/usr/lib
export CLASSPATH=$ORACLE_HOME/JRE:$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/jlib

if [ $USER = "oracle" ]; then
if [ $SHELL = "/bin/ksh" ]; then
  ulimit -p 16384
```

```

ulimit -n 65536
else
  ulimit -u 16384 -n 65536
fi
fi

[oracle@dbserver u01]$ cd
[oracle@dbserver ~]$ vi .bash_profile
[oracle@dbserver ~]$ cat .bash_profile
# .bash_profile

# Get the aliases and functions
if [ -f ~/.bashrc ]; then
    . ~/.bashrc
fi

# User specific environment and startup programs

PATH=$PATH:$HOME/bin

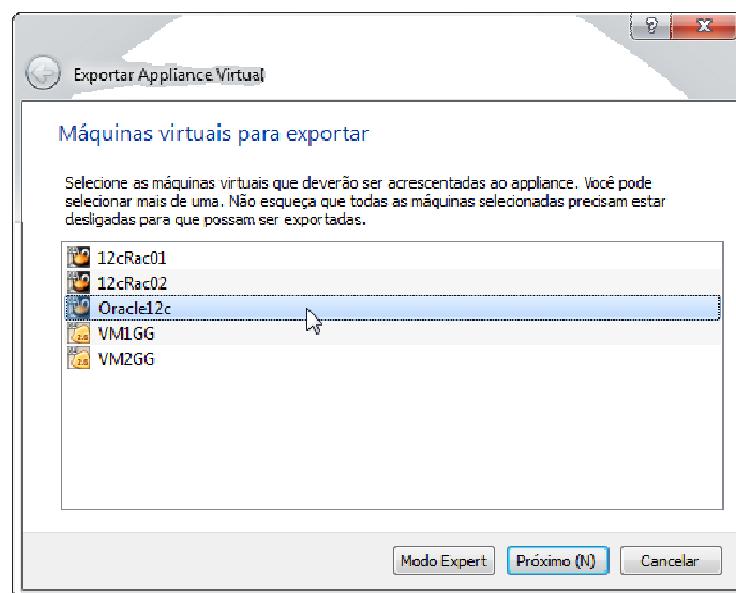
export PATH

export TMP=/tmp
export TMPDIR=$TMP
export ORACLE_HOSTNAME=dbserver.localdomain
export ORACLE_UNQNAME=orcl
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/12.1.0.2/db
export GRID_HOME=$ORACLE_BASE/product/12.1.0.2/grid
export ORACLE_SID=orcl
export ORACLE_TERM=xterm
export PATH=/usr/sbin:$PATH
export PATH=$ORACLE_HOME/bin:$PATH
export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/lib:/usr/lib
export CLASSPATH=$ORACLE_HOME/JRE:$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/jlib

