



IE2080

Database Systems Administration

2nd Year, 1st Semester

Assignment

Assignment – Part 1

Submitted to

Sri Lanka Institute of Information Technology

In partial fulfillment of the requirements for the
Bachelor of Science Special Honors Degree in Information Technology

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Declaration

I certify that this report does not incorporate without acknowledgement, any material previously submitted for a degree or diploma in any university, and to the best of my knowledge and belief it does not contain any material previously published or written by another person, except where due reference is made in text.

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Screenshots

1. Install require dependencies for RDBMS

Code: `yum install -y binutils.x86_64 compat-libcap1.x86_64 gcc.x86_64 gcc-c++.x86_64 glibc.i686 glibc.x86_64 \`
`glibc-devel.i686 glibc-devel.x86_64 ksh compat-libstdc++-33 libaio.i686`
`libaio.x86_64 libaio-devel.i686 libaio-devel.x86_64 \`
`libgcc.i686 libgcc.x86_64 libstdc++.i686 libstdc++.x86_64 libstdc++-devel.i686`
`libstdc++-devel.x86_64 libXi.i686 libXi.x86_64 \`
`libXtst.i686 libXtst.x86_64 make.x86_64 sysstat.x86_64`

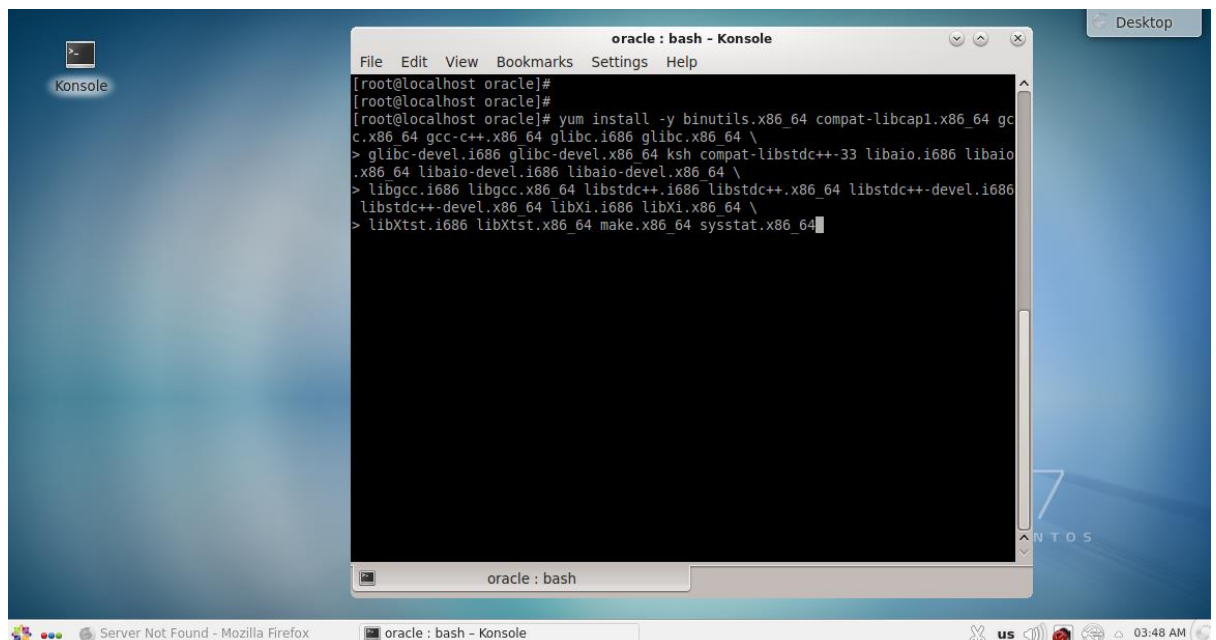


Figure 1.1: Code for install dependencies

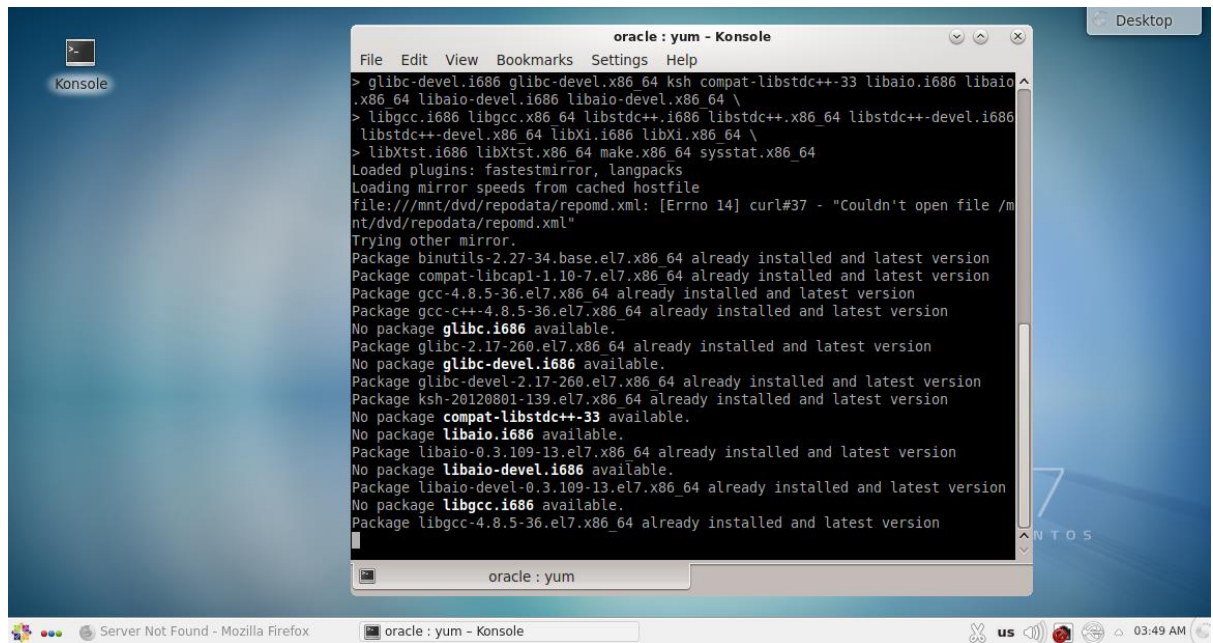


Figure 1.2: result

2. Create user account called “Oracle” and groups “oinstall”, “dba” for Oracle

Adding group “oinstall” and “dba”

Code: groupadd oinstall
Groupadd oinstall

Adding user “oracle”

code: useradd -g oinstall -G dba oracle

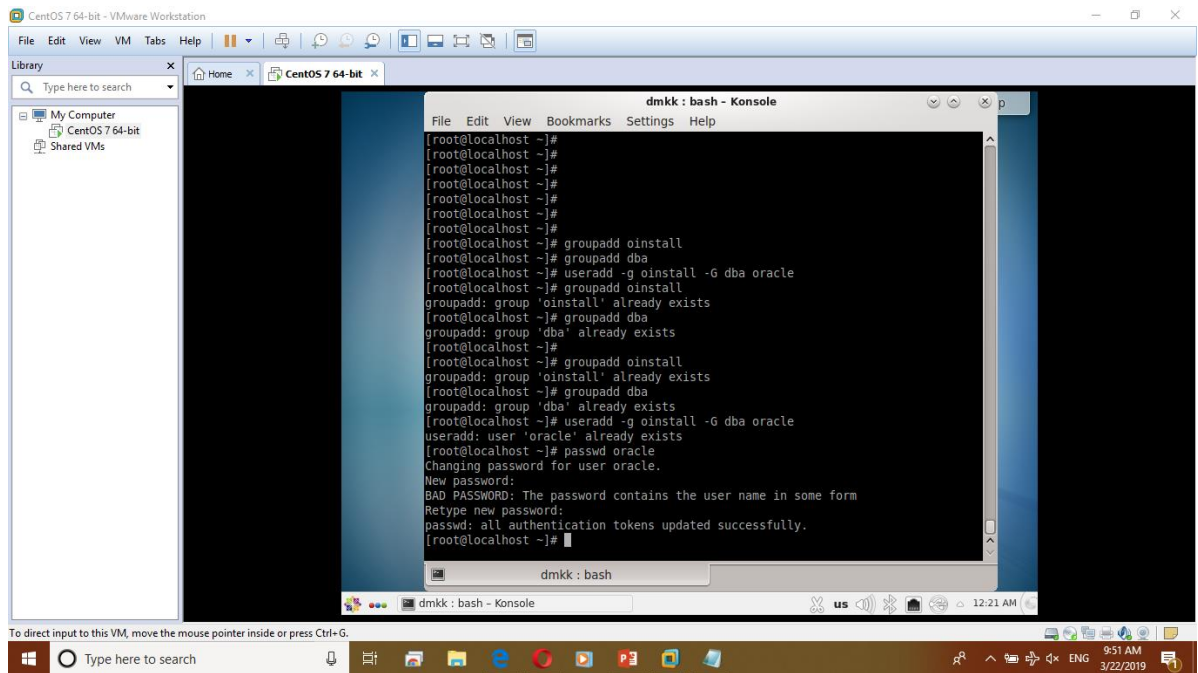


Figure 2: creating user account

3. Set a password for created oracle user account

Setting password for oracle

code: passwd oracle

```
[root@localhost ~]# passwd oracle  
Changing password for user oracle.  
New password:  
BAD PASSWORD: The password contains the user name in some form  
Retype new password:  
passwd: all authentication tokens updated successfully.  
[root@localhost ~]#
```

Figure 3: Setting Oracle user password

4. Add and apply required kernel parameters to /etc/sysctl.conf file

4.1 – Open Sysctl.conf from vi editor (Figure 4.1)

