How to install Red Hat for Oracle

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This document is written for Red Hat Enterprise Linux AS release 4 and ORACLE 10g. Earlier releases can be installed using this document as well however there are some additional steps for packages to be installed see Metalink.

Disclaimer: I have had very good luck with this procedure however: The Material may contain inaccuracies or typographical errors. I make no representations about the accuracy, reliability, completeness, or timeliness of the Material or about the results to be obtained from using the Site and the Material. The use of this Material is entirely at your own risk.

Disk Partitioning:

Due to experiences described by other Linux system administrators of not being able to perform upgrades due to partition sizes being too small I have elected to not follow Oracles portioning recommendations in favor of a vary large root partition. The below table shows the partitioning scheme that I used:

Mount Point	Size	Drive
/boot	100 MB	Drive A
Swap	2000 MB	Drive B
/	All remaining	Software Raid drives A and B

Configure Network settings and initial users:

I assigned the static public ip's, which are site specific to each node. I also assigned their proxy and gateway settings as appropriate for our network. No Firewall was selected because our database servers are inside our own firewall. Entered a root password but did not create any additional users as we create the oracle user manually and there is no need for other users on the database servers.

Package installation (Custom Packages):

I have found that performing custom package selection save time later. I selected not to install these items because we intend these servers to be Oracle Database servers only.

-Remove web servers (Oracle installs it's own)
-Remove windows file server

I added these two items to allow me to maintain our server inside our firewalls.
-Add FTP server
-Add Legacy Network Server
   Details – Select Telnet and deselect all the others.
-Add Software Development, X window, GNOME & Legacy development

Connecting and Finishing steps:

Here I simply followed on screen steps as presented by the RED HAT installation though rebooting and logging in as root and finishing the Red Hat installation.

Create the Oracle user and home directory:

Issue these commands to create the oracle user and its directories:

```
groupadd dba -g 501
mkdir -p /u01/home/oracle
useradd -c "Oracle Software Owner" -G dba -u 1115 -d /u01/home/oracle -m -s /bin/csh
oracle
chown -R oracle:dba /u01
```

Note: On our servers we had to match the user id to be able to create files on the other systems. On your system you may wish to use different id's as oracle suggests in their directions.

FTP, and Telnet services

Perform these steps as root.
  Since we installed FTP, and Telnet during the custom install we now need to configure the installation.
  In the text file /etc/xinetd.d/telnet I changed disabled to no as shown below:

```
# default: on
# description: The telnet server serves telnet sessions; it uses \
#        unencrypted username/password pairs for authentication.
service telnet
{
        disable = no
        flags          = REUSE
        socket_type    = stream
        wait           = no
        user           = root
        server         = /usr/sbin/in.telnetd
        log on failure  += USERID
```

   In the text file /etc/vsftpd/vsftpd.conf I changed two lines. Since the file is long only the two lines changed are shown.

```
write_enabled=yes
anonymous_enabled=no
```

Also we want the FTP, Telnet and RSH services turned on at boot time. This is accomplished though the use of a Red Hat command as follows:

```
chkconfig --level 2345 vsftpd on
chkconfig --level 2345 telnet on
```

Next we need to configure the /etc/hosts file:
Note: It is important to enter the machines own ip and name in this file so it can find it's self.

```
# Do not remove the following line, or various programs
# that require network functionality will fail.
172.17.2.31     db1.dep.gov      db1
1.1.1.1         int_db1.dep.gov int_db1 int-db1
172.17.2.32     db2.dep.gov      db2
1.1.1.2         int_db2.dep.gov int_db2 int-db2
172.17.100.48   darwin.dep.gov  darwin
```

Note: The public ip addresses that begin with 172. are site specific to our site at other locations you will have differing ip addresses.

Set the password for oracle, login as oracle

```
passwd oracle
```

Reboot and verify that the FTP, and Telnet services all work.
Perform these tests as the Oracle user.