if [ $USER = "oracle" ]; then
  if [ $SHELL = "/bin/ksh" ]; then
    ulimit -p 16384
    ulimit -n 65536
  else
    ulimit -u 16384 -n 65536
  fi
fi

```

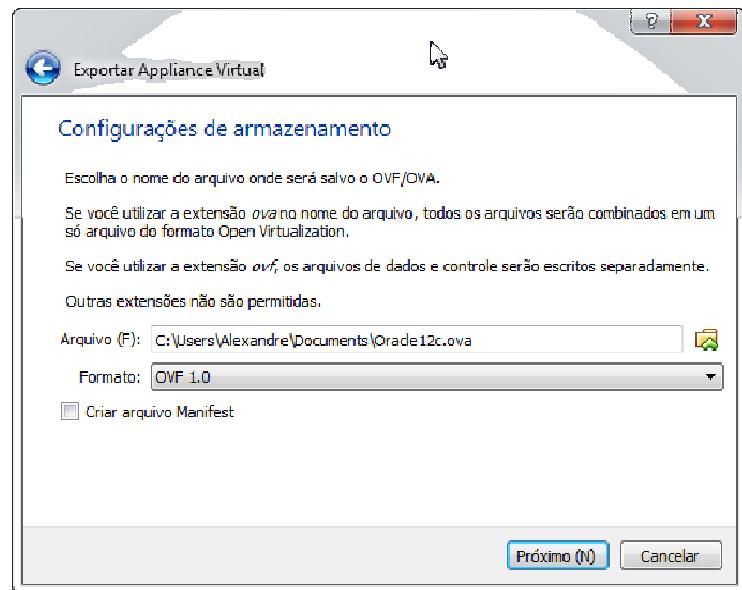
Desligue a máquina virtual e na aba “Arquivo” selection “Exportar Appliance”. Escolha sua máquina virtual.



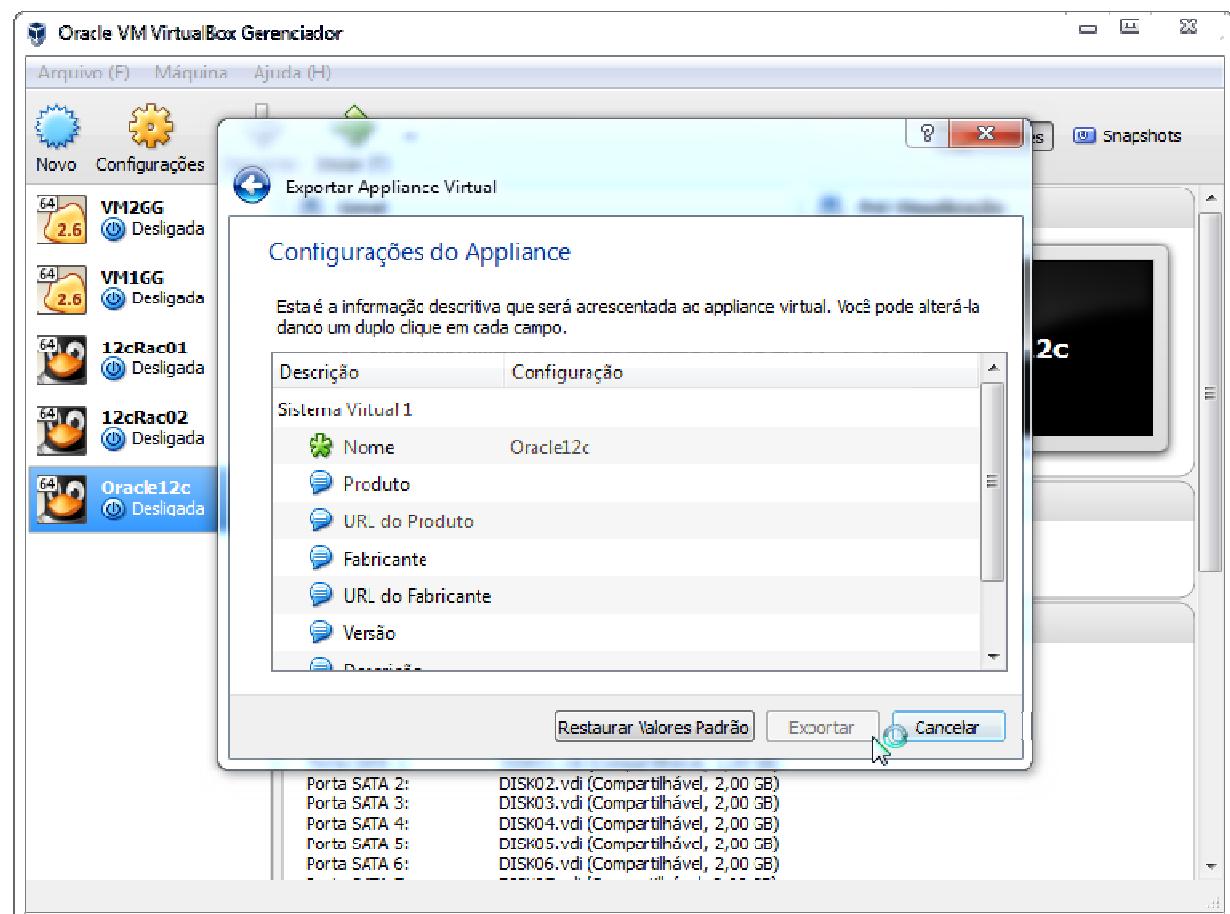
Próximo.

Escolha onde deseja exportar.

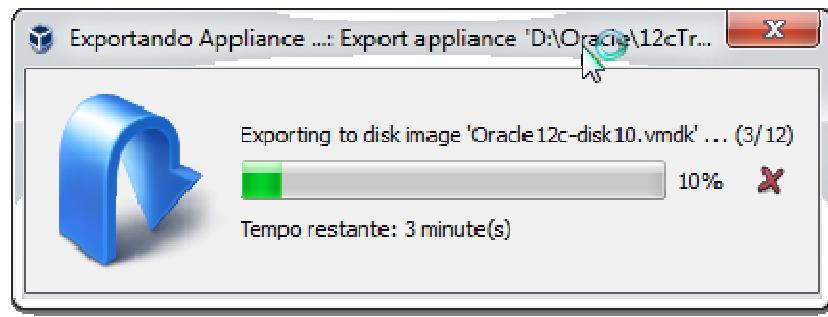
Próximo.



Cliquem “Exportar”.



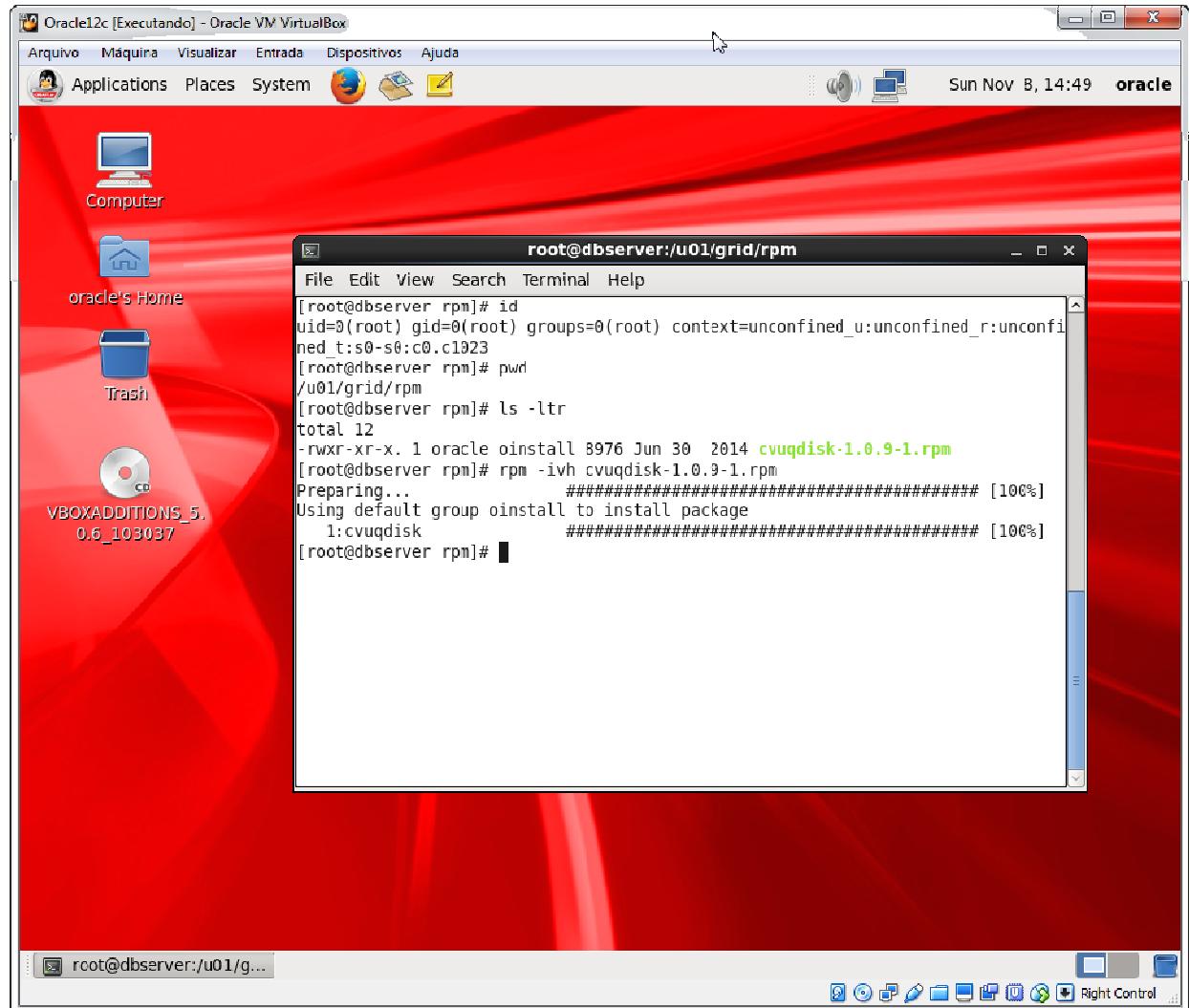
Aguarde.



Não exclua o arquivo, esse será o seu backup em caso de falha da instalação.

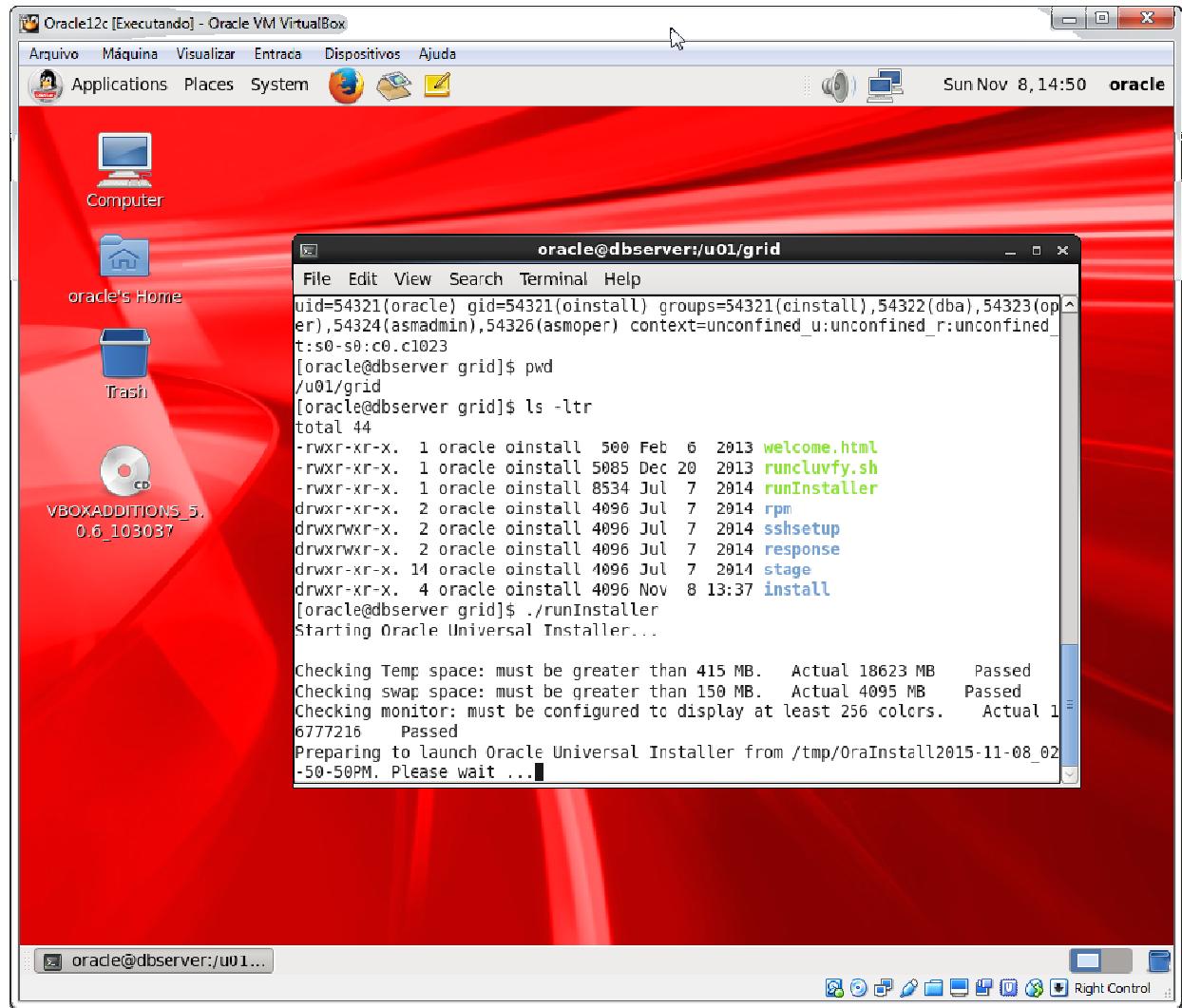
Inicie a máquina virtual e logue com o usuário ORACLE (Não logue na interface gráfica com o usuário root a partir desse ponto!).