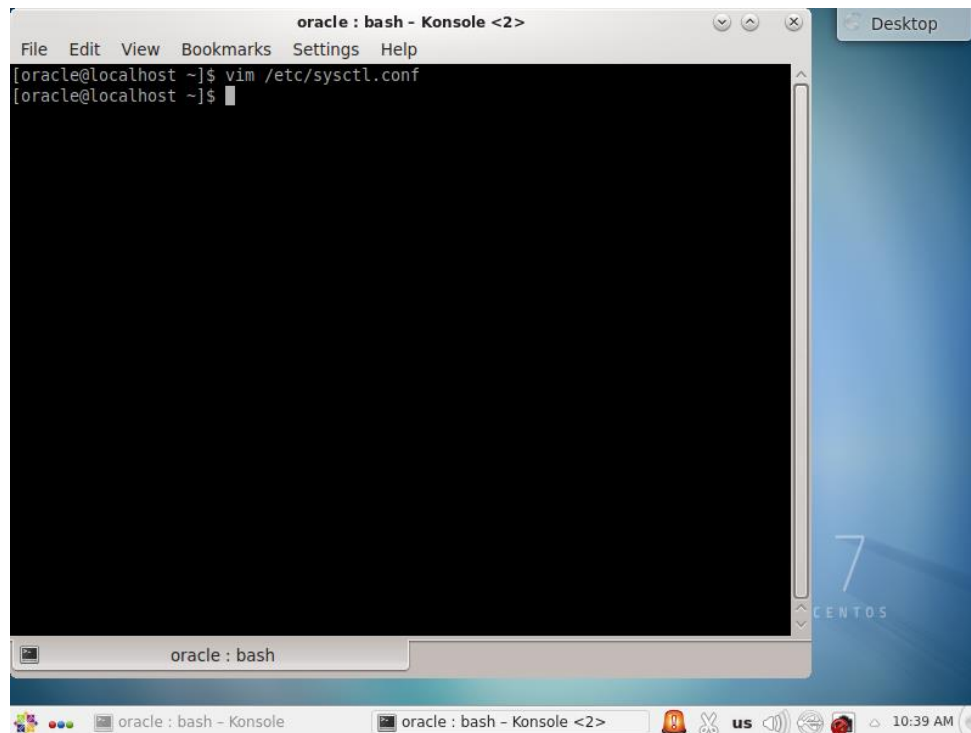


Figure 4.1: Open Sysctl.conf in vi editor

4.2 – Add Kernel Parameters :

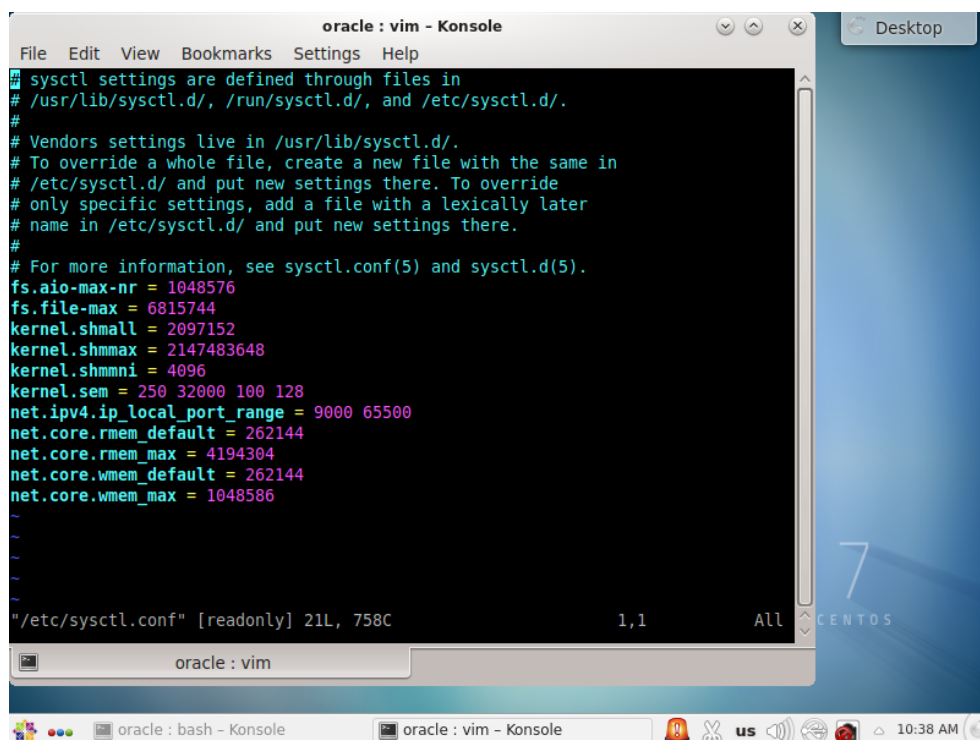
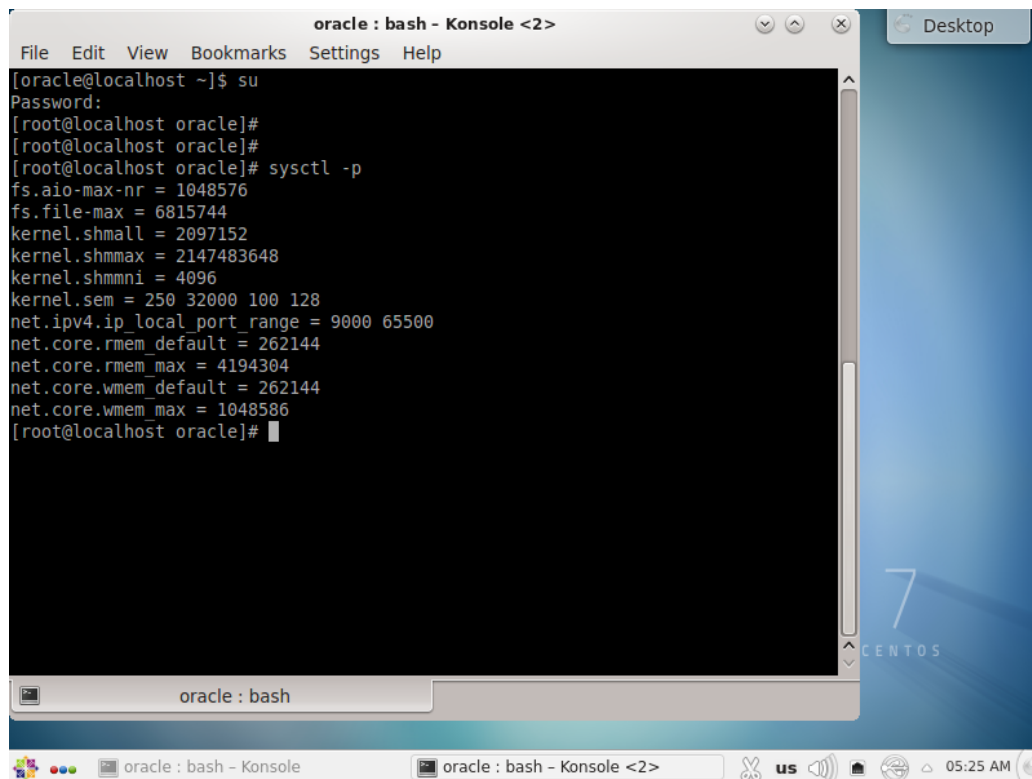


