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## **VNC Background**

VNC means Virtual Network Computing, is an open-source, cross-platform protocol for viewing GUI desktops on remote machines within a LAN or over a WAN/Internet connection. This document discusses about how to configure VNC on server side and client side. The methods discussed include an open connection and a connection tunneled over ssh (Secure Shell). This document Includes information regarding the platform-independence of VNC and ssh implementations, so that solutions presented can be applied to Windows, Linux, Mac, and even other operating systems – securely and with open-source software.

It was developed at the Olivetti & Oracle Research Laboratory (Cambridge, England) in 1994. Originally running on an ATM-connected thin client device, it was ported to other platforms, including Win32, UNIX, GNU/Linux, and Mac OS. It is a remote display system, which allows a thin client (called the VNC viewer) to remotely access a desktop GUI environment on another computer over the network. Since it is platform independent, you can remotely run an Apple desktop from a Windows client, or a UNIX desktop from an Apple client, and so on.

VNC allows viewing and operating the console of other computer remotely. Generally it is also known as Remote Frame Buffer (RFB). This document covers the installation of VNC server on Oracle Enterprise Linux 4 (OEL) and setting up VNC client on Windows XP machine to operate the OEL server remotely.

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## **(A) Server Side Configuration**

**Step 1: Login as root on your Linux Server.**

**Step 2: Check VNC packages are installed or not, as shown below**



```
root@erp:~  
File Edit View Terminal Tabs Help  
[root@erp ~]# rpm -qa |grep vnc  
vnc-server-4.0-11.el4  
[root@erp ~]# █
```

Results showing that we have required VNC packages.

**Step 3**: If we want to start the VNC on system boot time ,Then we need to run following command.

```
chkconfig -level 345 vncserver on
```

Here -chkconfig option specifies the run levels where the operation should affect. It is given as a string of numbers from 0 to 6. For example, -level 35 specifies runlevels 3 and 5.

We should know the 0 to 6 runlevels


- 0 – Halt
- 1 – Single User Mode
- 2 – User Defined
- 3 – Full Multi User Mode
- 4 – User Definable
- 5 – Full Multi User Mode (X-Based login screen)
- 6 – Reboot

On system reboot the VNC-based X sessions will be updated in the /etc/sysconfig/vncservers file and will be start automatically.

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#### Step 4:

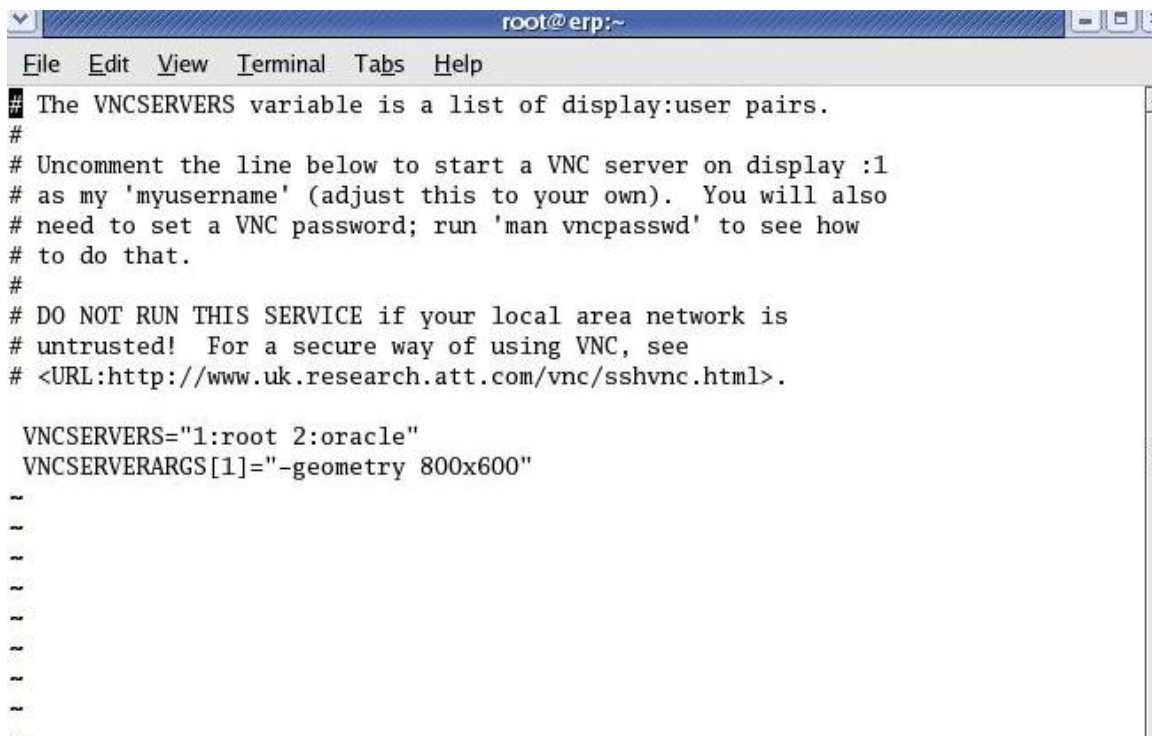
In this step ,we will uncomment the following lines and add all the VNC sessions required to start at the startup time in the /etc/sysconfig/vncservers file as shown below.



```
root@erp:~  
File Edit View Terminal Tabs Help  
[root@erp ~]# rpm -qa |grep vnc  
vnc-server-4.0-11.el4  
[root@erp ~]# vi /etc/sysconfig/vncservers
```

```
VNCSERVERS="1:root 2:oracle"  
VNCSERVERARGS[1]="-geometry 800x600"
```