Abra um terminal e navegue até o diretório do instalador do grid/rpm e instale o pacote existente como **root**.

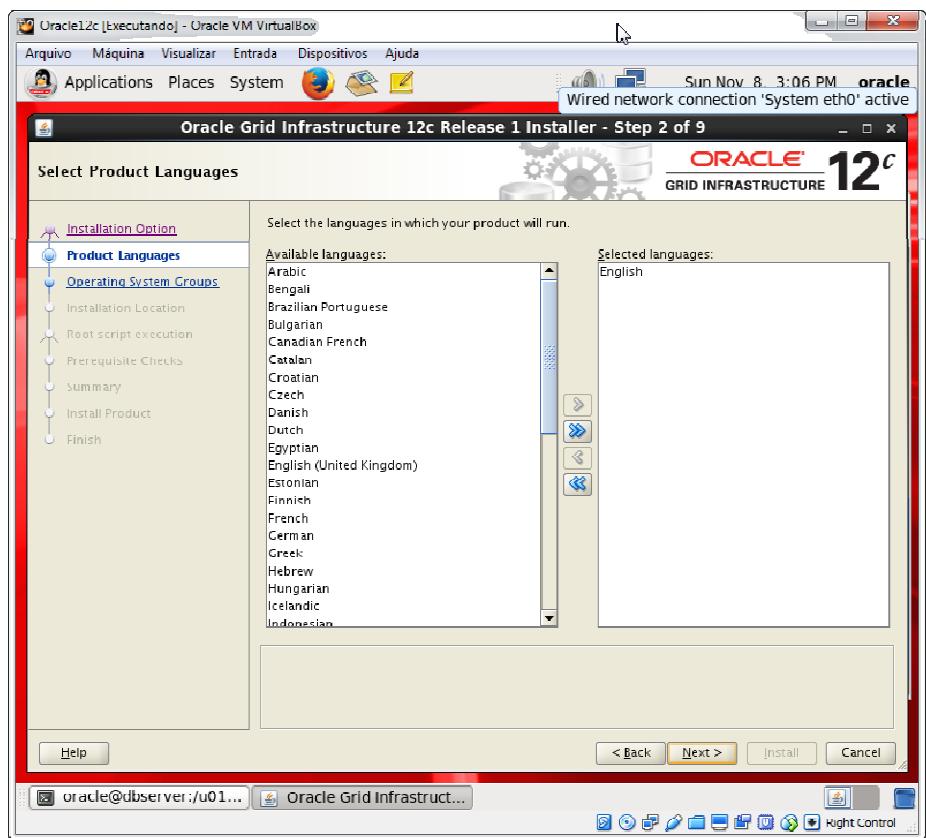
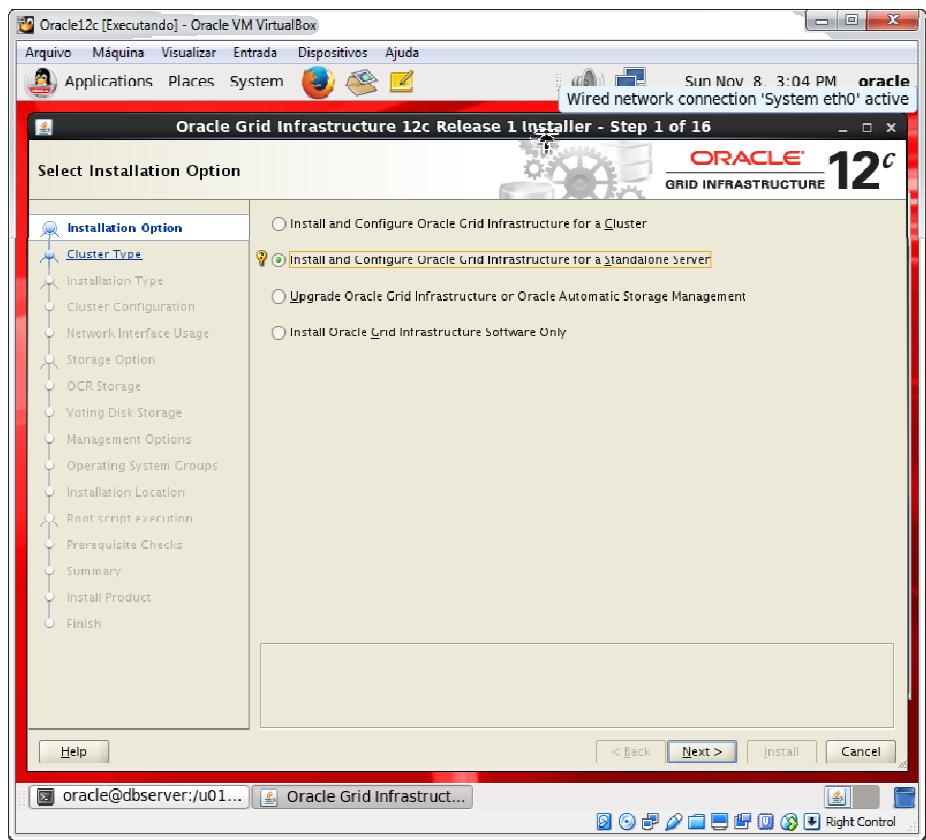


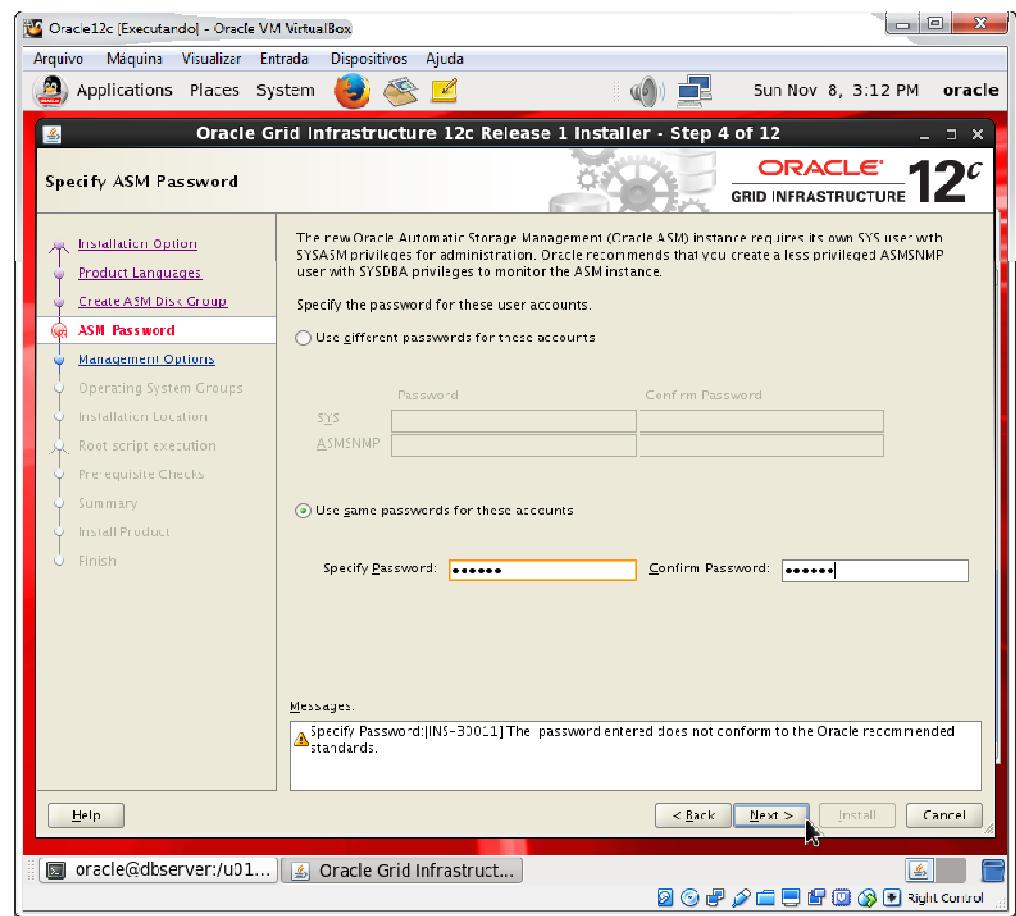
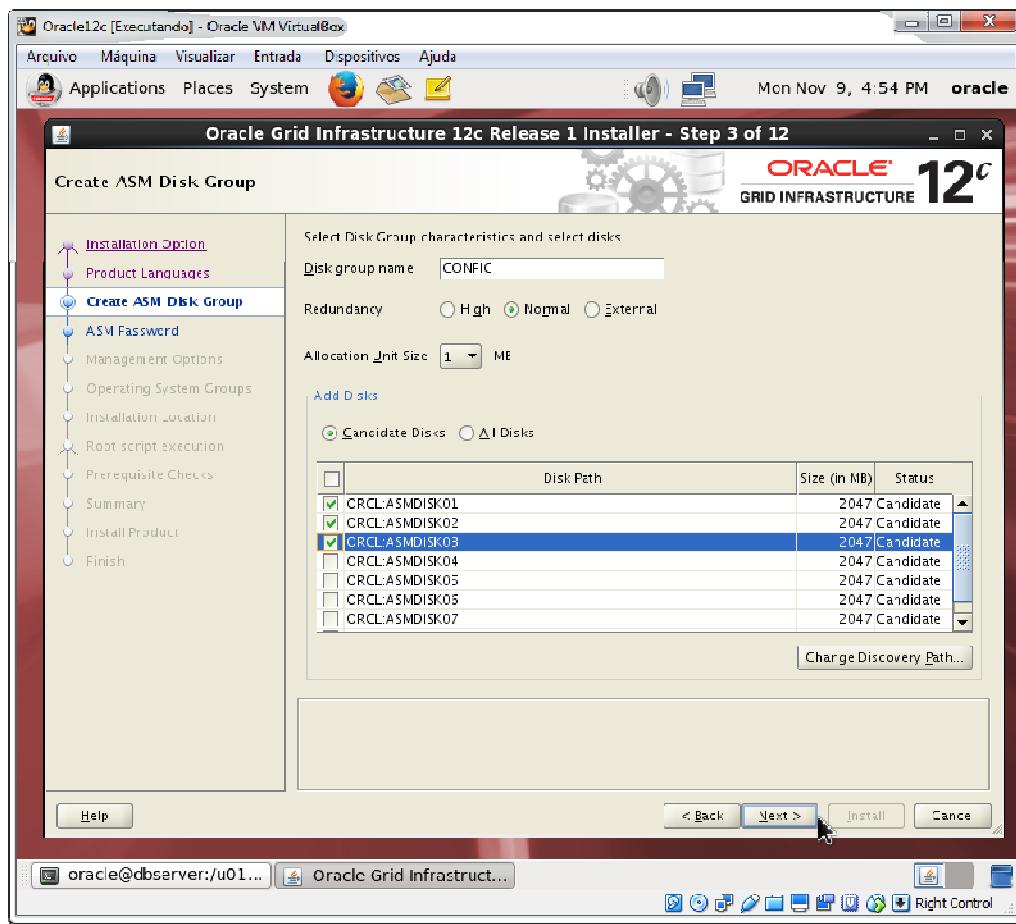
INSTALAÇÃO DA GRID INFRASTRUCTURE

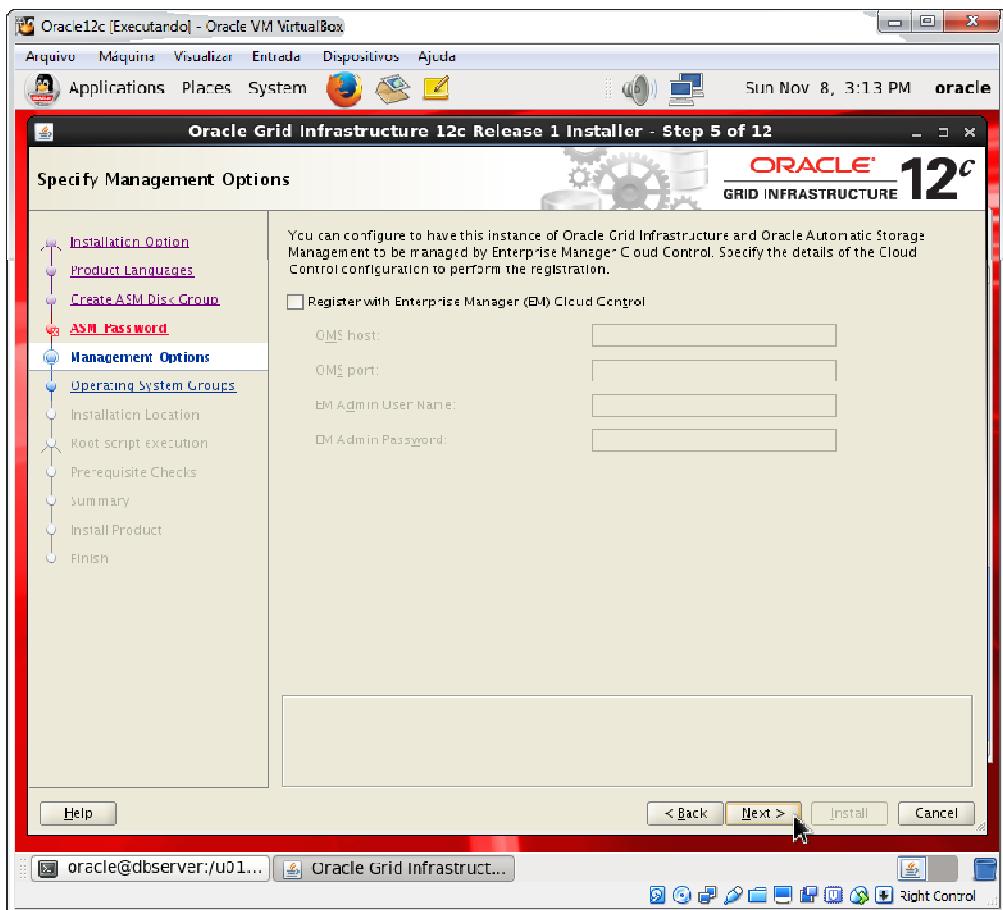
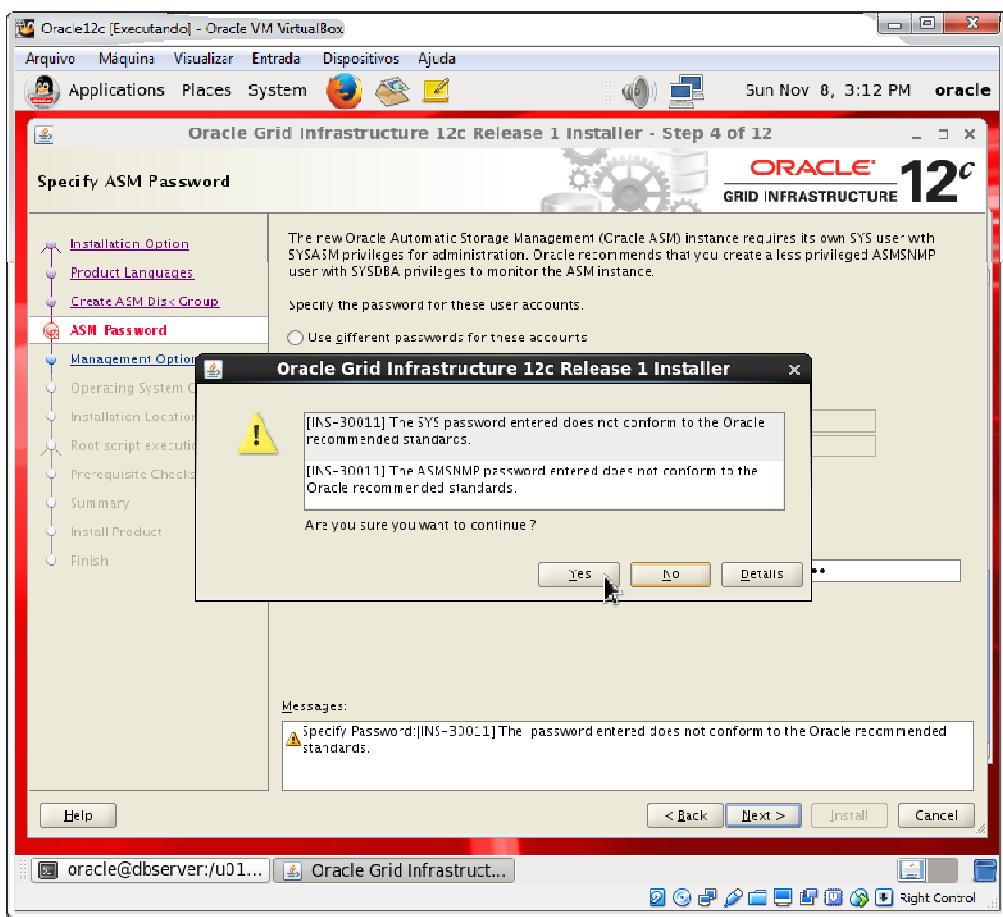
COMO USUÁRIO ORACLE navegue até o diretório /u01/grid e execute o ./runInstaller.

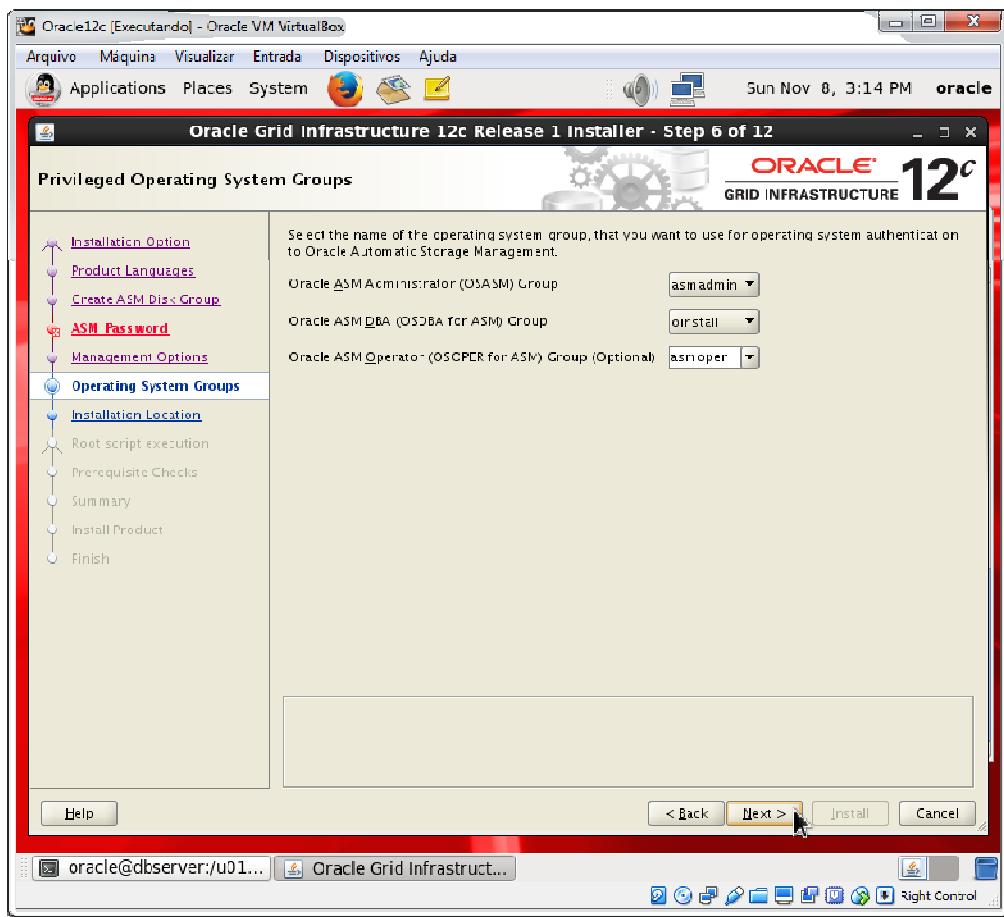


Siga os passos conforme as imagens a seguir. Clicando em Next para avançar para a próxima tela.

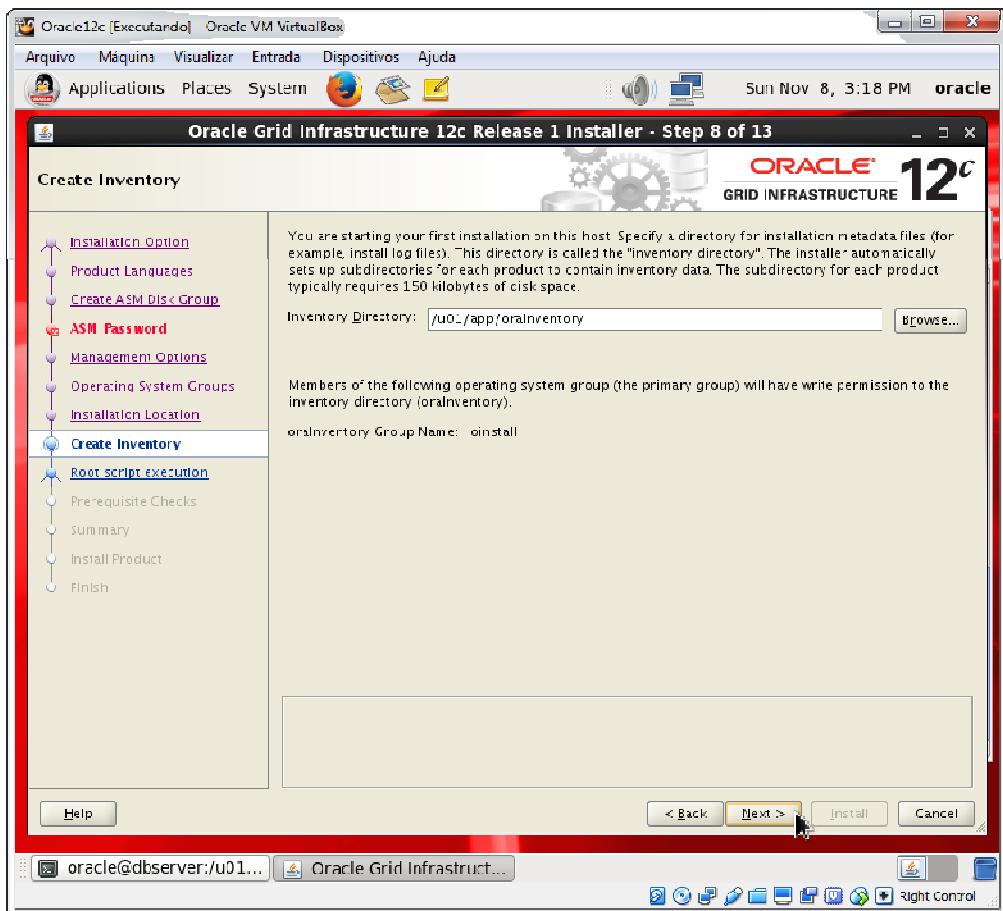
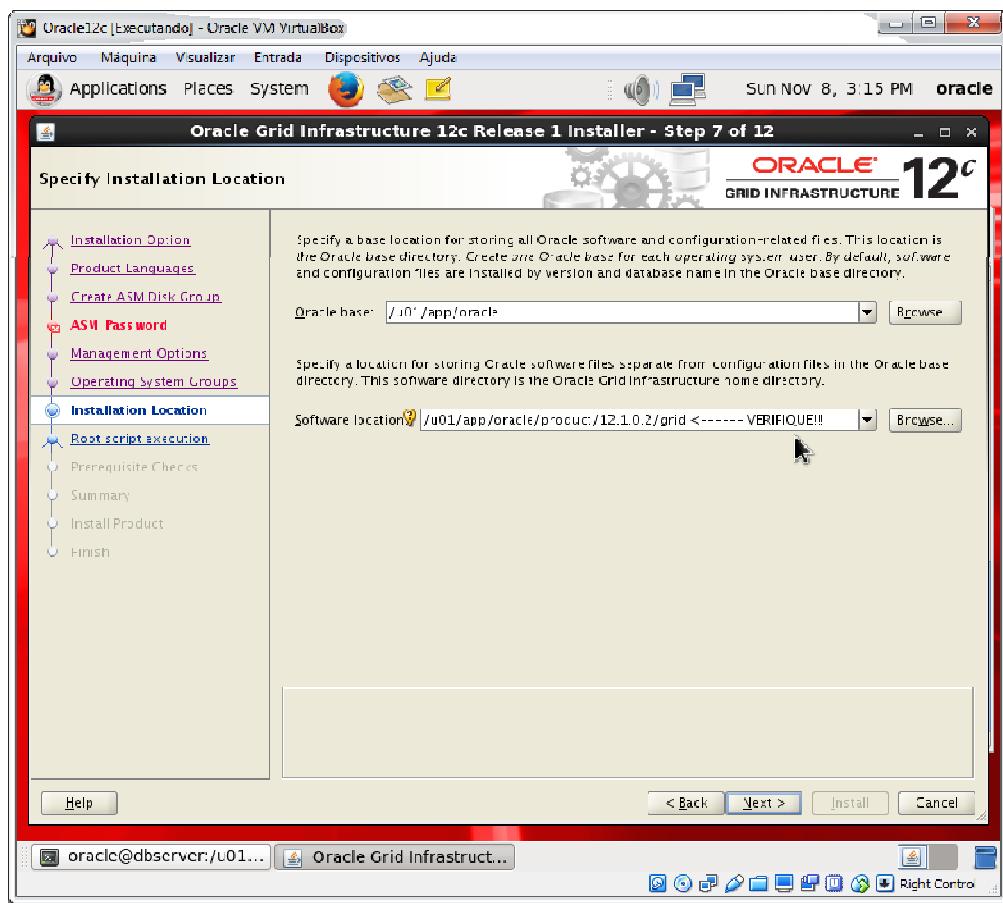




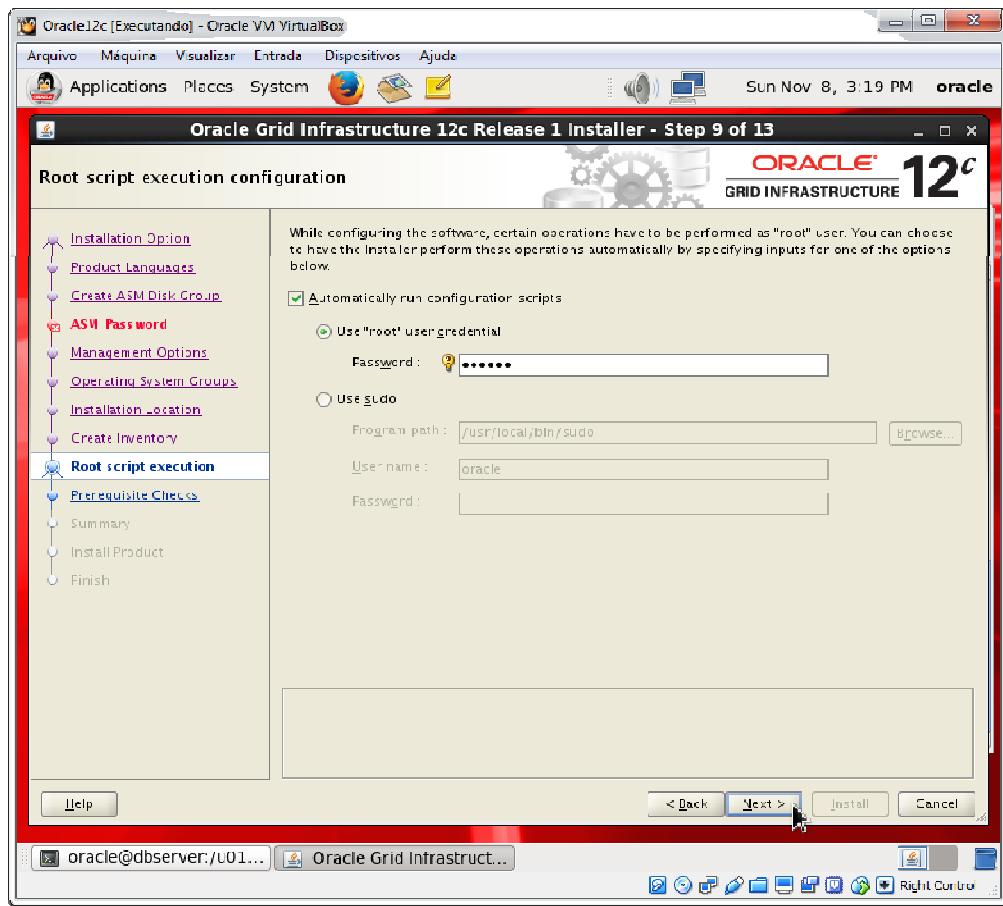