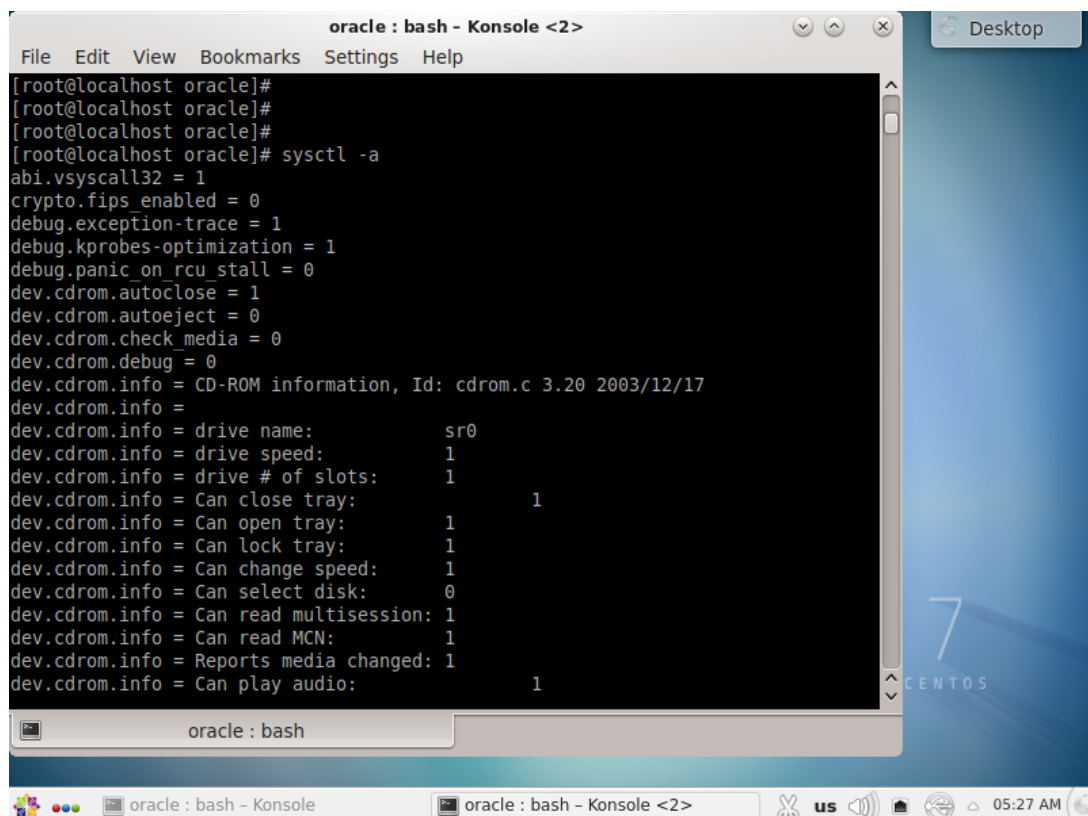
Figure 4.2: Setting Parameters

4.3 – Display all kernel parameter and apply the new values

A terminal window titled 'oracle : bash - Konsole <2>' is open on a CentOS 7 desktop. The user has executed 'su' to become root. The root prompt shows the user is 'oracle' at 'localhost'. The command 'sysctl -p' has been run, displaying a list of kernel parameters and their values. The desktop background is the standard CentOS 7 blue and white logo wallpaper. The system clock at the bottom right shows 05:25 AM.

```
oracle : bash - Konsole <2>
File Edit View Bookmarks Settings Help
[oracle@localhost ~]$ su
Password:
[root@localhost oracle]#
[root@localhost oracle]#
[root@localhost oracle]# sysctl -p
fs.aio-max-nr = 1048576
fs.file-max = 6815744
kernel.shmall = 2097152
kernel.shmmax = 2147483648
kernel.shmmni = 4096
kernel.sem = 250 32000 100 128
net.ipv4.ip_local_port_range = 9000 65500
net.core.rmem_default = 262144
net.core.rmem_max = 4194304
net.core.wmem_default = 262144
net.core.wmem_max = 1048586
[root@localhost oracle]#
```