**vncservers file looks like after update as shown below.**



```
root@erp:~  
File Edit View Terminal Tabs Help  
# The VNCSERVERS variable is a list of display:user pairs.  
#  
# Uncomment the line below to start a VNC server on display :1  
# as my 'myusername' (adjust this to your own). You will also  
# need to set a VNC password; run 'man vncpasswd' to see how  
# to do that.  
#  
# DO NOT RUN THIS SERVICE if your local area network is  
# untrusted! For a secure way of using VNC, see  
# <URL:http://www.uk.research.att.com/vnc/sshvnc.html>.  
  
VNCSERVERS="1:root 2:oracle"  
VNCSERVERARGS[1]="-geometry 800x600"  
~  
~  
~  
~  
~  
~  
~  
~  
~  
~
```

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### Step 5:

Login as the user for whom you want to configure VNC or use this command to login.

Here we have configured for 'oracle' user.

```
$ su – oracle
```

### Step 6 :

Now we need to run the vncserver command to configure the VNC-based X session.

VNC Server command syntax is vncserver –N

We will replace N (vncserver :N) with a number greater than zero. N represents the VNC-based X session permanently assigned for a particular user. We will assign 1 as number of sessions.

```
$ vncserver :1
```

You will require a password to access your desktops.

Password:

Verify:

```
xauth: creating new authority file /home/oracle/.Xauthority
```

```
New 'erp.com:1 (oracle)' desktop is erp.com:1
```

```
Creating default startup script /home/oracle/.vnc/xstartup
```

```
Starting applications specified in /home/oracle/.vnc/xstartup
```

```
Log file is /home/oracle/.vnc/erp.com:1.log ,as shown below:
```

```
New 'erp.com:1 (oracle)' desktop is erp.com:1
```

```
Creating default startup script /home/oracle/.vnc/xstartup
```

```
Starting applications specified in /home/oracle/.vnc/xstartup
```

```
Log file is /home/oracle/.vnc/erp.com:1.log
```

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Here the above command (`vncserver :1`) will create the `$HOME/.vnc` directory for the user and will ask for a VNC password. This password will be requested by the VNC viewer program when connecting from a remote machine.

### Step 7 :

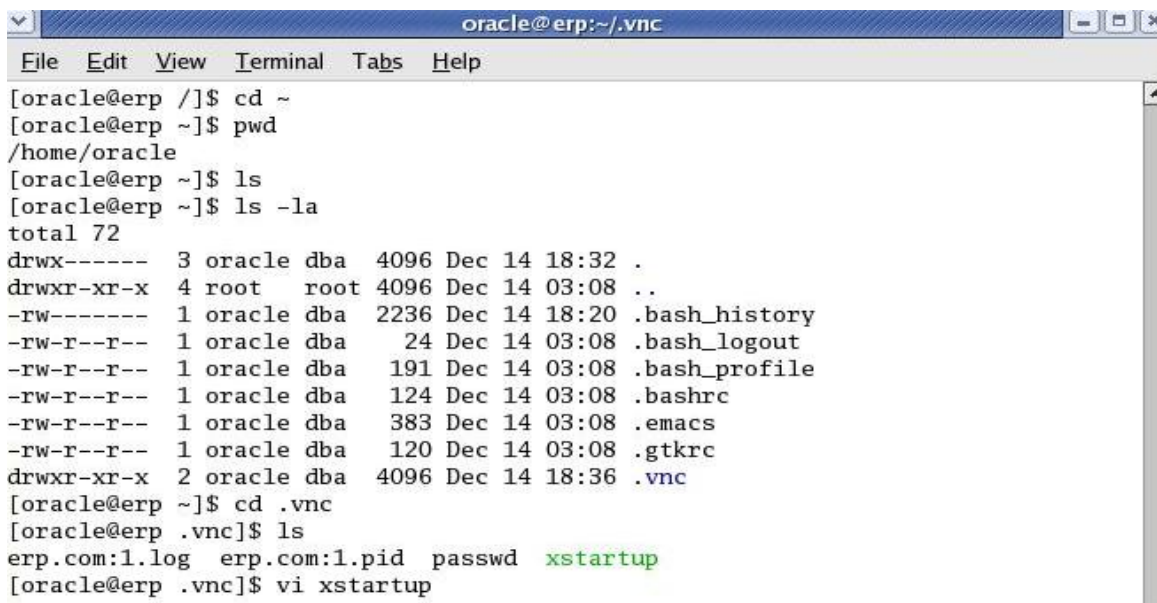
In future If the user wants to change the VNC password, the following command will be used:

```
$ vncpasswd  
Password:  
Verify:
```