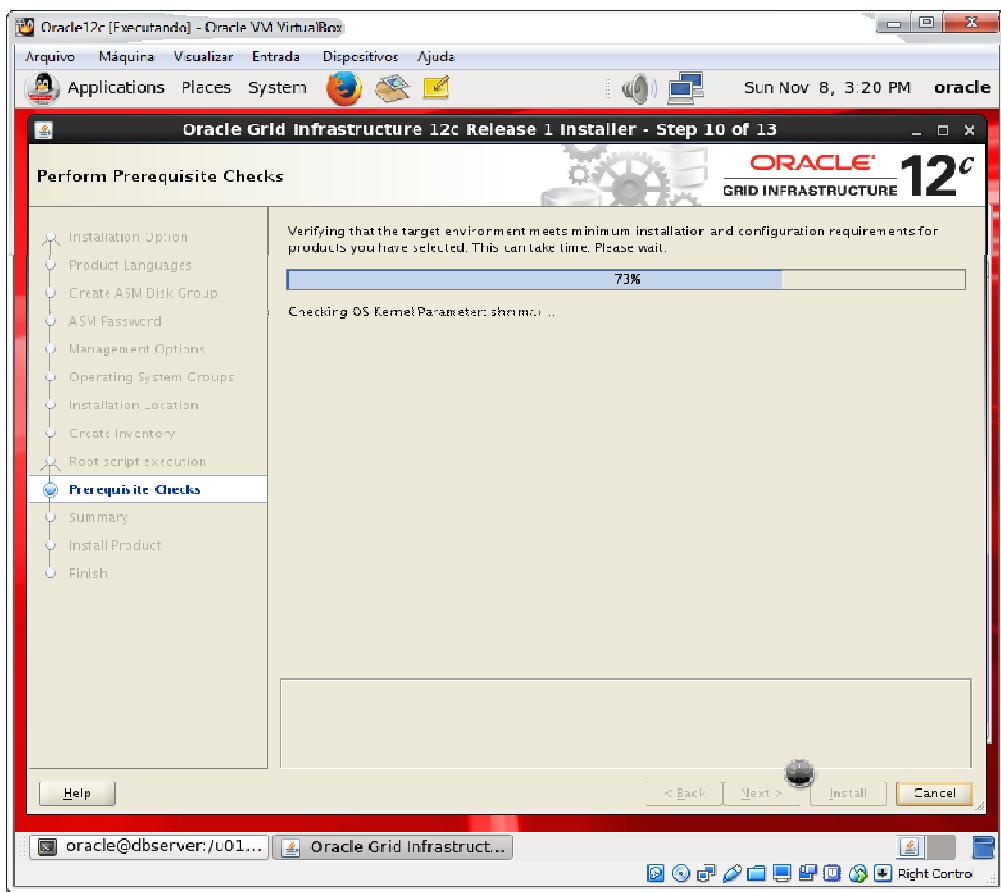
Altere a “Software location” para /u01/app/oracle/product/12.1.0.2/grid.



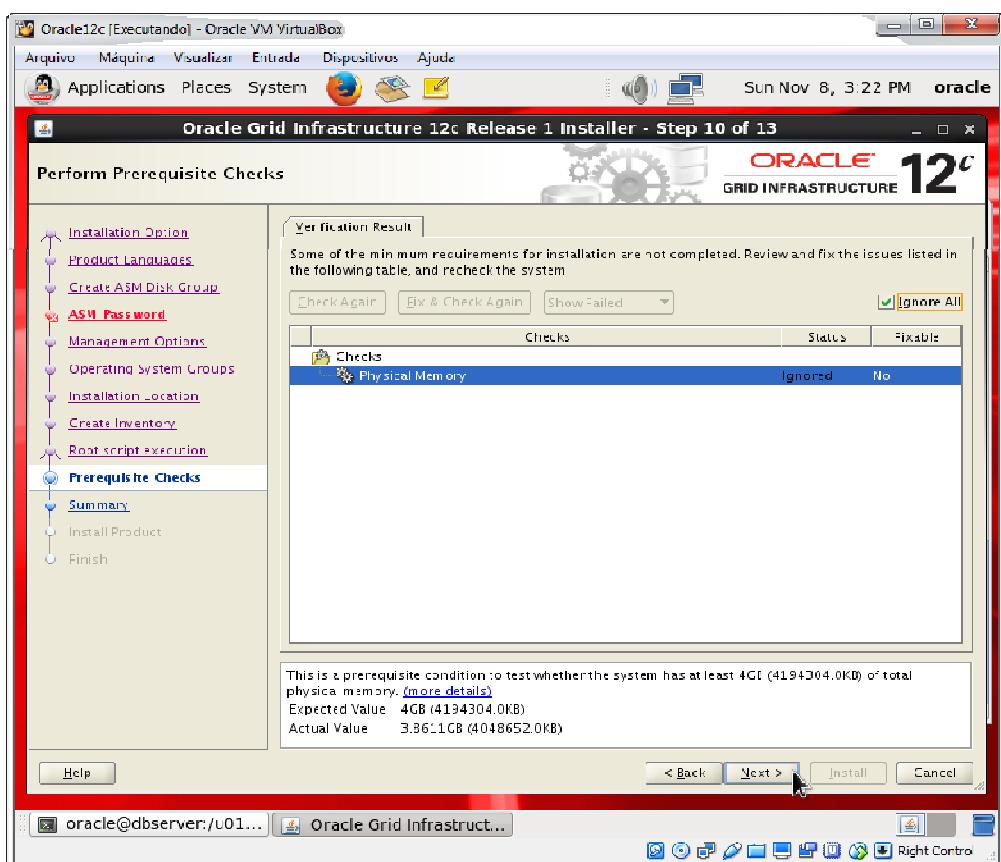
Selectione “Automatically run configuration scripts” e informe a root password.

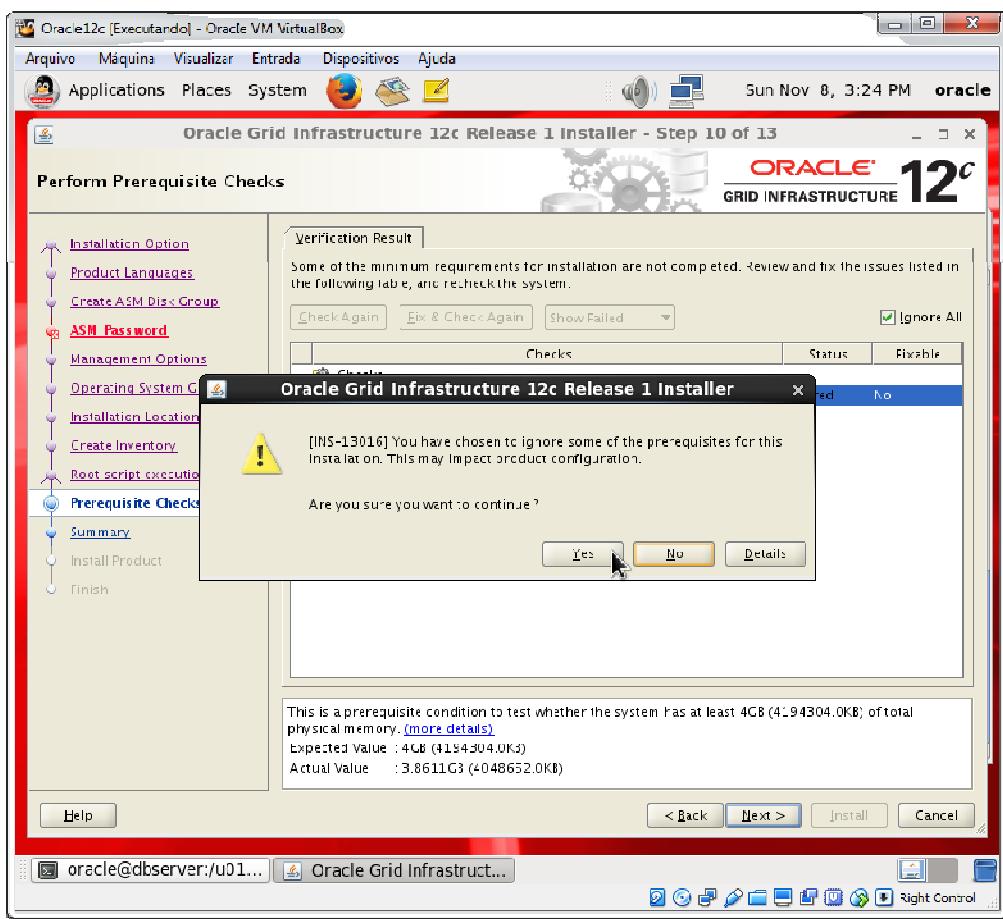


Aguarde a conclusão da checagem de pré requisitos.

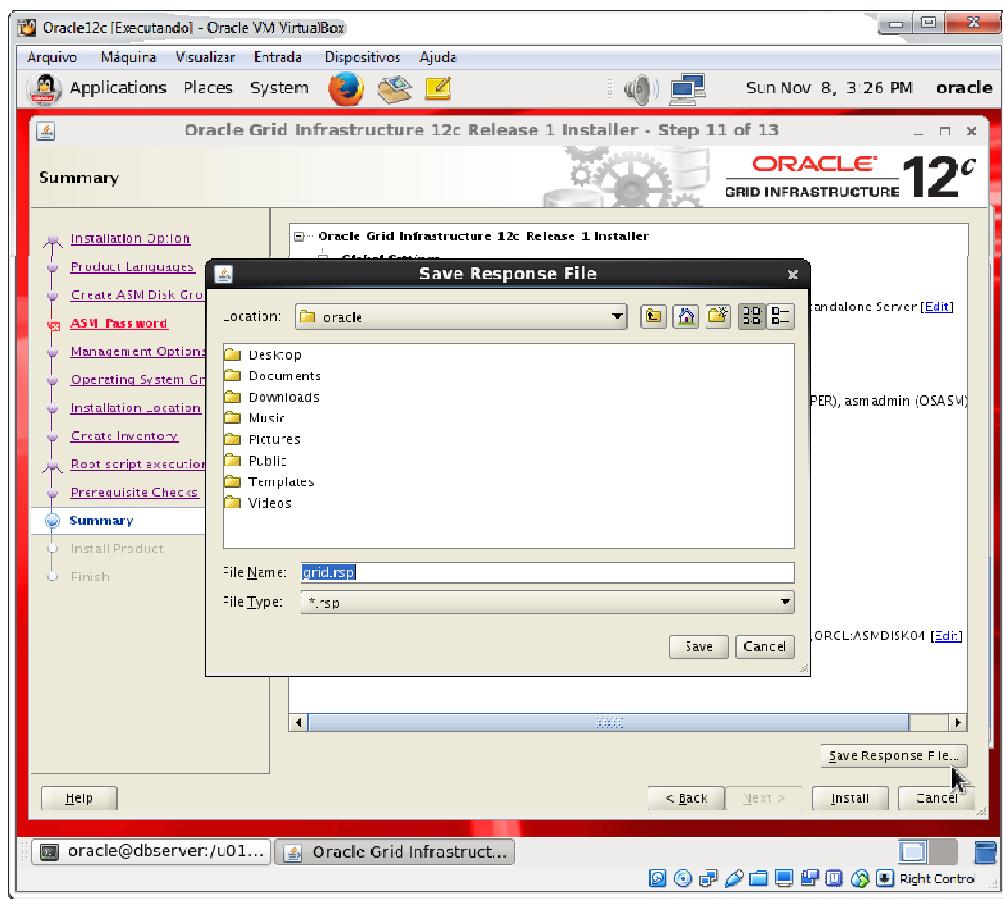


O único pré requisito que pode ser ignorado nesse ponto é o mostrado na imagem. Resolva se houver outros.

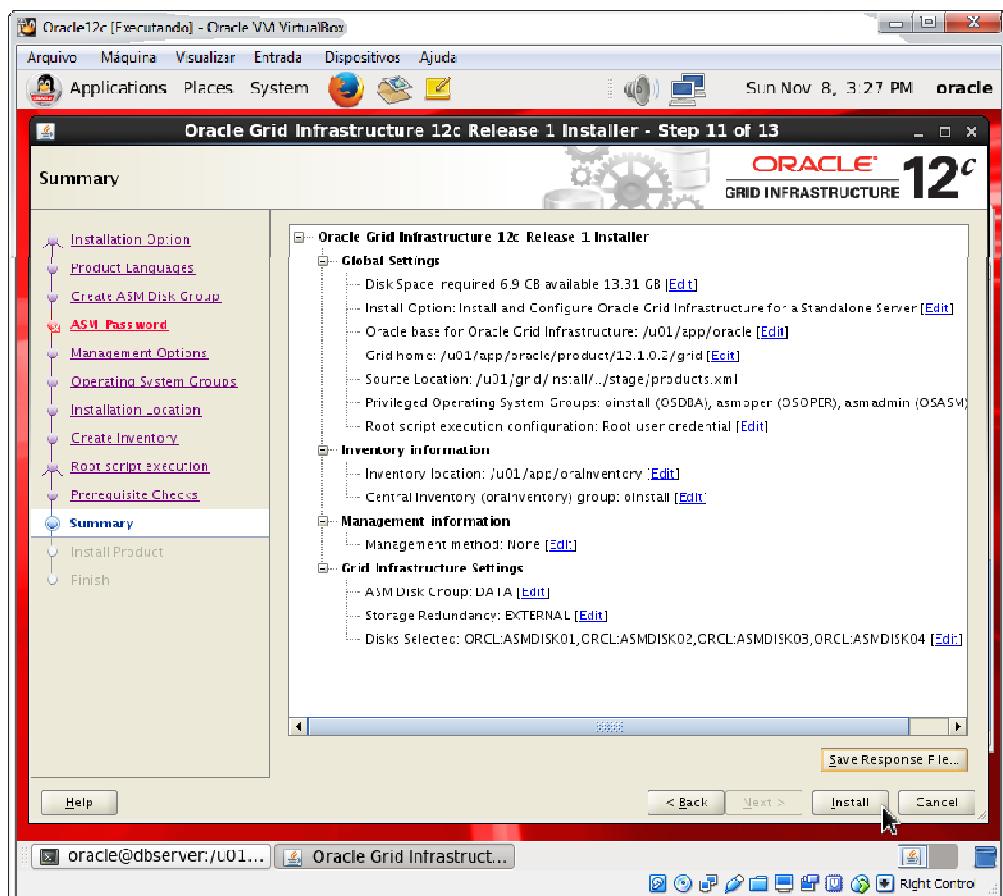


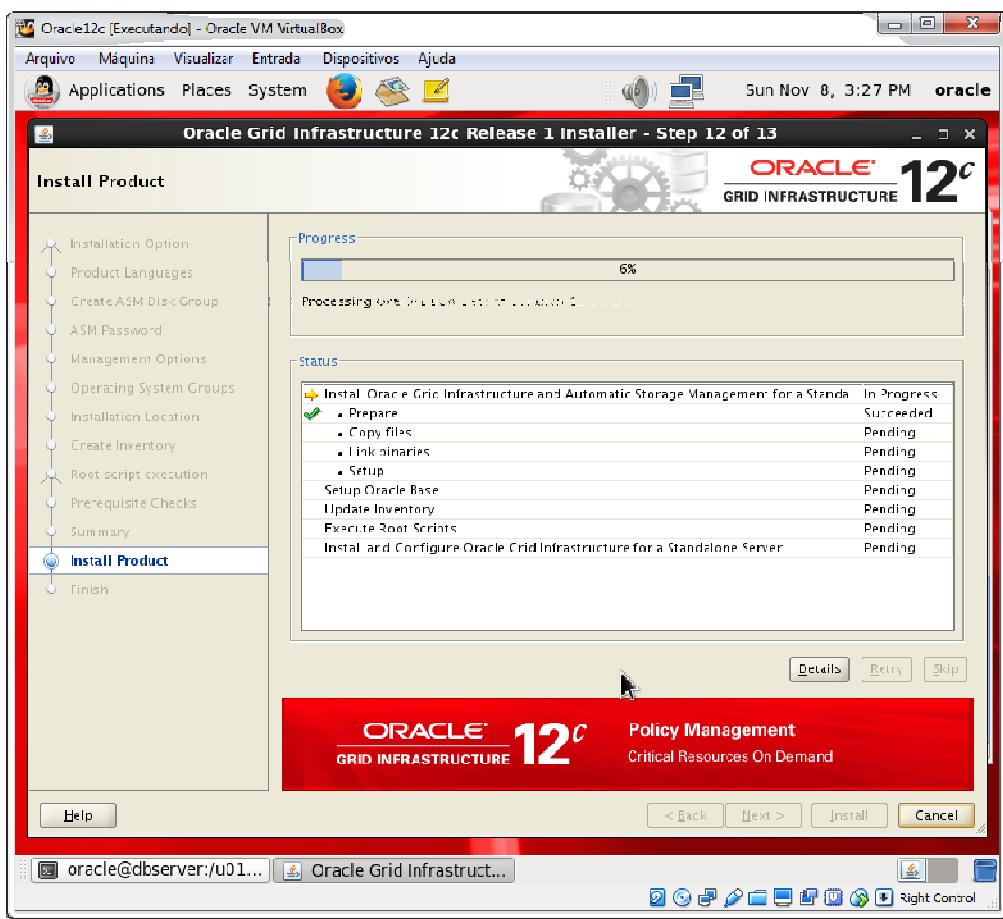


Salve o response file no local sugerido.

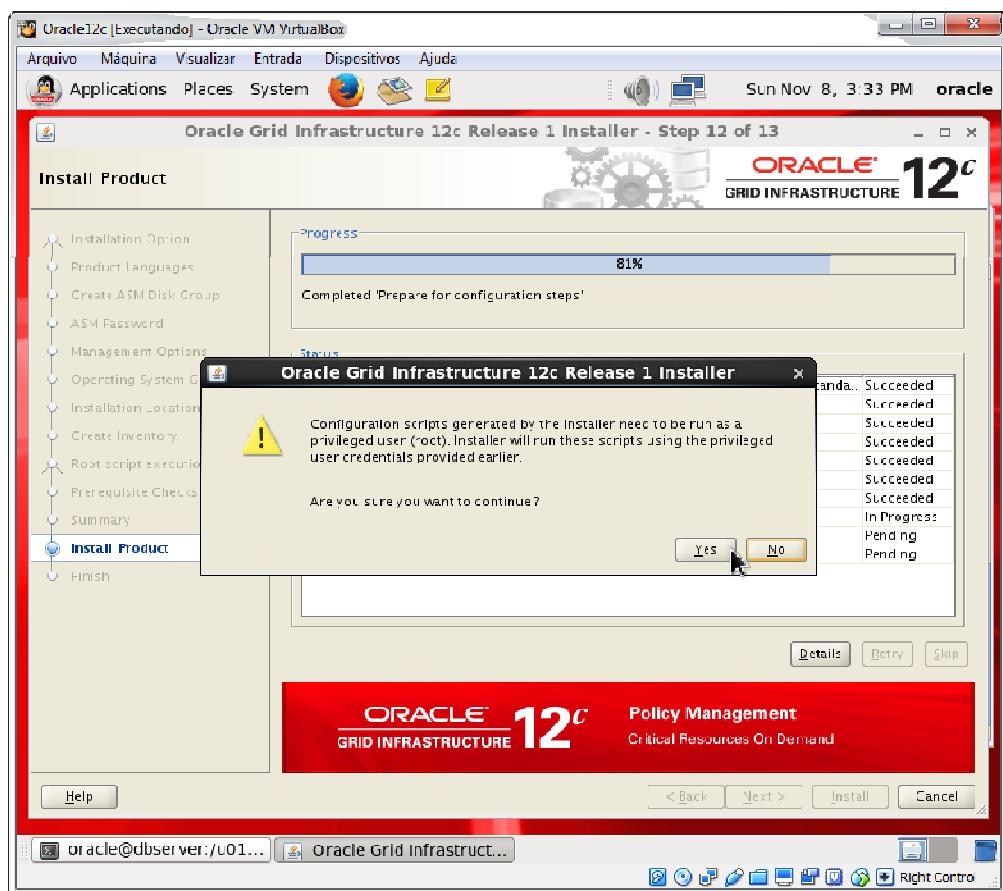


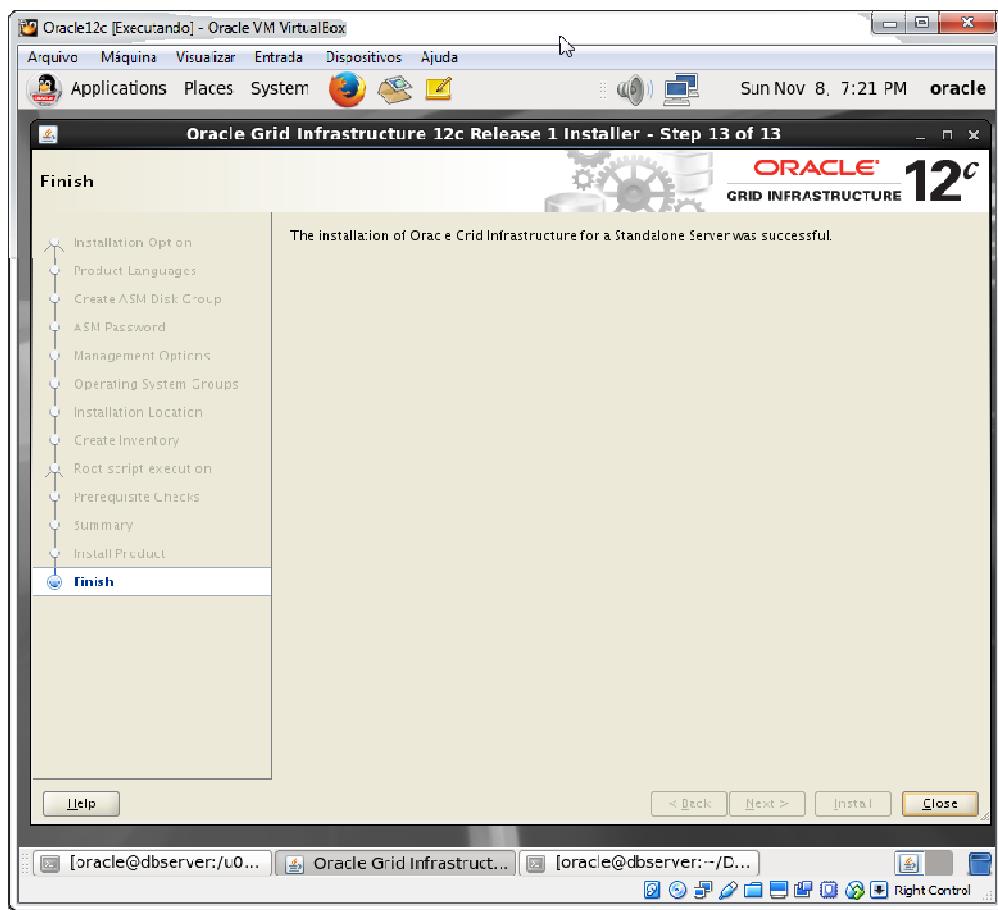
Install.





Aguarde.





Criar um novo diskgroup (DG) FRA

Abra um terminal e execute:

```
. oraenv
+ASM
sqlplus / as sysasm

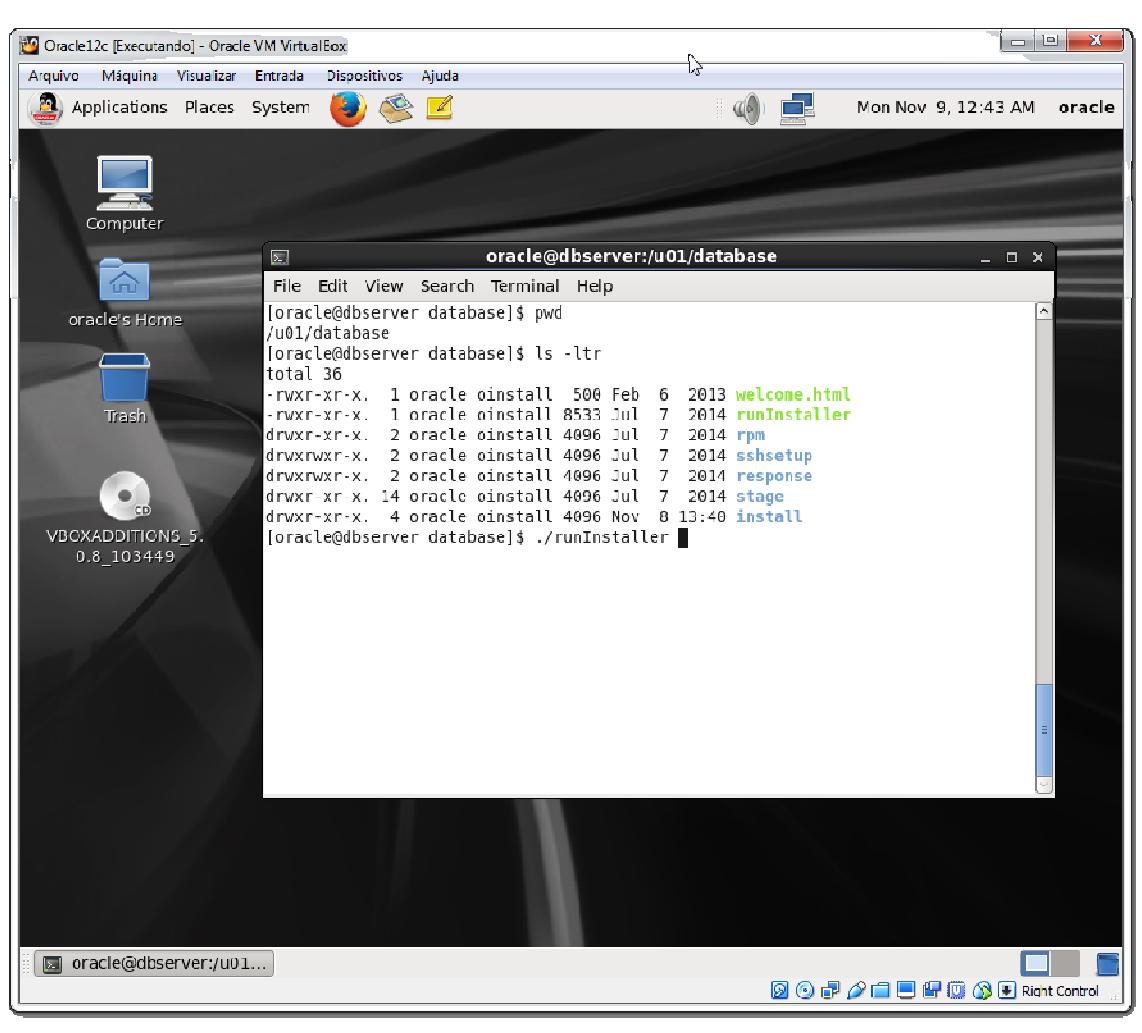
SQL> CREATE DISKGROUP FRA EXTERNAL REDUNDANCY DISK
      'ORCL:ASMDISK05', 'ORCL:ASMDISK06', 'ORCL:ASMDISK07', 'ORCL:ASMDISK08';

SQL> ALTER DISKGROUP CONFIG ADD DISK 'ORCL:ASMDISK04';