Figure 4.3

A terminal window titled 'oracle : bash - Konsole <2>' is open on a CentOS 7 desktop. The user is root at 'localhost' as 'oracle'. The command 'sysctl -a' has been run, displaying a large list of system parameters. The desktop background is the standard CentOS 7 blue and white logo wallpaper. The system clock at the bottom right shows 05:27 AM.

```
oracle : bash - Konsole <2>
File Edit View Bookmarks Settings Help
[root@localhost oracle]#
[root@localhost oracle]#
[root@localhost oracle]#
[root@localhost oracle]# sysctl -a
abi.vsyscall32 = 1
crypto.fips_enabled = 0
debug.exception-trace = 1
debug.kprobes-optimization = 1
debug.panic on rcu stall = 0
dev.cdrom.autoclose = 1
dev.cdrom.autoeject = 0
dev.cdrom.check_media = 0
dev.cdrom.debug = 0
dev.cdrom.info = CD-ROM information, Id: cdrom.c 3.20 2003/12/17
dev.cdrom.info =
dev.cdrom.info = drive name:          sr0
dev.cdrom.info = drive speed:         1
dev.cdrom.info = drive # of slots:    1
dev.cdrom.info = Can close tray:      1
dev.cdrom.info = Can open tray:       1
dev.cdrom.info = Can lock tray:       1
dev.cdrom.info = Can change speed:    1
dev.cdrom.info = Can select disk:     0
dev.cdrom.info = Can read multisession: 1
dev.cdrom.info = Can read MCN:        1
dev.cdrom.info = Reports media changed: 1
dev.cdrom.info = Can play audio:      1
```