### Step 8 :

As VNC uses the twm windows manager. We will configure GNOME (the default environment in Oracle Enterprise Linux) desktop environment.

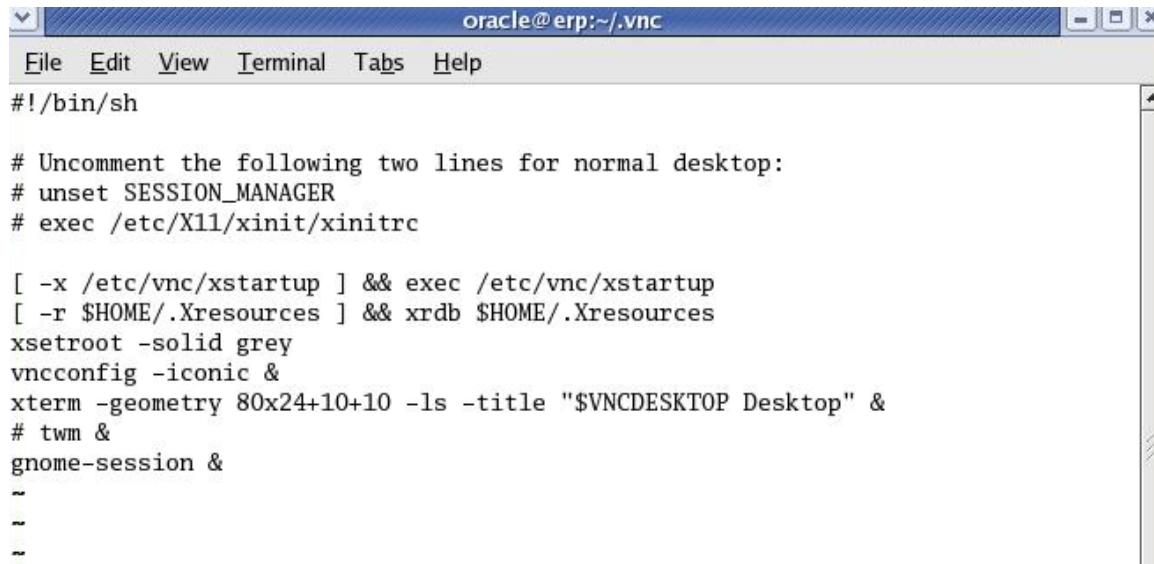
Open the `$HOME/.vnc/xstartup` file using vi editor and comment out or delete the lines that start with `xterm` and `twm`.



```
oracle@erp:~/vnc  
File Edit View Terminal Tabs Help  
[oracle@erp /]$ cd ~  
[oracle@erp ~]$ pwd  
/home/oracle  
[oracle@erp ~]$ ls  
[oracle@erp ~]$ ls -la  
total 72  
drwx----- 3 oracle dba 4096 Dec 14 18:32 .  
drwxr-xr-x 4 root root 4096 Dec 14 03:08 ..  
-rw----- 1 oracle dba 2236 Dec 14 18:20 .bash_history  
-rw-r--r-- 1 oracle dba 24 Dec 14 03:08 .bash_logout  
-rw-r--r-- 1 oracle dba 191 Dec 14 03:08 .bash_profile  
-rw-r--r-- 1 oracle dba 124 Dec 14 03:08 .bashrc  
-rw-r--r-- 1 oracle dba 383 Dec 14 03:08 .emacs  
-rw-r--r-- 1 oracle dba 120 Dec 14 03:08 .gtkrc  
drwxr-xr-x 2 oracle dba 4096 Dec 14 18:36 .vnc  
[oracle@erp ~]$ cd .vnc  
[oracle@erp .vnc]$ ls  
erp.com:1.log erp.com:1.pid passwd xstartup  
[oracle@erp .vnc]$ vi xstartup
```