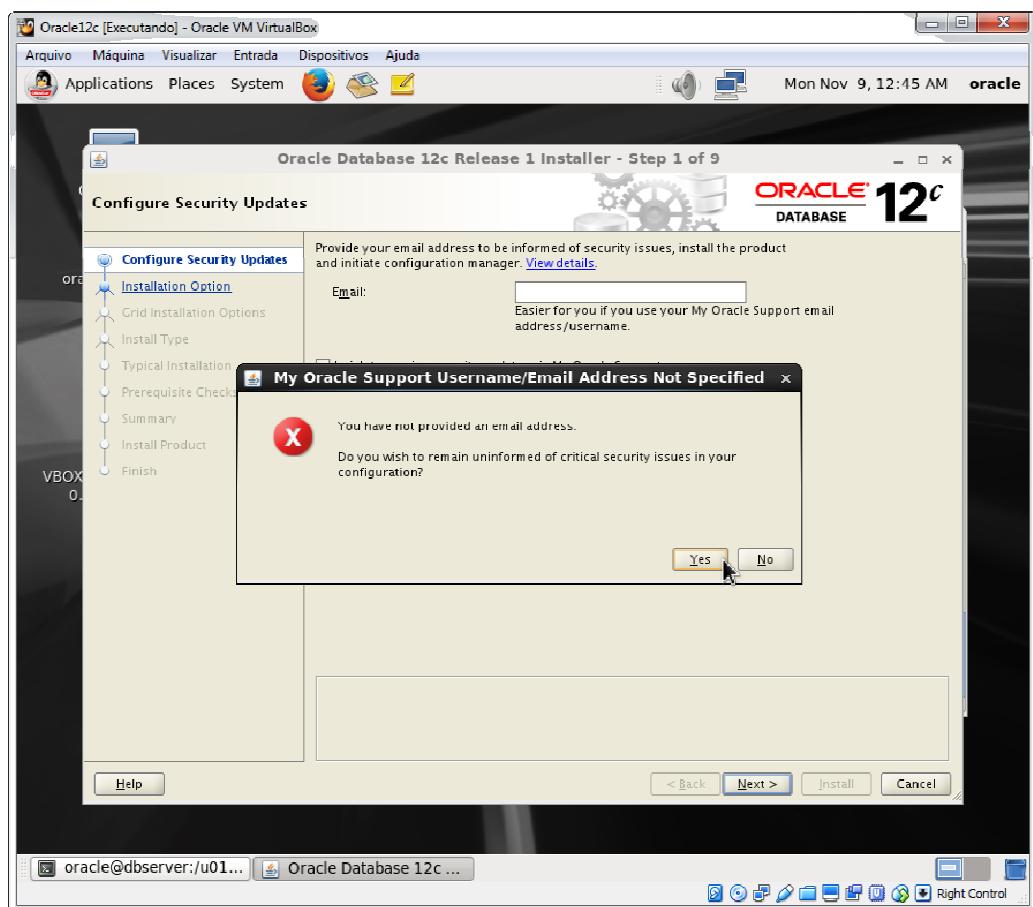
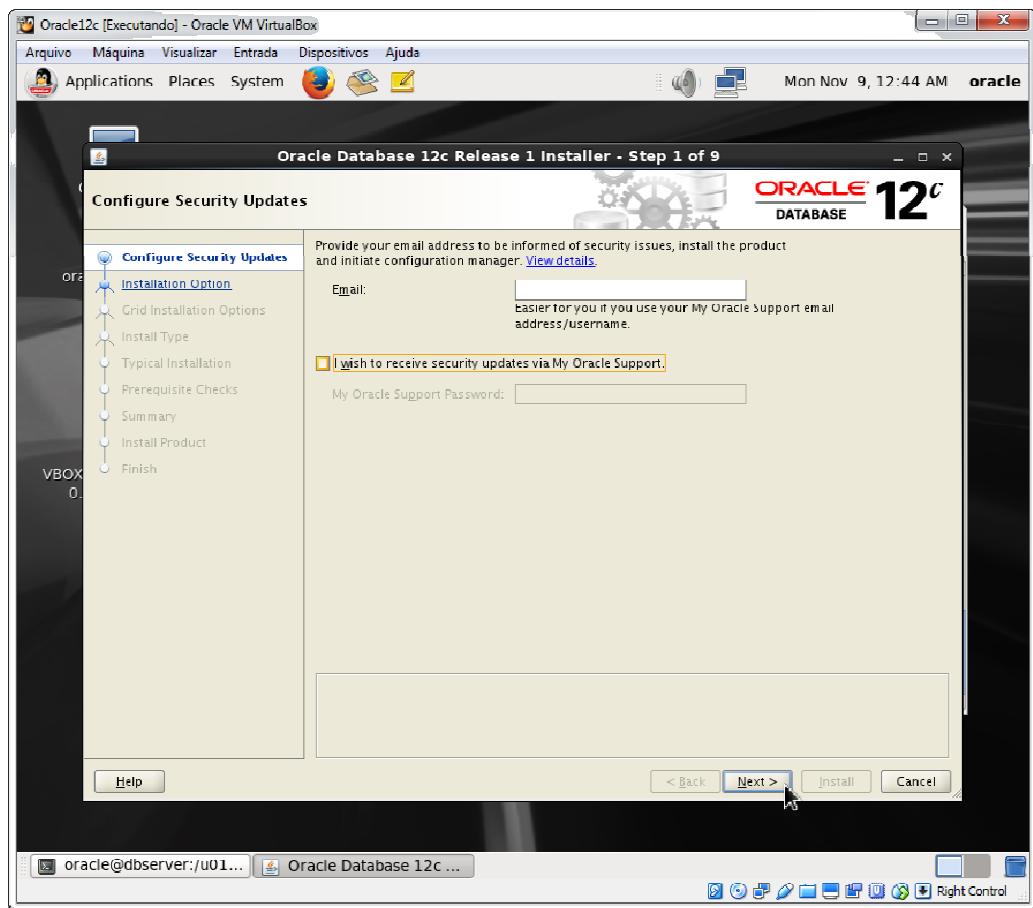
SQL> ALTER DISKGROUP CONFIG SET ATTRIBUTE 'compatible.asm' = '12.1.0.0.0';
SQL> ALTER DISKGROUP FRA SET ATTRIBUTE 'compatible.asm' = '12.1.0.0.0';
SQL> ALTER DISKGROUP CONFIG SET ATTRIBUTE 'compatible.rdbms' = '12.1.0.0.0';
SQL> ALTER DISKGROUP FRA SET ATTRIBUTE 'compatible.rdbms' = '12.1.0.0.0';
```

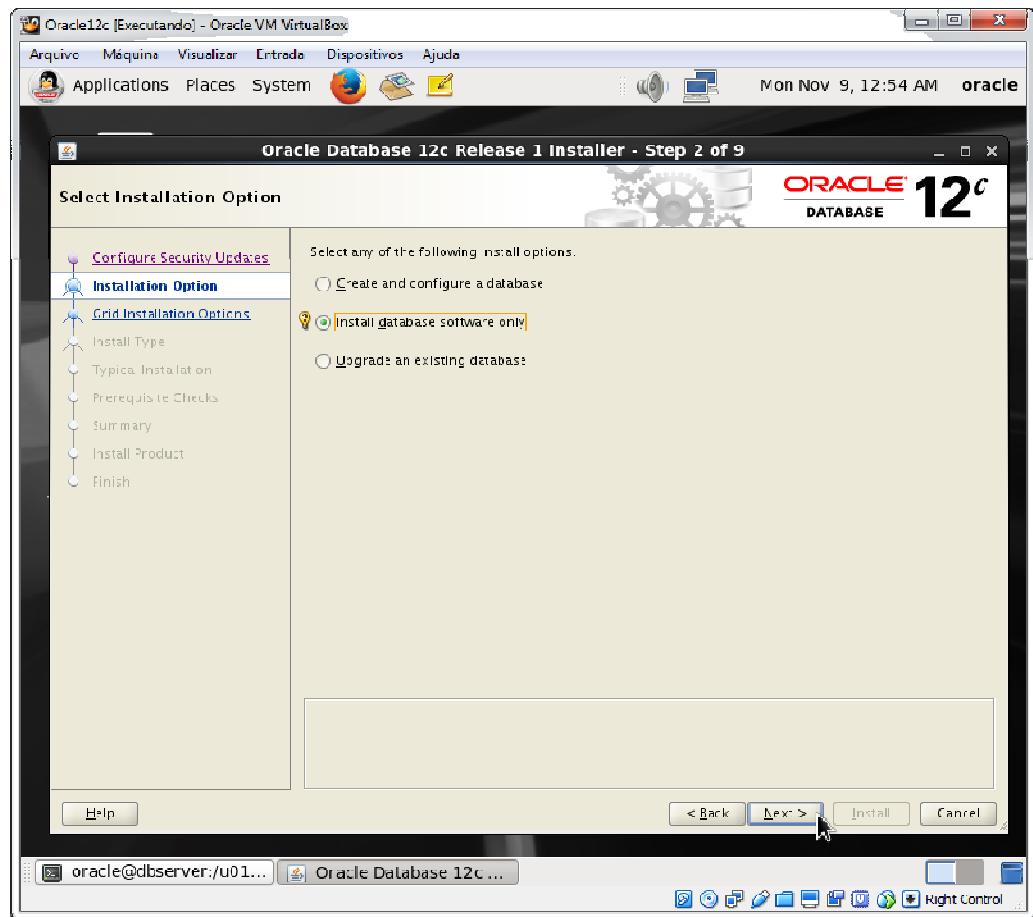
INSTALAÇÃO DO ORACLE DATABASE e CRIAÇÃO DE UM BANCO DE DADOS

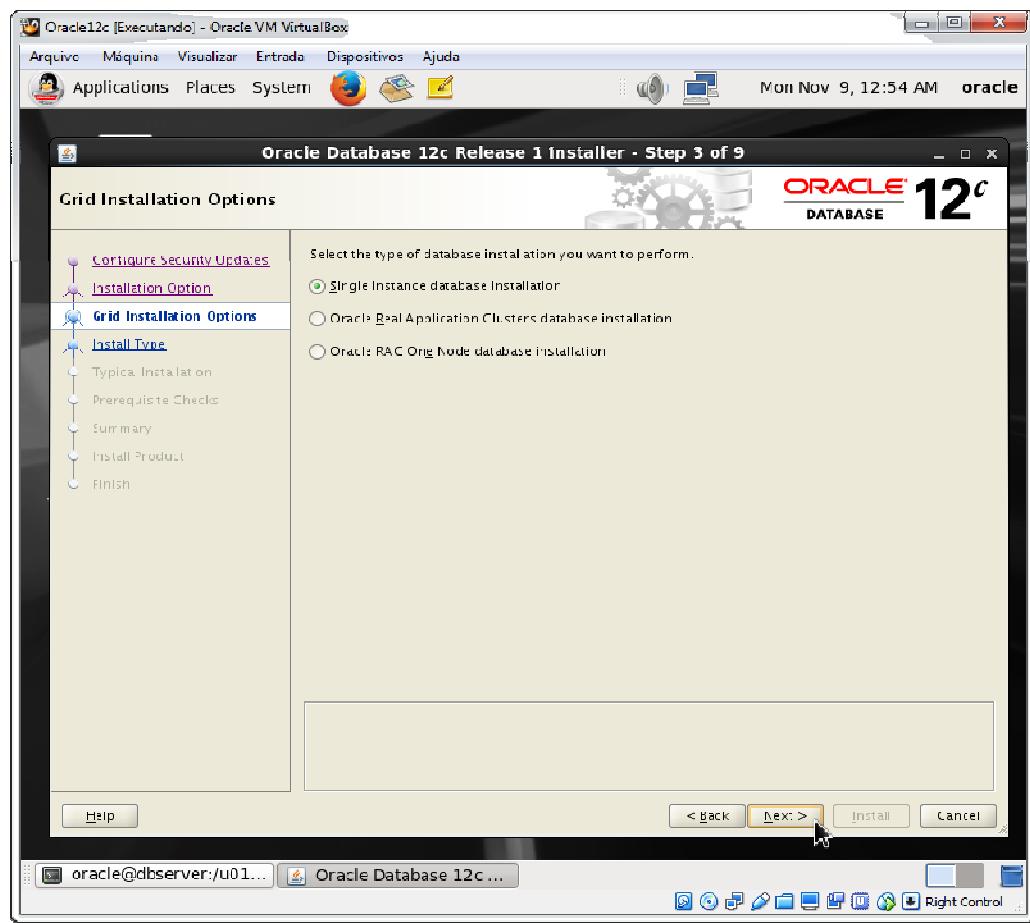
COMO USUÁRIO ORACLE navegue até o diretório /u01/database e execute o ./runInstaller.

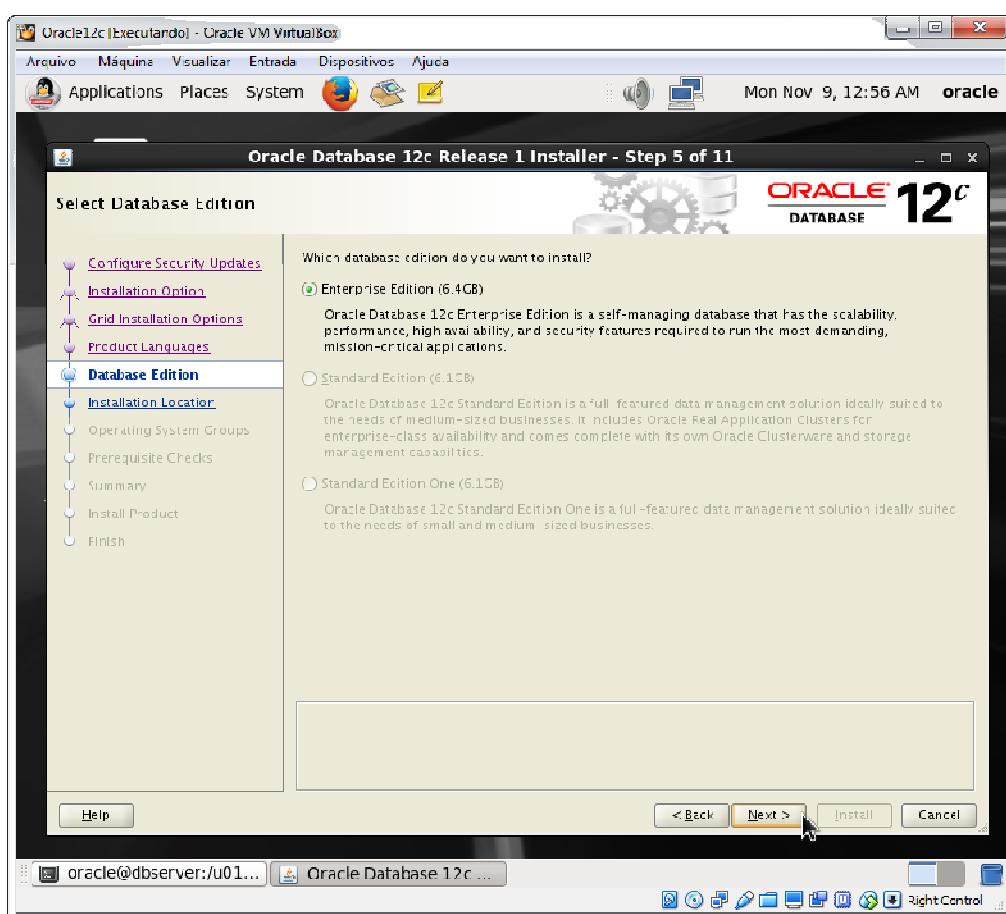
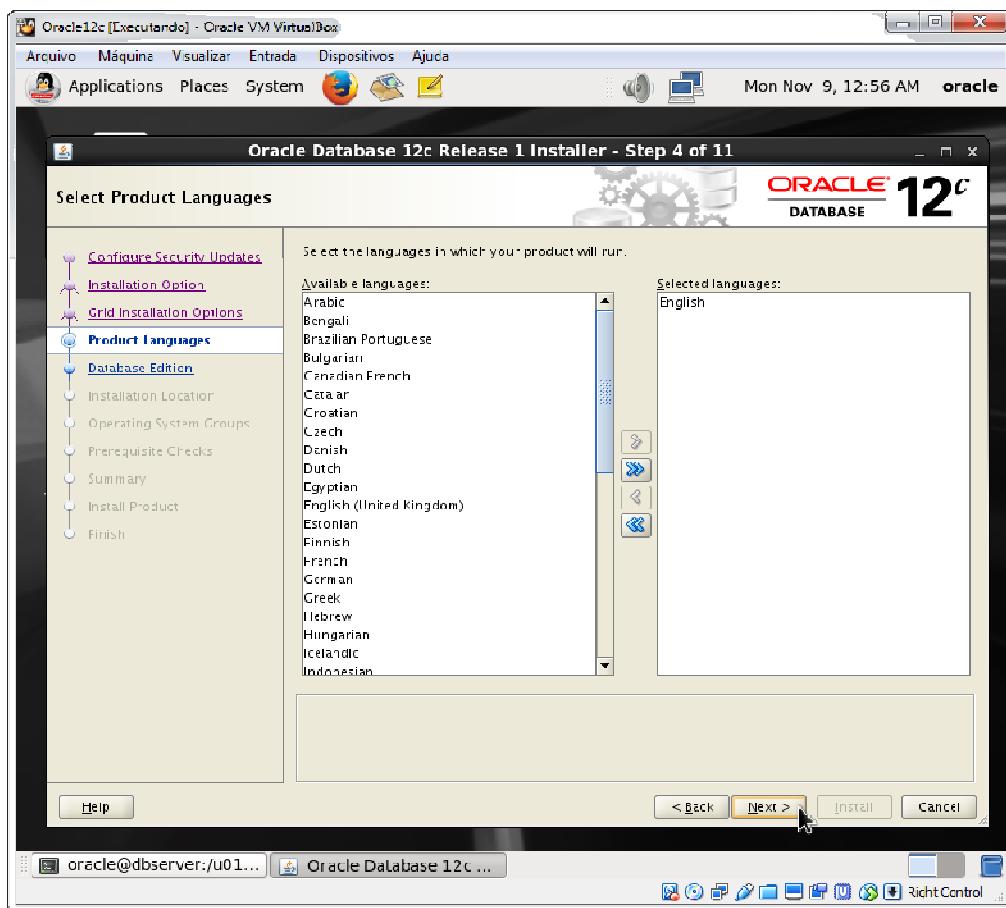


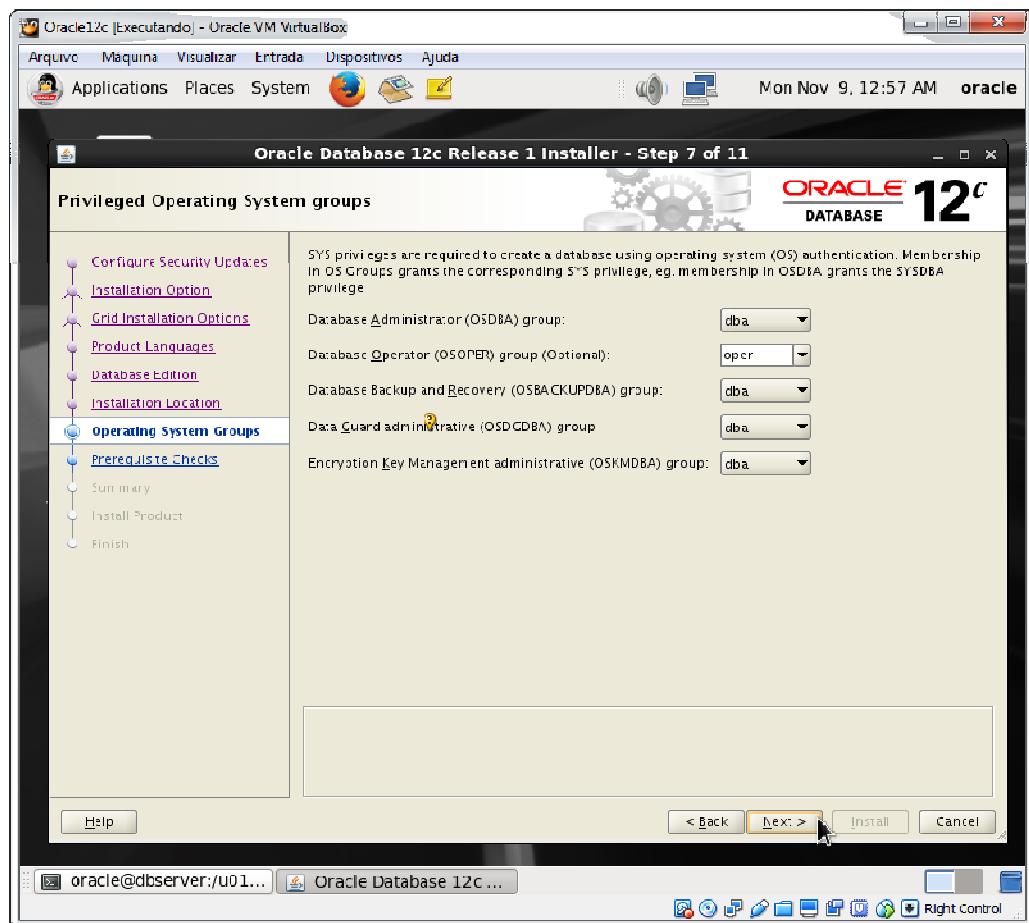