Figure 4.4

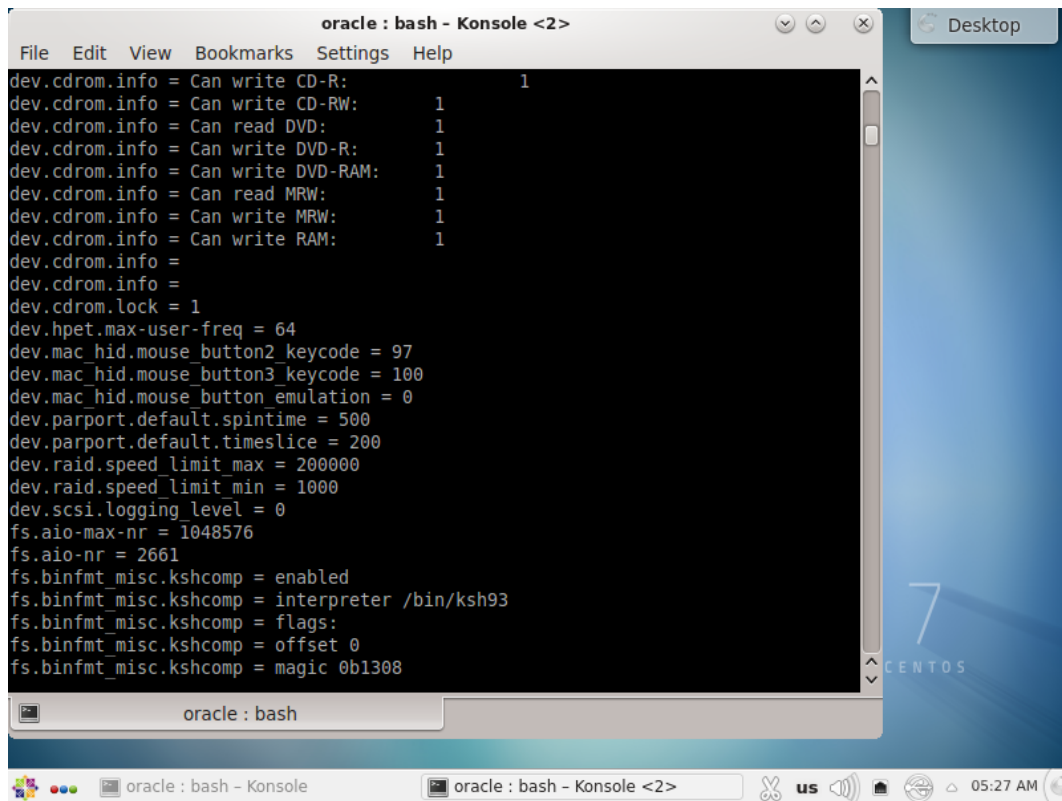


Figure 4.5

5. Edit limit.conf file “vim /etc/security/limits.conf” file (figure: 5.1)

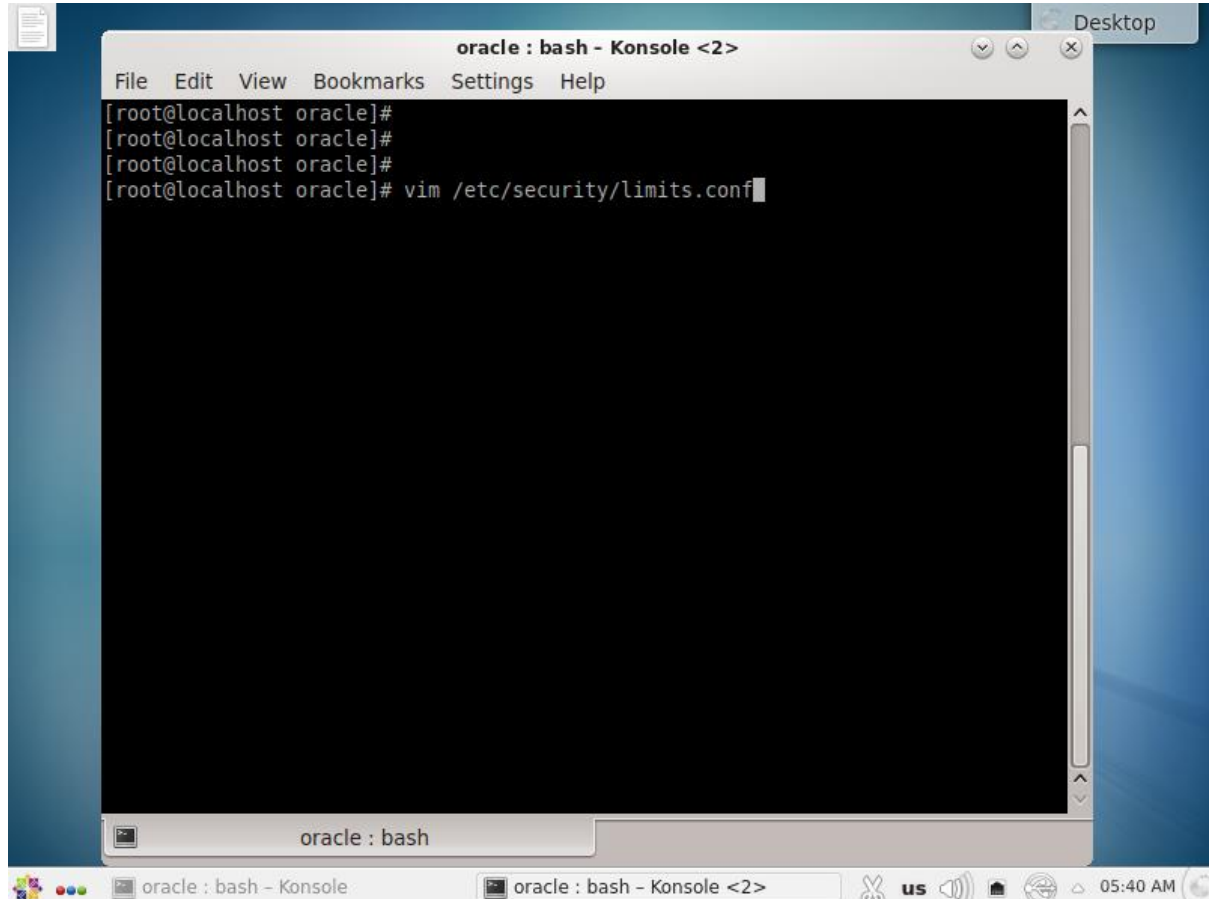
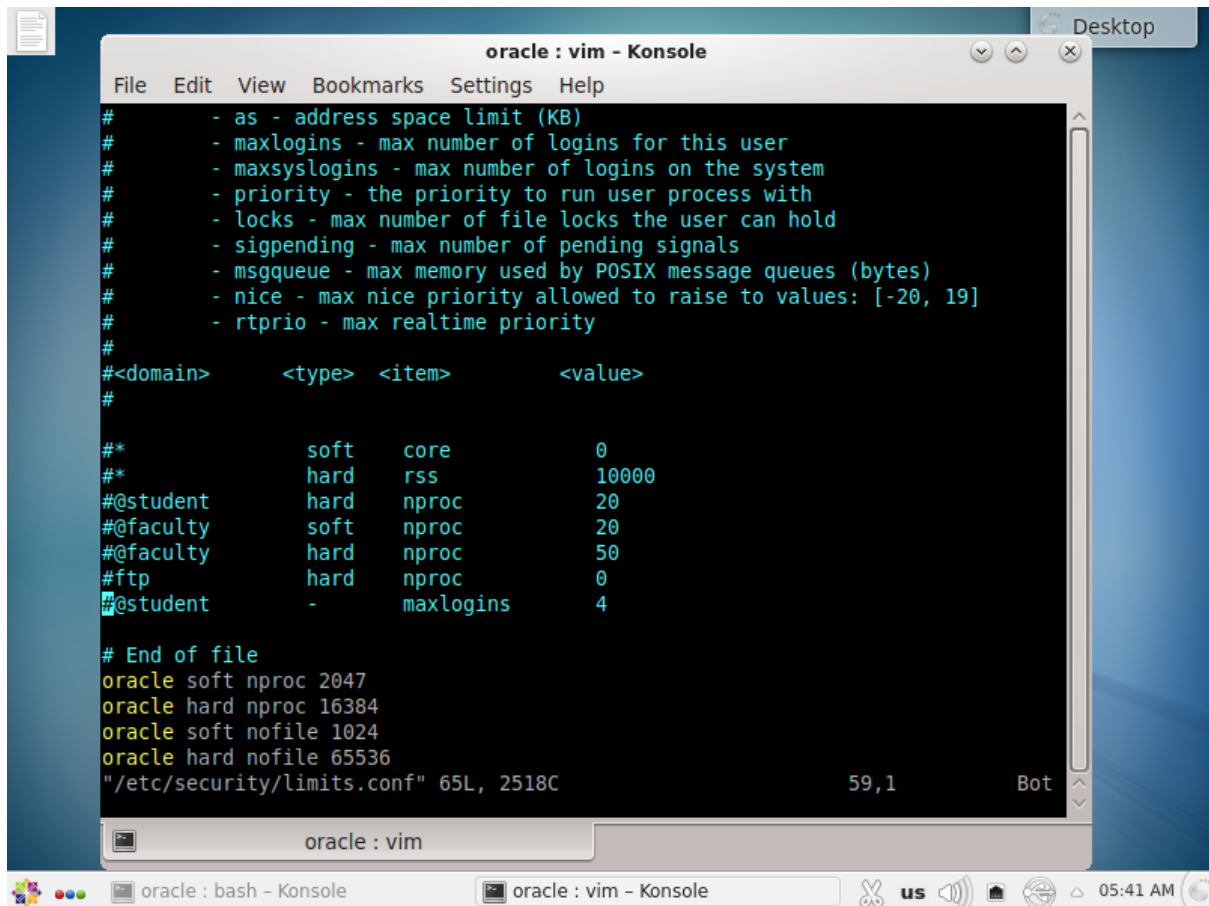