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Add gnome-session & as shown below,



```
oracle@erp:~/vnc
File Edit View Terminal Tabs Help
#!/bin/sh

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

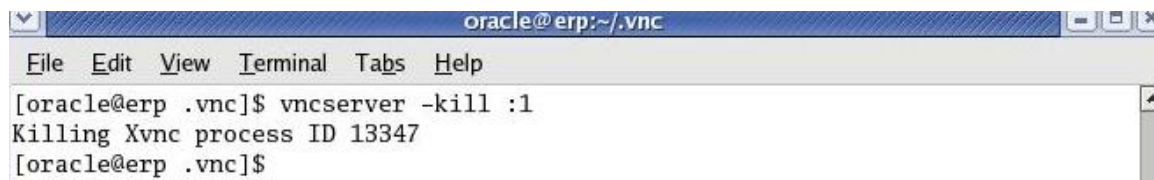
[ -x /etc/vnc/xstartup ] && exec /etc/vnc/xstartup
[ -r $HOME/.Xresources ] && xrdb $HOME/.Xresources
xsetroot -solid grey
vncconfig -iconic &
xterm -geometry 80x24+10+10 -ls -title "$VNCDESKTOP Desktop" &
# twm &
gnome-session &
~
~
~
```

And save the file.

If we want to use KDE, add the following line instead of gnome-session & startkde &

### Step 9 :

After setting the desktop, the existing VNC-based X session must be killed through this command.



```
oracle@erp:~/vnc
File Edit View Terminal Tabs Help
[oracle@erp .vnc]$ vncserver -kill :1
Killing Xvnc process ID 13347
[oracle@erp .vnc]$
```

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### Step 10 :

Restart the VNC session for the effect of the changes. Run the following commands to restart the newly configured VNC session:

```
vncserver :1  
New 'erp.com:1 (oracle)' desktop is erp.com:1  
Starting applications specified in /home/oracle/.vnc/xstartup  
Log file is /home/oracle/.vnc/erp.com:1.log
```

We have completed Server side configuration, now we will configure the Windows XP client machine.

### (B) Client Side Configuration

#### Step 1 :

First we need to download the VNC viewer software from the below link.

<http://www.realvnc.com/download.html>

Step 2 : We can download any of the following of VNC Free Edition Viewer for Windows.

<b>VNC Free Edition Viewer for Windows</b> Version 4.1.2 Stand-alone Viewer	Executable (264K)	<input type="button" value="Download"/>
	Zip Archive (135K)	<input type="button" value="Download"/>

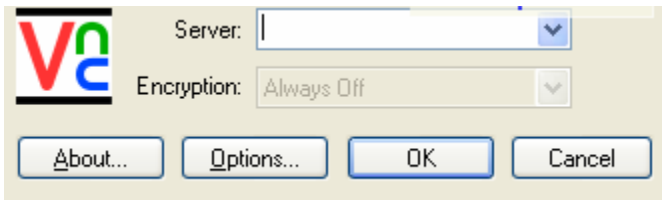
If we want to download Zip Archive then we need WinZip software from below link to extract the executable file.

<http://www.winzip.com/>

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### Step 3:

When we run exe file , the following screen will appear



### Step 4:

Enter the IP address of your VNC server, we configured above in the following format

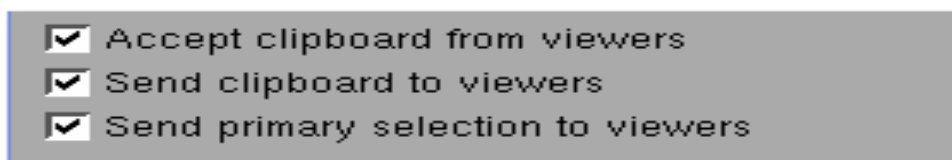
IP address :1

### Step 5:

Enter the password that we set above while configuring server side.