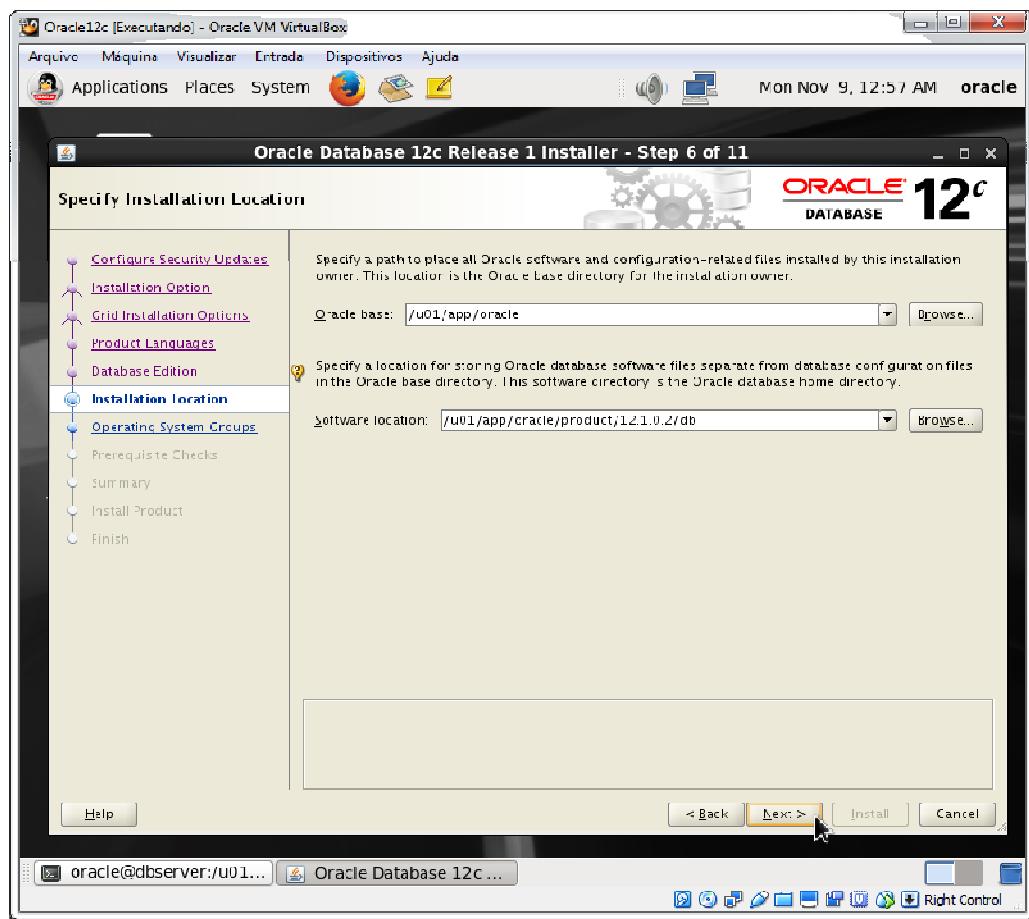
Siga os passos conforme as imagens a seguir. Clicando em Next para avançar para a próxima tela.



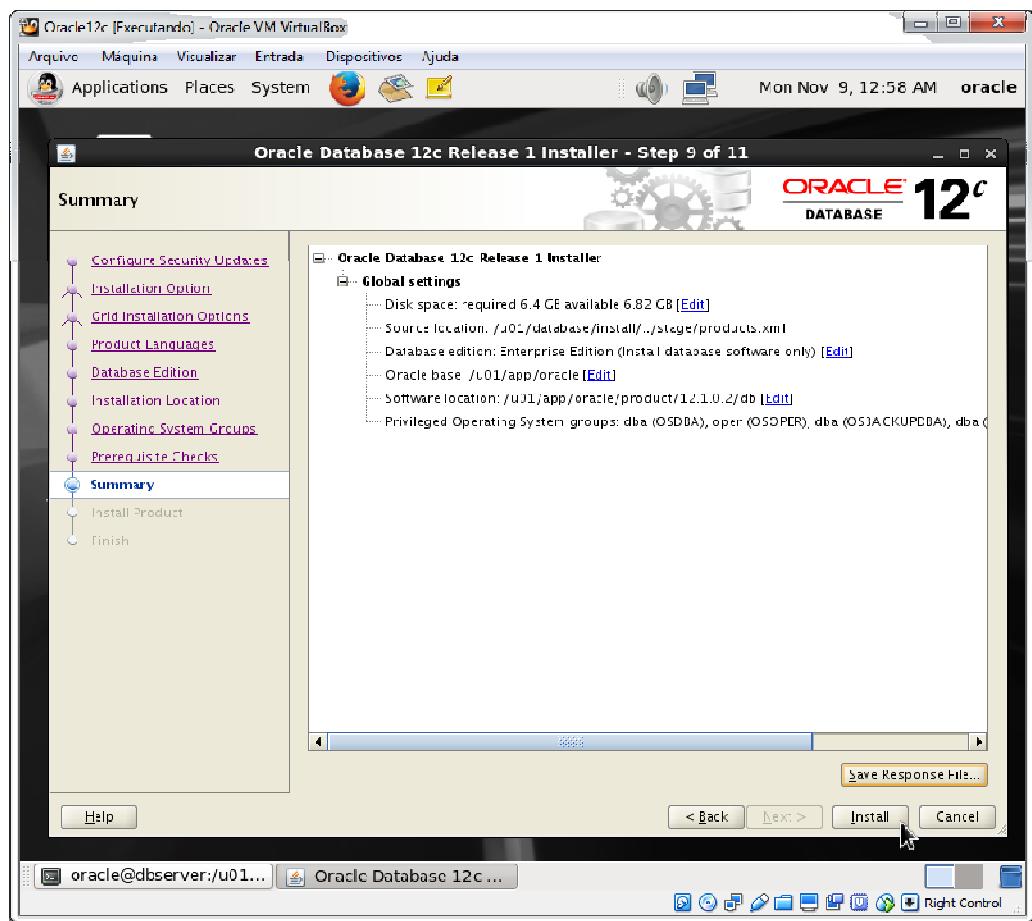


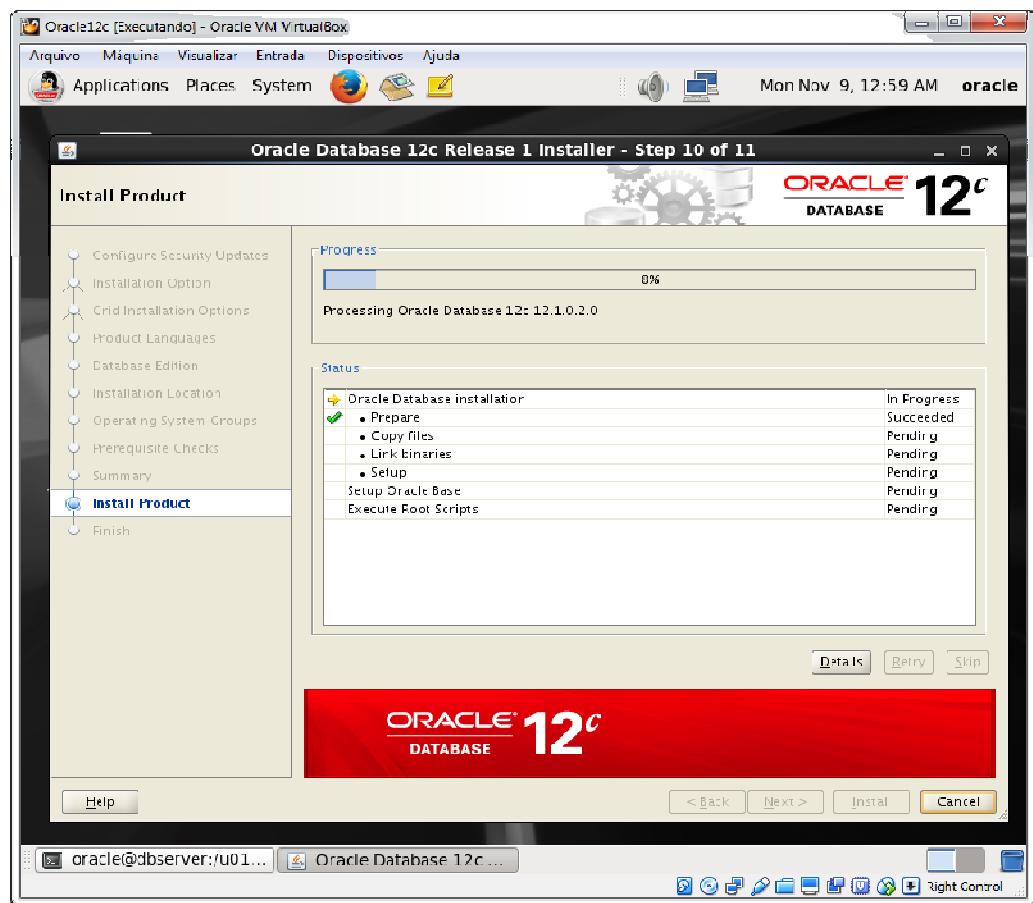


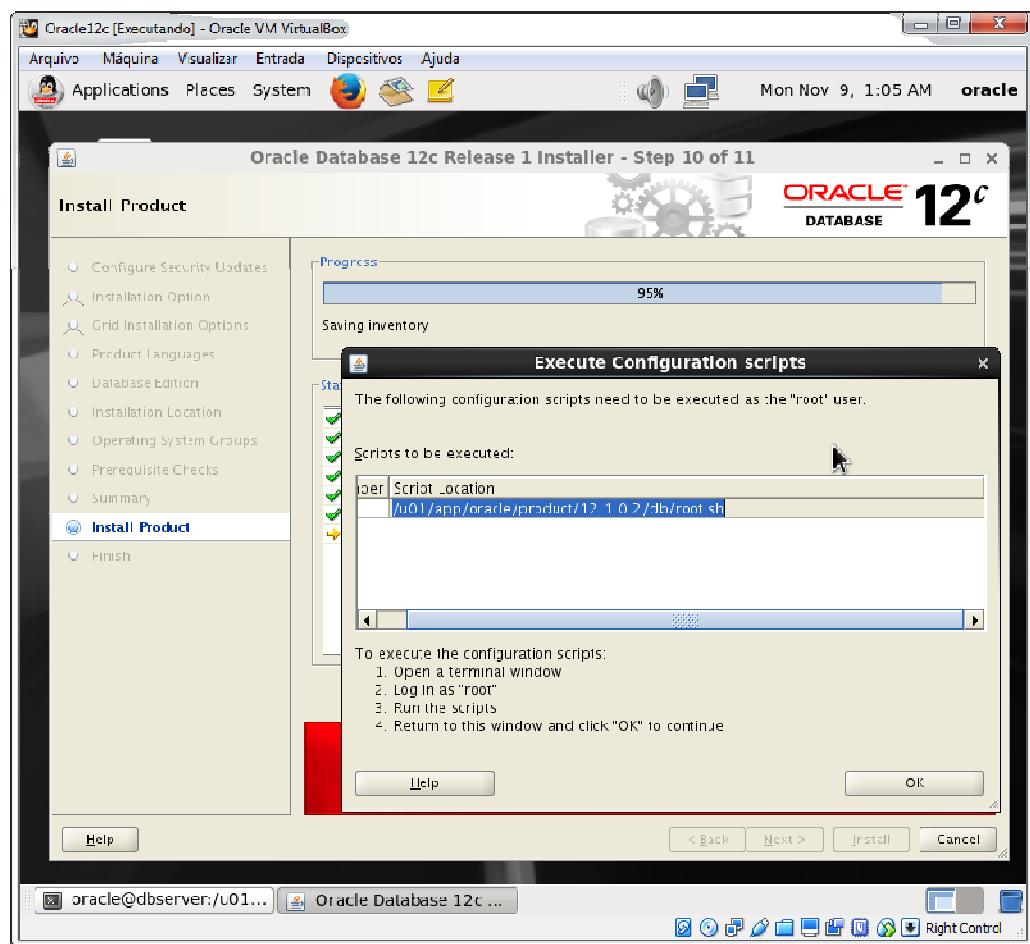


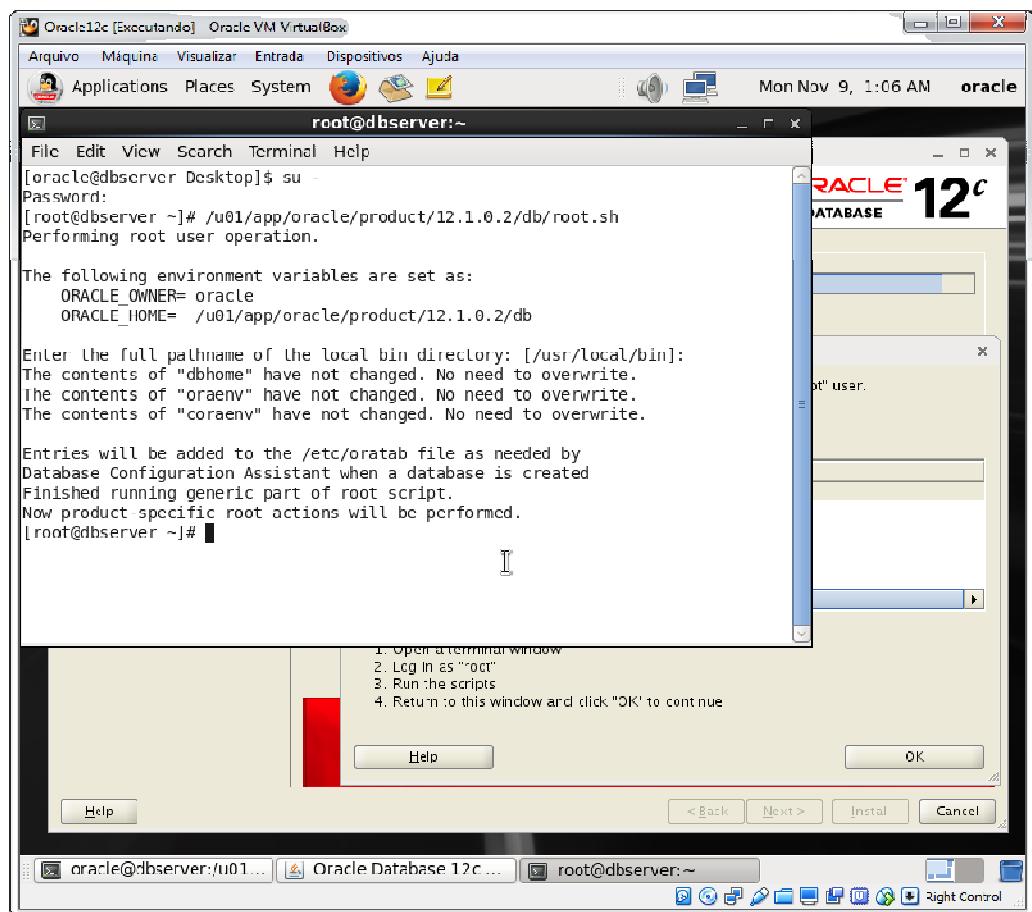


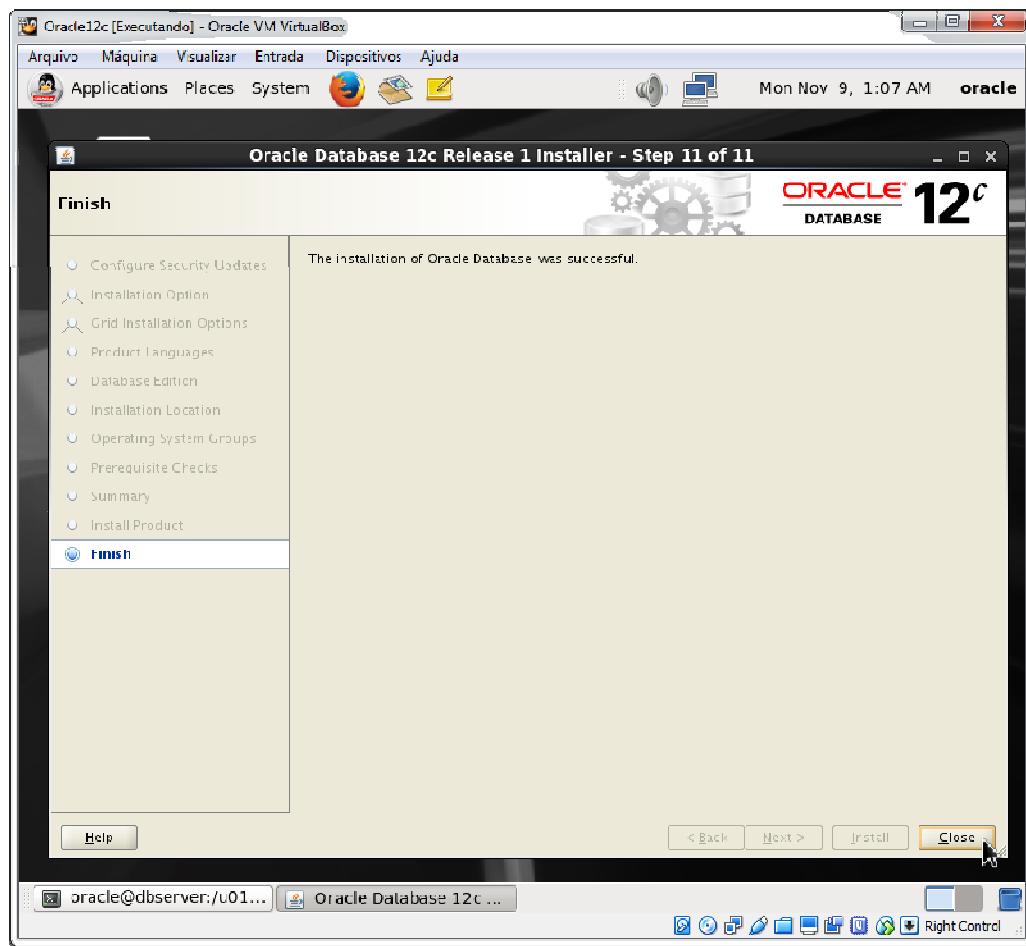
Salve o response file no local padrão. Clique Install.







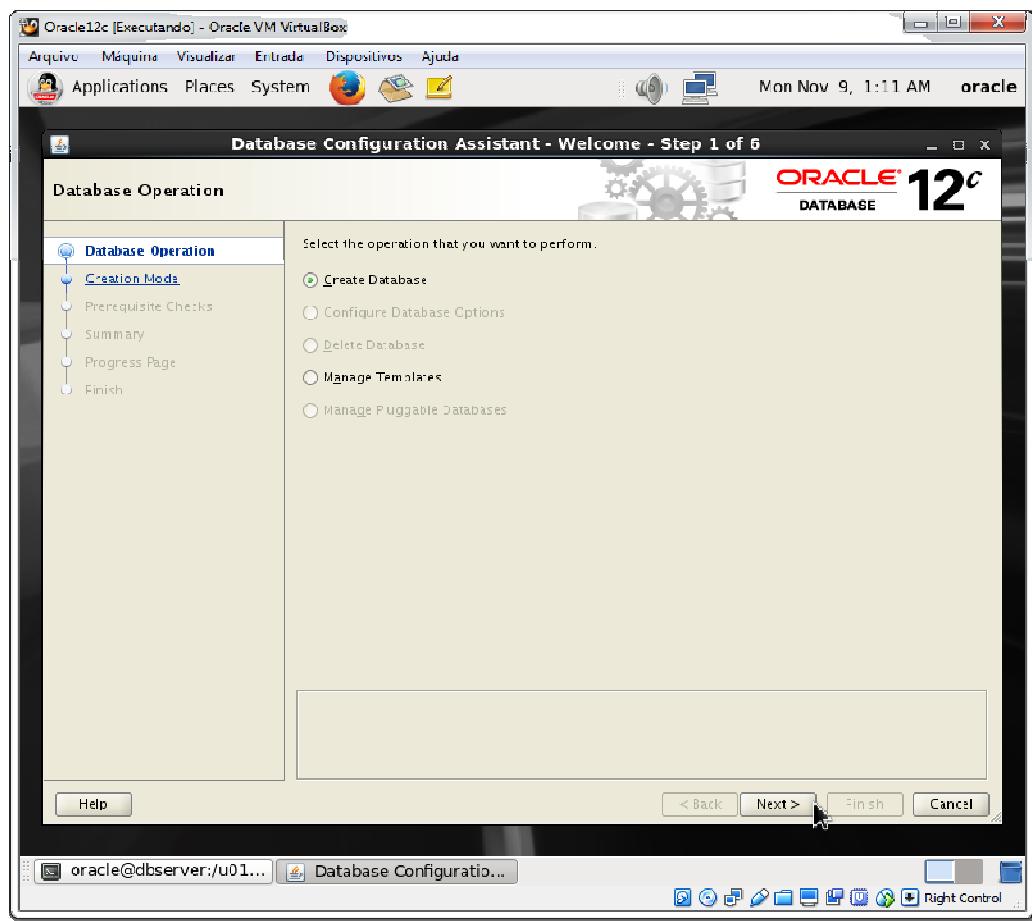


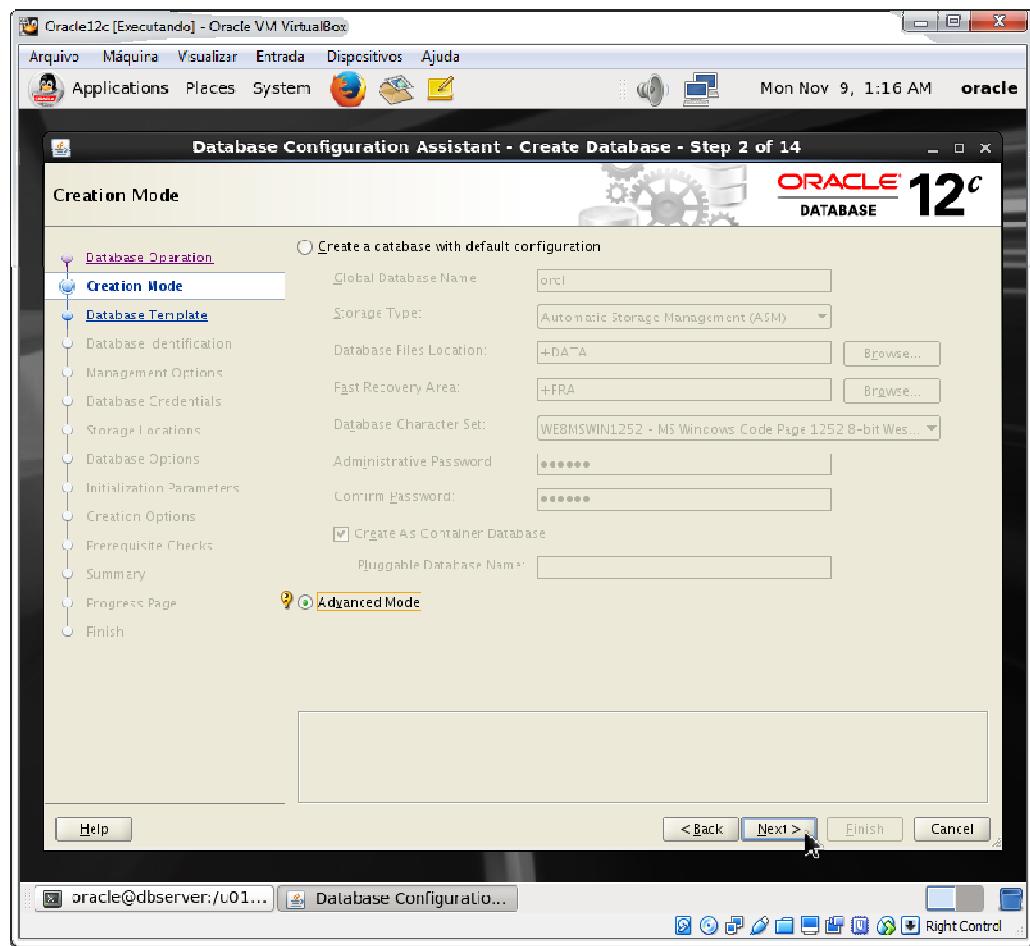


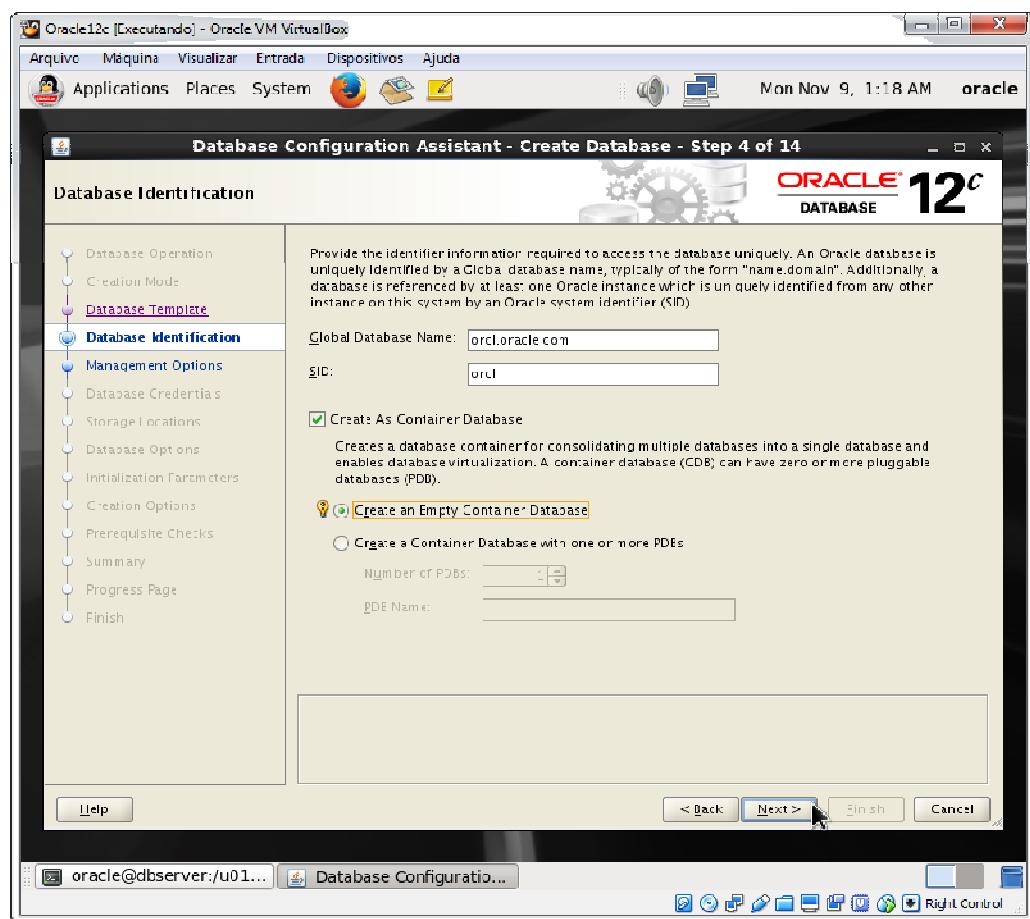
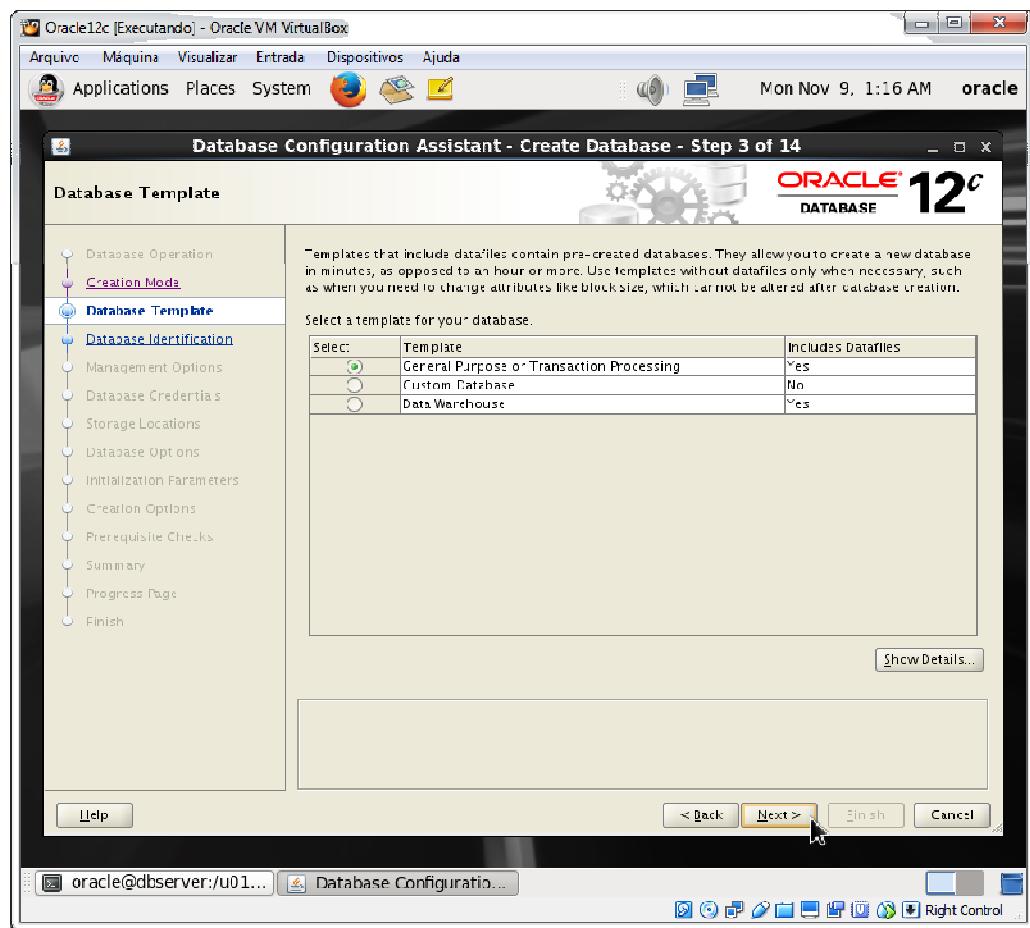
Para criar um banco dados navegue até o diretório bin onde o Oracle foi instalado e execute o ./dbca.

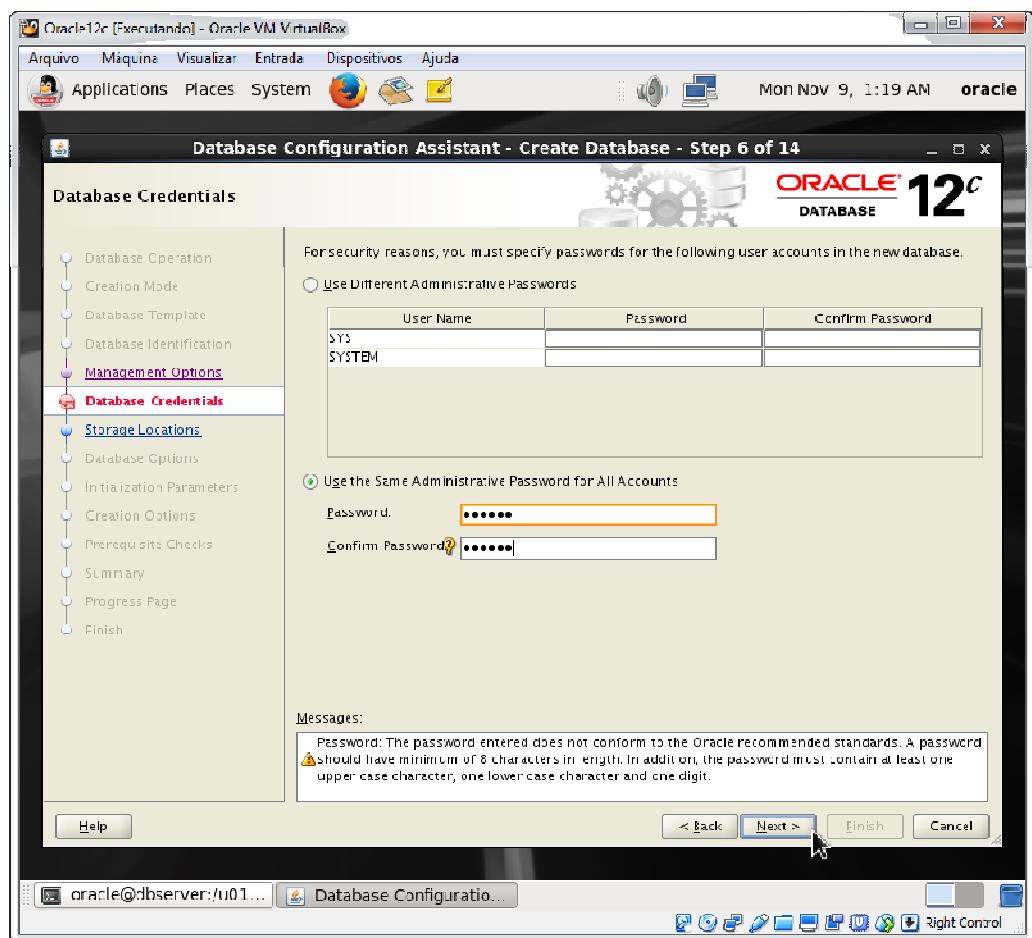
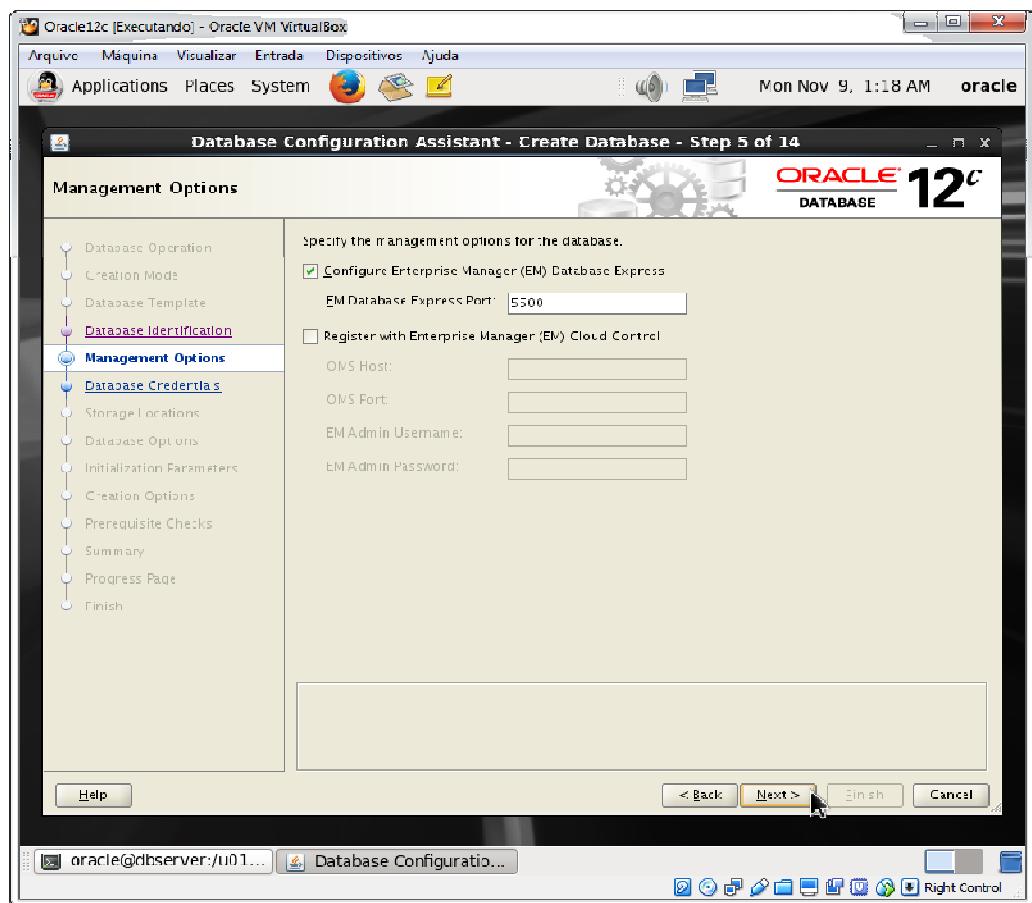