Figure 5.1



The screenshot shows a Linux desktop environment with a terminal window titled "oracle : vim - Konsole". The terminal displays the contents of the `/etc/security/limits.conf` file, which is being edited with the `vim` editor. The file contains system-wide limits and user-specific limits for the `student` user.

```
# - as - address space limit (KB)
# - maxlogins - max number of logins for this user
# - maxsyslogins - max number of logins on the system
# - priority - the priority to run user process with
# - locks - max number of file locks the user can hold
# - sigpending - max number of pending signals
# - msgqueue - max memory used by POSIX message queues (bytes)
# - nice - max nice priority allowed to raise to values: [-20, 19]
# - rtprio - max realtime priority
#
#<domain>      <type>  <item>      <value>
#
#*              soft    core        0
#*              hard    rss         10000
#@student       hard    nproc       20
#@faculty       soft    nproc       20
#@faculty       hard    nproc       50
#ftp            hard    nproc       0
#@student       -        maxlogins   4

# End of file
oracle soft nproc 2047
oracle hard nproc 16384
oracle soft nofile 1024
oracle hard nofile 65536
"/etc/security/limits.conf" 65L, 2518C
```

The terminal window shows the following output for the `student` user:

Domain	Type	Item	Value
*	soft	core	0
*	hard	rss	10000
@student	hard	nproc	20
@faculty	soft	nproc	20
@faculty	hard	nproc	50
ftp	hard	nproc	0
@student	-	maxlogins	4

The terminal window also shows the following output for the `student` user:

```
# End of file
oracle soft nproc 2047
oracle hard nproc 16384
oracle soft nofile 1024
oracle hard nofile 65536
"/etc/security/limits.conf" 65L, 2518C
```