1. Telnet in to the server to verify telnet works.
2. Open an ftp session with the server to verify that FTP works.

Kernel system parameters:

Perform these steps as the root user.
Edit the file /etc/sysctl.conf

```
# Kernel sysctl configuration file for Red Hat Linux
#
# For binary values, 0 is disabled, 1 is enabled.  See sysctl(8) and
# sysctl.conf(5) for more details.

# Controls IP packet forwarding
net.ipv4.ip_forward = 0

# Controls source route verification
net.ipv4.conf.default.rp_filter = 1

# Controls the System Request debugging functionality of the kernel
# Oracle changed kernel.sysrq to 1 from 0
kernel.sysrq = 1

# Controls whether core dumps will append the PID to the core filename.
# Useful for debugging multi-threaded applications.
kernel.core_uses_pid = 1

# Oracle settings for cluster
net.core.rmem_default=262144
net.core.rmem_max=262144
net.core.wmem_default=262144
net.core.wmem_max=262144

kernel.hostname = db1.dep.gov
kernel.domainname = dep.gov
kernel.sem = 256 32000 100 150
kernel.shmmax = 4294967295
kernel.shmmni = 4096
kernel.shmseg = 4096
kernel.shmall = 3279547
fs.file-max = 327679
kernel.msgmni = 2878
kernel.msgmnb = 65536
net.ipv4.ip_local_port_range = 1024 65000
```

Change the Kernel.sysreq to 1

Add these lines to set these kernel parameters.

Note that the node name is different for each node.

Reboot to have these take effect and verify each one by the following commands:

```
cat /proc/sys/net/core/rmem_default
cat /proc/sys/net/core/rmem_max
cat /proc/sys/net/core/wmem_default
cat /proc/sys/net/core/wmem_max
hostname
cat /proc/sys/kernel/sem
cat /proc/sys/kernel/shmmax
cat /proc/sys/kernel/shmmni
cat /proc/sys/kernel/shmall
cat /proc/sys/fs/file-max
cat /proc/sys/kernel/msgmni
cat /proc/sys/kernel/msgmnb
cat /proc/sys/net/ipv4/ip_local_port_range
```

Oracle login scripts:

Perform these steps as the oracle user.
Insure the environment variable setting by the following login scripts for both bash and csh.

Create or edit file /u01/home/oracle/ .bash_profile to have the following:

```
# .bash_profile

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

# User specific environment and startup programs

PATH=$PATH:$HOME/bin
ulimit -n 65536
umask 022
export PATH
unset USERNAME
export ORACLE_HOME=/u01/app/oracle/product/920
export ORACLE_SID=db1_erisdev
export PATH=/u01/app/oracle/product/920/bin:$PATH
export ORACLE_TERM=xterm

export TMPDIR=/tmp
```

Node node specific entries:

Create or edit the file /u01/home/oracle/.tcshrc to have the following:

```
setenv ORACLE_HOME /u01/app/oracle/product/920
setenv ORACLE_SID db1_erisdev
setenv PATH /u01/app/oracle/product/920/bin:$PATH
setenv ORACLE_TERM xterm

setenv TMPDIR /tmp
```

Install Packages missed by the Red Hat install.

The Oracle Universal Installer will inform you of any missing packages needed.
I accomplished this step by copying the RedHat/RPMS directory from all of the Red Hat OS install disks to a single directory and then installed from there. Alternately you can load each cd to determine which cd the required file is on. A third way is to download the needed package from Red Hat Network once identified.

Use rpm –q to see which packages are already installed and then install the missing package using rpm –i
For example:

```
rpm –i sysstat-5.0.5-1.i386.rpm
```

Configure VNC server

VNC is a free program that allows you to use the X window desktop on another computer. See www.vnc.com for vnc clients and more information

Optional if you want it always on ⟶
Personally I turn it on when I want it

```
chkconfig –level 345 vncserver on
```

Add line to /etc/sysconfig/vncservers as root

```
VNCSERVERS="1:oracle"
```

Start the vnc server as oracle

```
vncserver :1
```

Configure vnc server

```
cd .vnc
mv xstartup xstartup.org
touch xstartup
chmod 755 xstartup
```

Edit the xstartup file in u01/home/oracle/.vnc and enter this text.

```
#!/bin/sh

# Uncomment the following two lines for normal desktop:
# unset SESSION_MANAGER
# exec /etc/X11/xinit/xinitrc

[ -r \u01/home/oracle/.Xresources ] && xrdb \u01/home/oracle/.Xresources
xsetroot -solid grey
vncconfig -iconic &
xhost localhost
PATH=$PATH:/usr/local/bin
export PATH
xterm -geometry 80x24+10+10 -ls -title "$VNCDESKTOP Desktop" &
twm &
```

Restart the vnc server software
The command to stop the server is: vncserver –kill :1