```
[oracle@dbserver database]$ cd /u01/app/oracle/product/12.1.0.2/db/bin  
[oracle@dbserver bin]$ pwd  
/u01/app/oracle/product/12.1.0.2/db/bin  
[oracle@dbserver bin]$ ./dbca
```

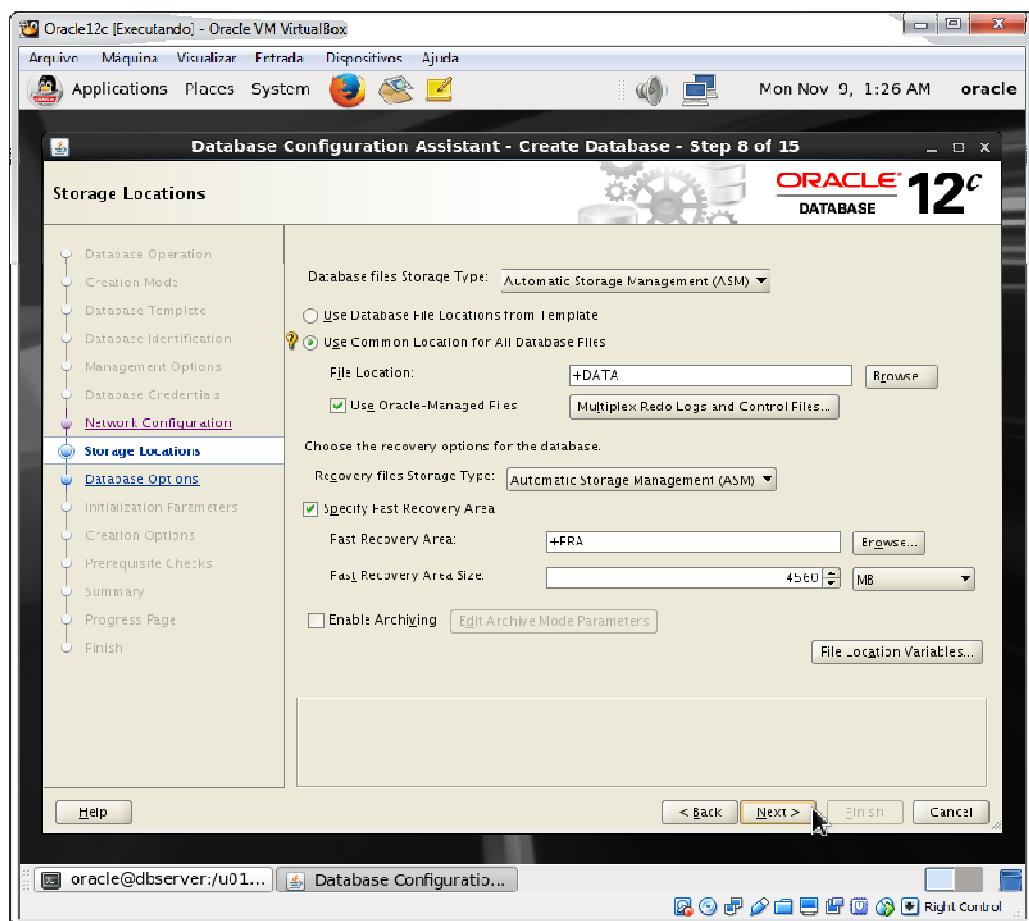
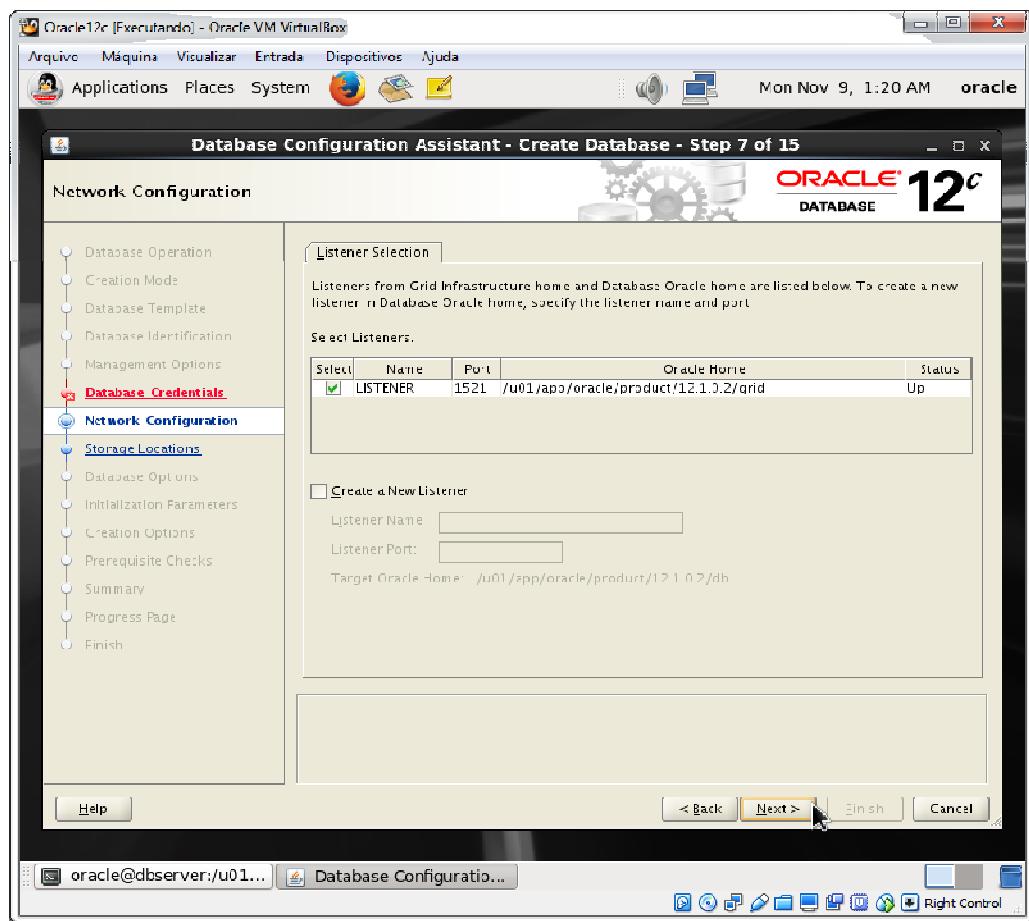
Siga as etapas conforme mostradas nas imagens.

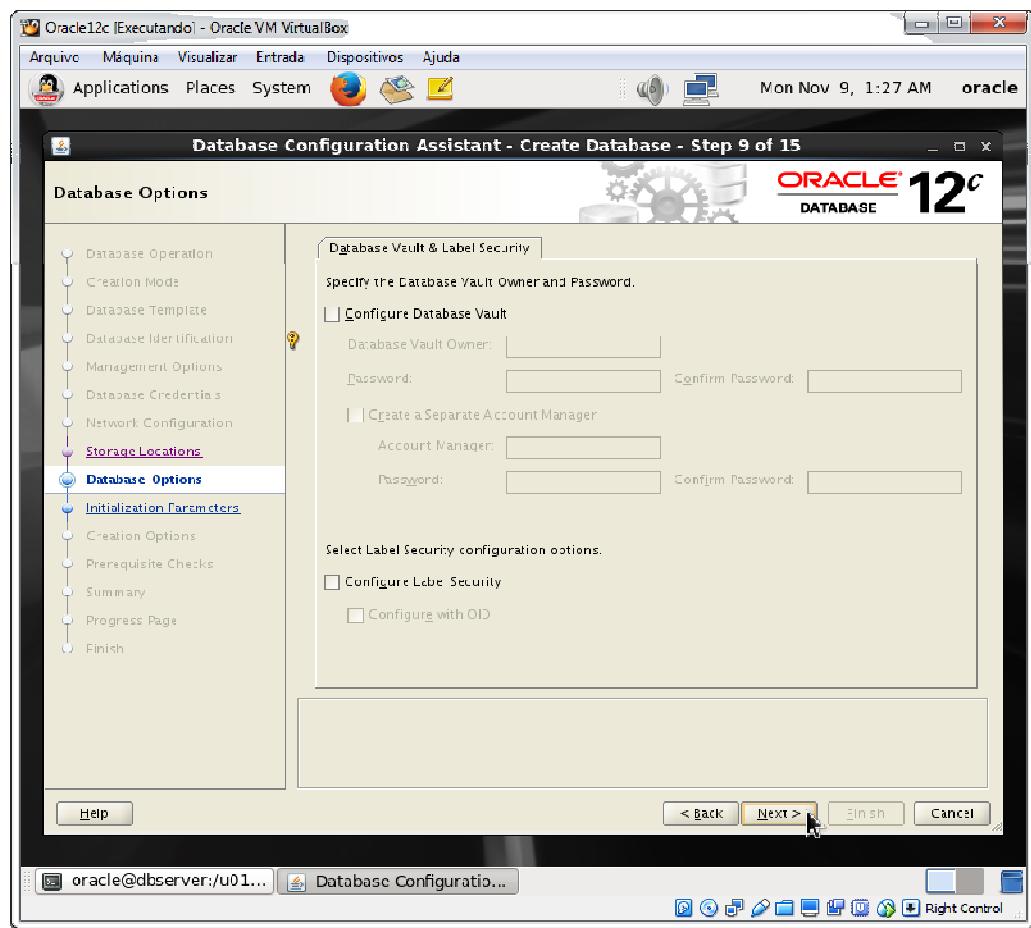


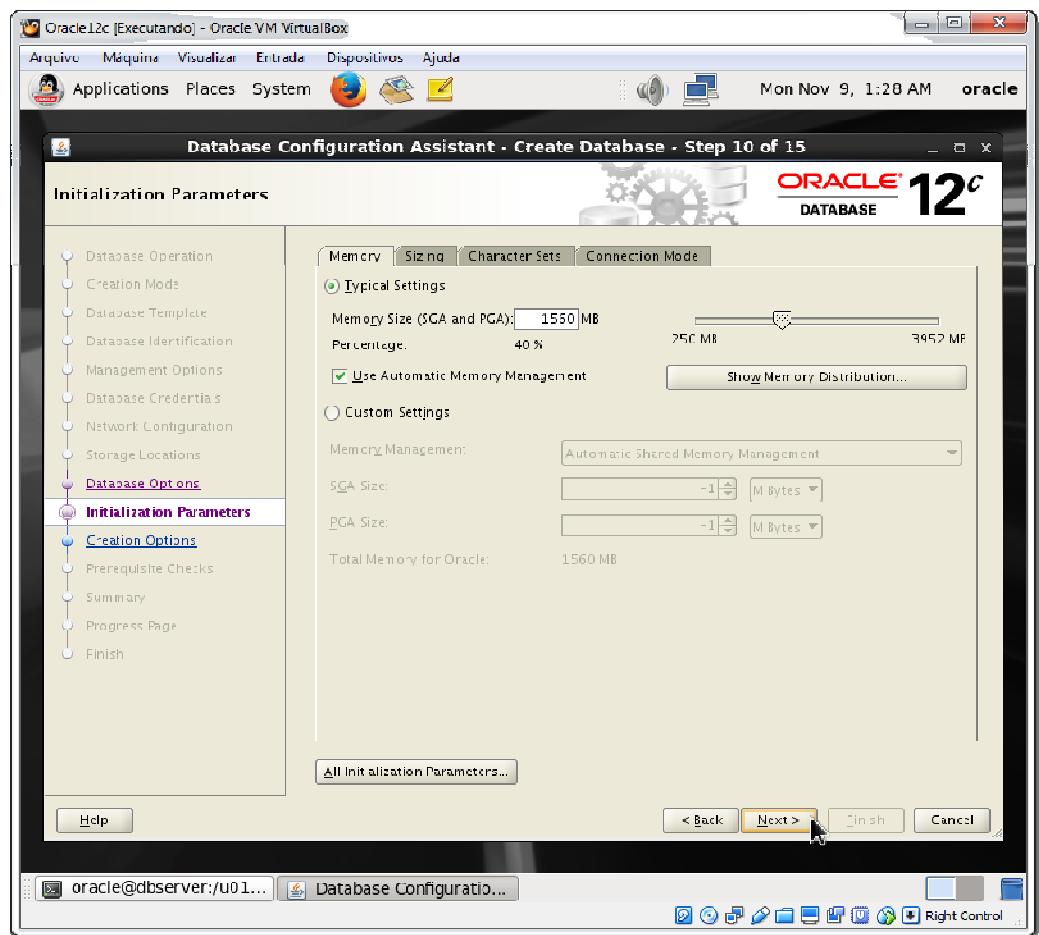


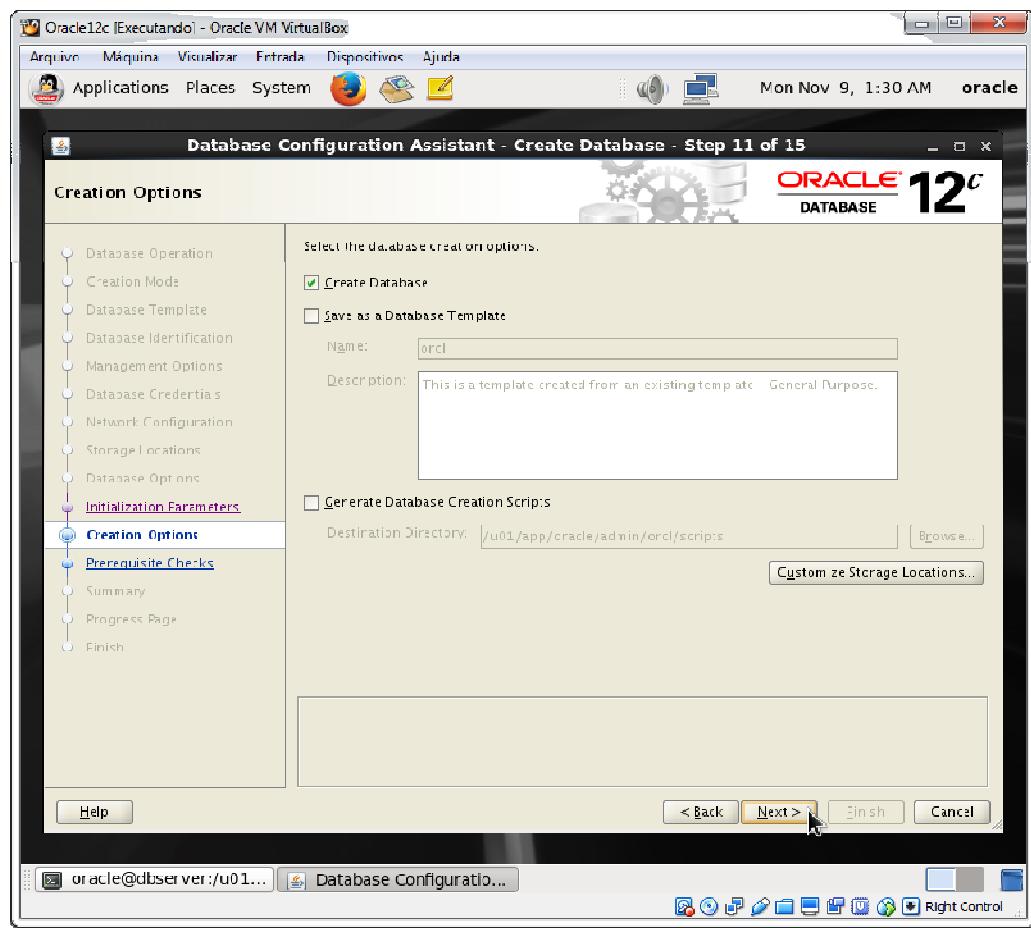


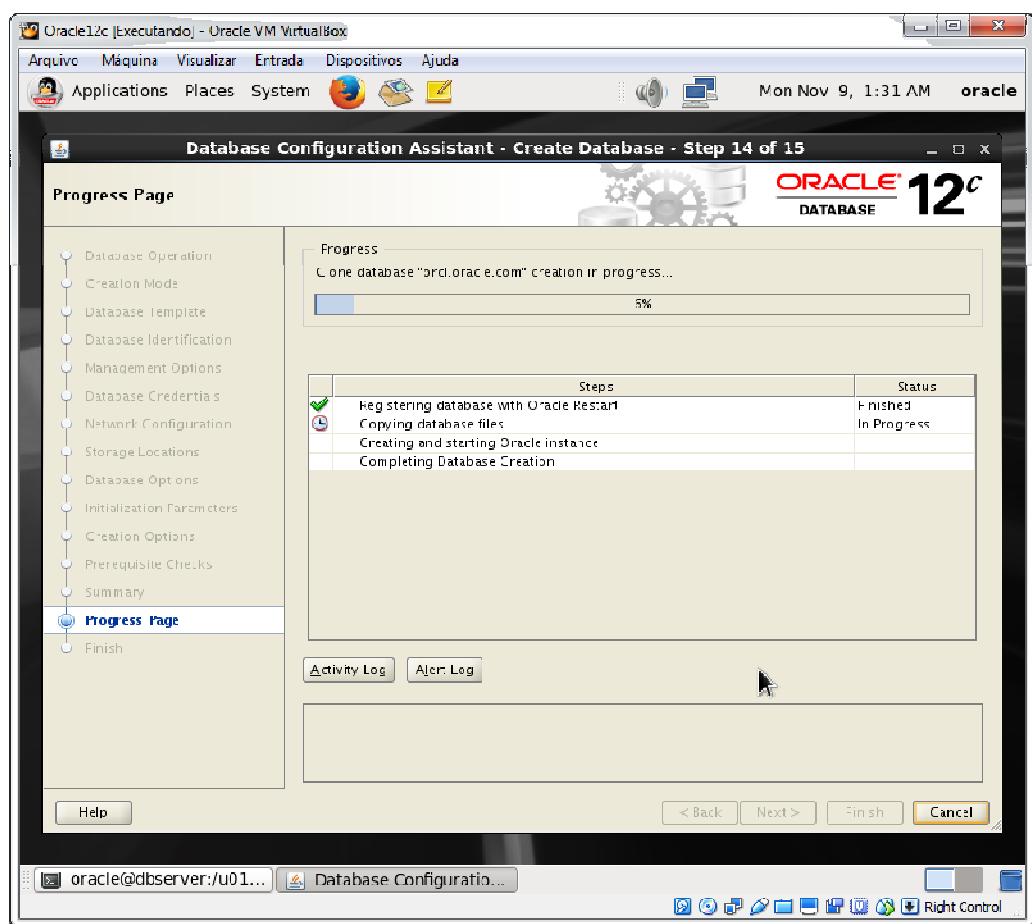
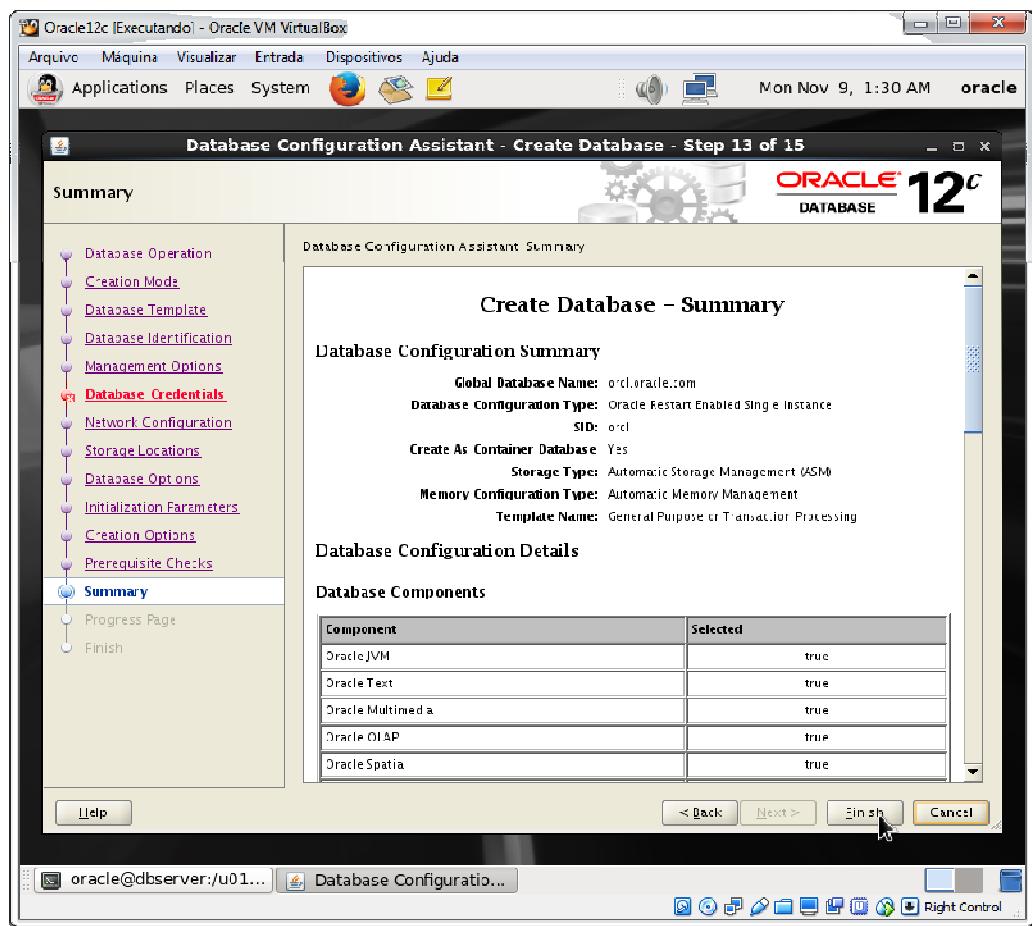


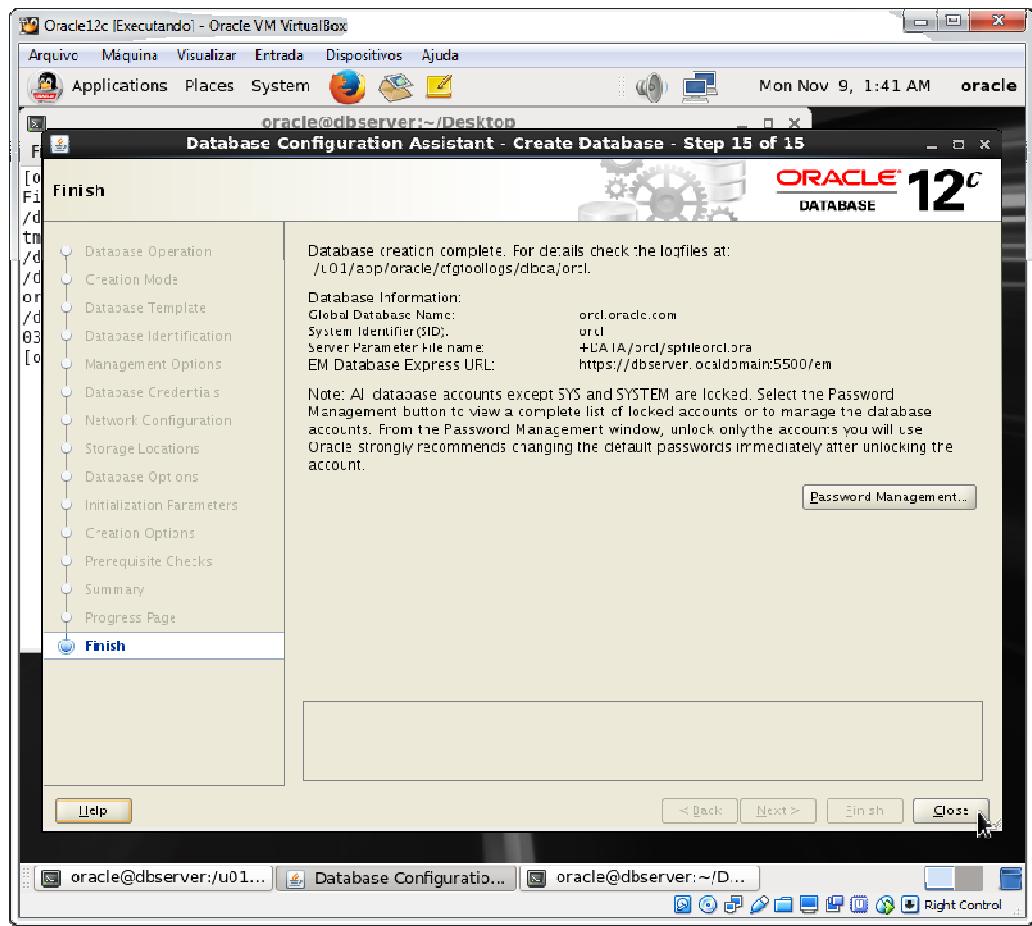












Pode confirmar os principais processos oracle online pesquisando por processos com o padrão de nome pmon. Abra um terminal e rode o comando abaixo:

```
ps -ef | grep pmon
```