### Step 6:

The following options screen will appear

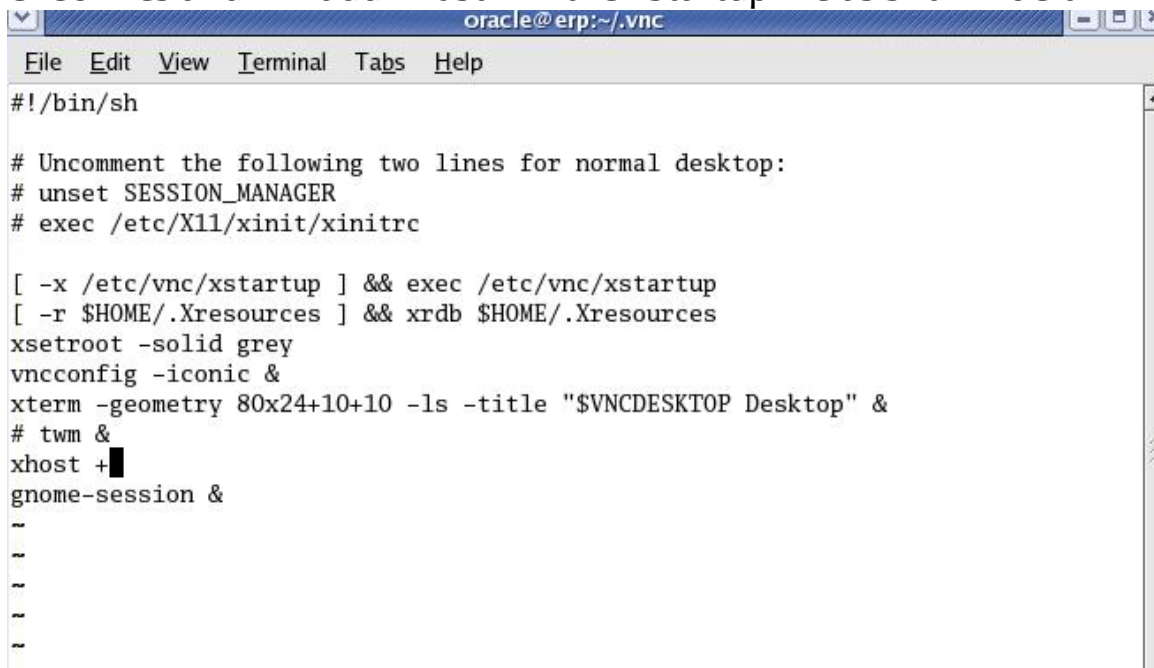




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### Step 7:

By default, VNC starts up only a simple window manager and a terminal window. To avoid the above options screen we will perform the following steps and will uncomment the unset and exec lines and will add xhost + in the xstartup file as shown below.



```
oracle@erp:~/vnc
File Edit View Terminal Tabs Help
#!/bin/sh

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

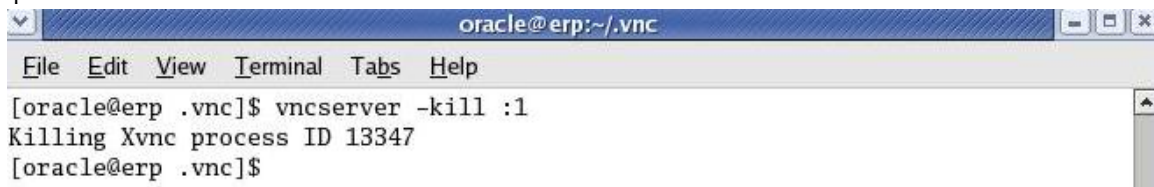
[ -x /etc/vnc/xstartup ] && exec /etc/vnc/xstartup
[ -r $HOME/.Xresources ] && xrdp $HOME/.Xresources
xsetroot -solid grey
vncconfig -iconic &
xterm -geometry 80x24+10+10 -ls -title "$VNCDESKTOP Desktop" &
# twm &
xhost +
gnome-session &
~
~
~
~
~
```

Save the file after editing it.

### Step 8:

After setting the desktop, the existing VNC-based X session must be killed from the server side through this command.

```
$ vncserver -kill :1
```



```
oracle@erp:~/vnc
File Edit View Terminal Tabs Help
[oracle@erp .vnc]$ vncserver -kill :1
Killing Xvnc process ID 13347
[oracle@erp .vnc]$
```

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### Step 9:

We need to restart the VNC session from the server for the effect of the changes. Enter the following commands to restart the newly configured VNC session.

```
vncserver :1
New 'erp.com:1 (oracle)' desktop is erp.com:1
Starting applications specified in /home/oracle/.vnc/xstartup
Log file is /home/oracle/.vnc/erp.com:1.log , as shown below:
New 'erp.com:1 (oracle)' desktop is erp.com:1

Starting applications specified in /home/oracle/.vnc/xstartup
Log file is /home/oracle/.vnc/erp.com:1.log
```

### Step 10:

Now the Linux server desktop on windows XP client. Isn't it.