Figure 5.2

6. Create necessary directories such as u01, u02

Create “u01” and “u02” folders in root

code: mkdir -p /u01 /u02

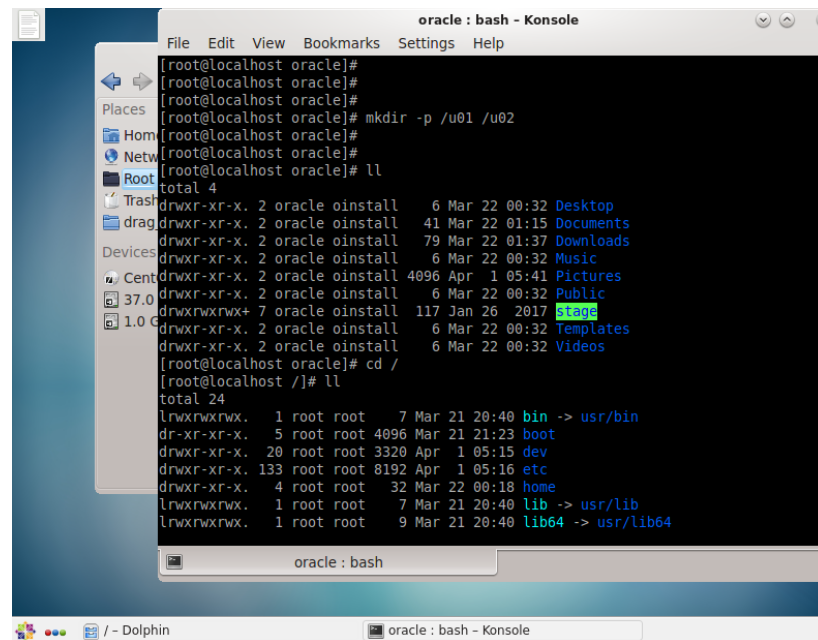


Figure 6.1

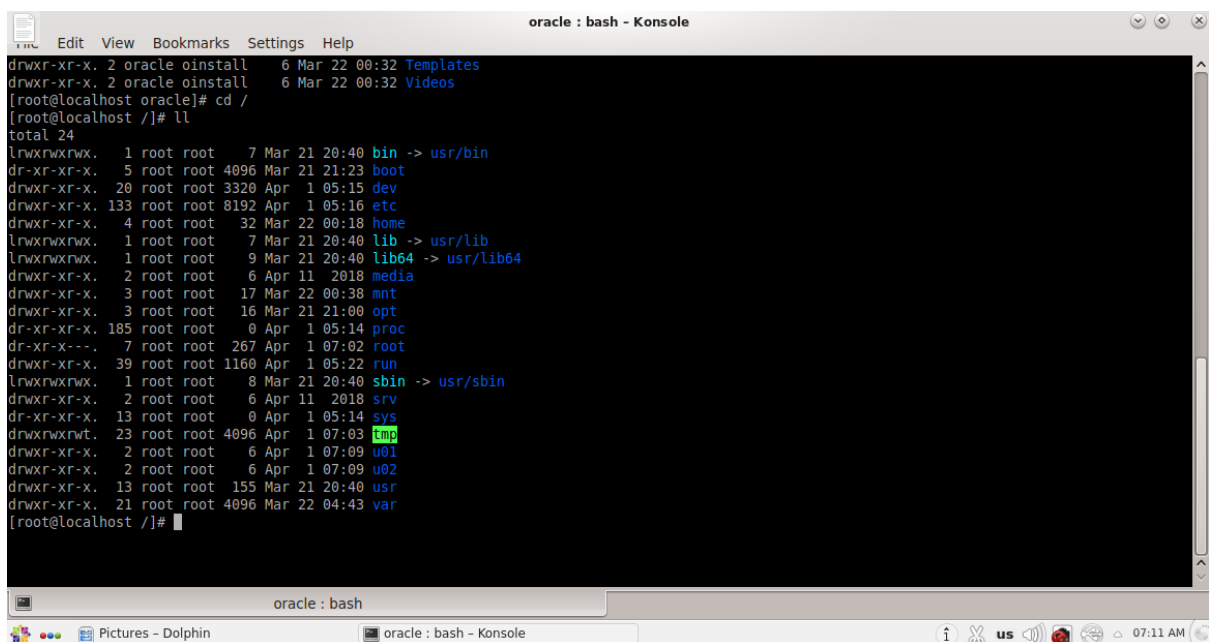
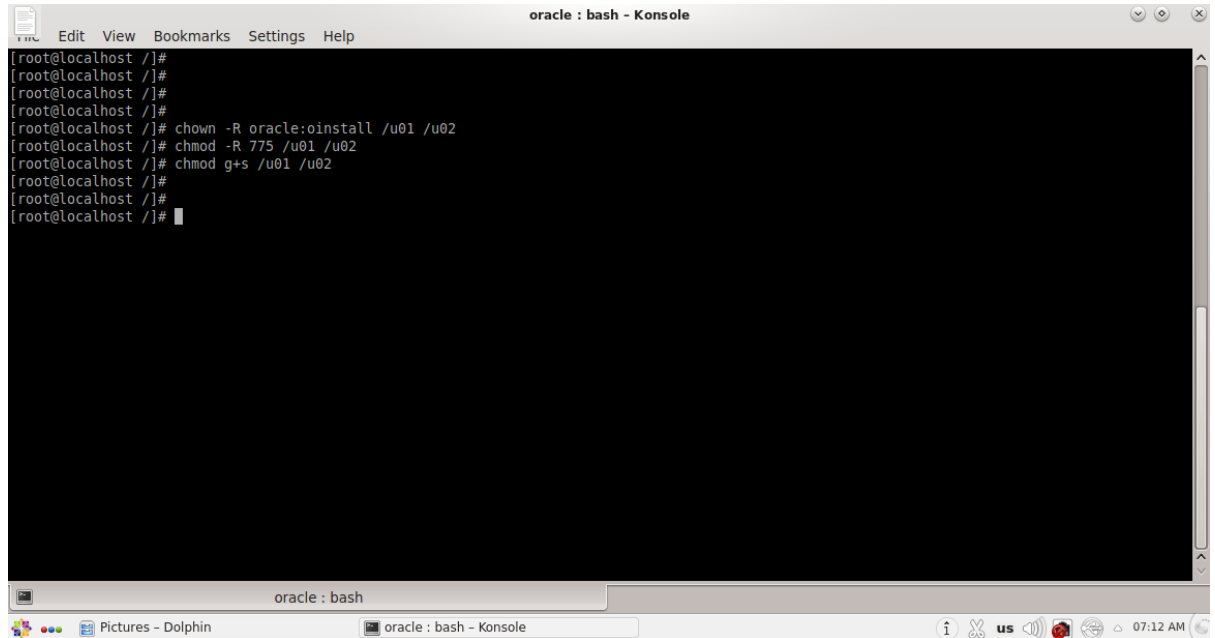


Figure 6.2

7. Assign necessary permissions for created directories

```
Code: chown -R oracle:oinstall /u01 /u02
      chmod -R 775 /u01 /u02
      chmod g+s /u01 /u02
```



The screenshot shows a terminal window titled "oracle : bash - Konsole". The terminal output is as follows:

```
[root@localhost /]#
[root@localhost /]#
[root@localhost /]#
[root@localhost /]#
[root@localhost /]# chown -R oracle:oinstall /u01 /u02
[root@localhost /]# chmod -R 775 /u01 /u02
[root@localhost /]# chmod g+s /u01 /u02
[root@localhost /]#
[root@localhost /]#
[root@localhost /]#
```

The terminal window is part of a desktop environment. The taskbar at the bottom shows a "Pictures - Dolphin" window and the "oracle : bash - Konsole" window. The system tray on the right includes icons for help, network, volume, and a clock showing 07:12 AM.

Figure 7