1.


```
[s1@localhost Consultants]$ su s2
Password:
su: Authentication failure
[s1@localhost Consultants]$ su s2
Password:
[s2@localhost Consultants]$ touch file3 file4
[s2@localhost Consultants]$ ls
file1  file2  file3  file4
[s2@localhost Consultants]$ ls -l
total 0
-rw-rw-r--. 1 s1 s1 0 Oct 22 12:32 file1
-rw-rw-r--. 1 s1 s1 0 Oct 22 12:32 file2
-rw-rw-r--. 1 s2 s2 0 Oct 22 12:33 file3
-rw-rw-r--. 1 s2 s2 0 Oct 22 12:33 file4
[s2@localhost Consultants]$ su root
Password:
[root@localhost Consultants]# chmod 2774 /home/Consultants
[root@localhost Consultants]# su s1
[s1@localhost Consultants]$ touch file5
[s1@localhost Consultants]$ ls -l
total 0
-rw-rw-r--. 1 s1 s1    0 Oct 22 12:32 file1
-rw-rw-r--. 1 s1 s1    0 Oct 22 12:32 file2
-rw-rw-r--. 1 s2 s2    0 Oct 22 12:33 file3
-rw-rw-r--. 1 s2 s2    0 Oct 22 12:33 file4
-rw-rw-r--. 1 s1 sales 0 Oct 22 12:34 file5
[s1@localhost Consultants]$ touch file6
[s1@localhost Consultants]$ ls -l
total 0
-rw-rw-r--. 1 s1 s1    0 Oct 22 12:32 file1
-rw-rw-r--. 1 s1 s1    0 Oct 22 12:32 file2
-rw-rw-r--. 1 s2 s2    0 Oct 22 12:33 file3
-rw-rw-r--. 1 s2 s2    0 Oct 22 12:33 file4
-rw-rw-r--. 1 s1 sales 0 Oct 22 12:34 file5
-rw-rw-r--. 1 s1 sales 0 Oct 22 12:34 file6
[s1@localhost Consultants]$ su s2
Password:
[s2@localhost Consultants]$ rm file6
[s2@localhost Consultants]$ ls -l
total 0
-rw-rw-r--. 1 s1 s1    0 Oct 22 12:32 file1
-rw-rw-r--. 1 s1 s1    0 Oct 22 12:32 file2
-rw-rw-r--. 1 s2 s2    0 Oct 22 12:33 file3
-rw-rw-r--. 1 s2 s2    0 Oct 22 12:33 file4
-rw-rw-r--. 1 s1 sales 0 Oct 22 12:34 file5
[s2@localhost Consultants]$ su root
Password:
[root@localhost Consultants]#
```



```
-rw-rw-r--. 1 s1 sales 0 Oct 22 12:34 file5
[s2@localhost Consultants]$ su root
Password:
[root@localhost Consultants]# chmod o+t /home/Consultants
[root@localhost Consultants]# ls
file1  file2 file3  file4  file5
[root@localhost Consultants]# chmod 1774 /home/Cobsultants
chmod: cannot access '/home/Cobsultants': No such file or directory
[root@localhost Consultants]# chmod 1774 /home/Consultants
[root@localhost Consultants]# su s2
[s2@localhost Consultants]$ touch file6
[s2@localhost Consultants]$ ls -l
total 0
-rw-rw-r--. 1 s1 s1    0 Oct 22 12:32 file1
-rw-rw-r--. 1 s1 s1    0 Oct 22 12:32 file2
-rw-rw-r--. 1 s2 s2    0 Oct 22 12:33 file3
-rw-rw-r--. 1 s2 s2    0 Oct 22 12:33 file4
-rw-rw-r--. 1 s1 sales 0 Oct 22 12:34 file5
-rw-rw-r--. 1 s2 sales 0 Oct 22 12:43 file6
[s2@localhost Consultants]$ su s1
Password:
[s1@localhost Consultants]$ rm file6
rm: cannot remove 'file6': Operation not permitted
[s1@localhost Consultants]$ ls /etc/passwd
/etc/passwd
[s1@localhost Consultants]$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:99:99:Nobody:/:/sbin/nologin
systemd-network:x:192:192:systemd Network Management:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
polkitd:x:999:997:User for polkitd:/:/sbin/nologin
postfix:x:89:89::/var/spool/postfix:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/var/empty/sshd:/sbin/nologin
akarsh:x:1000:1001:root:/home/akarsh:/bin/bash
s1:x:1001:1001::/home/s1:/bin/bash
s2:x:1002:1002::/home/s2:/bin/bash
[s1@localhost Consultants]$
```

2.

```
129  sudo usermod -u 2000 sales1
130  id sales1
131  id sales2
132  sudo usermod -u 2000 sales2
133  echo $SHELL
134  usermod -s /sbin/nologin sales1
135  echo $SHELL
136  cat /etc/shells
137  chsh -s /sbin/nologin sales1
138  echo $SHELL
139  chsh -s /sbin/nologin sales1
140  exit
141  clear
142  echo $root
143  clear
144  echo $SHELL
145  chsh -s /sbin/nologin sales2
146  echo $SHELL
147  su sales1
148  su sales2
149  history
[root@localhost ~]# su sales1
This account is currently not available.
[root@localhost ~]# ps
  PID TTY          TIME CMD
 4261 tty1     00:00:00 bash
 4209 tty1     00:00:00 ps
[root@localhost ~]# sales1 -c
-bash: sales1: command not found
[root@localhost ~]# sales1 -c "Sales"
-bash: sales1: command not found
[root@localhost ~]# usermod -c "Sales" sales1
[root@localhost ~]# tail -n3 /etc/passwd
simran:x:1002:1003::/home/simran:/bin/bash
sales1:x:2000:1005:Sales:/home/sales1:/sbin/nologin
sales2:x:1004:1006::/home/sales2:/sbin/nologin
[root@localhost ~]#
```

centos7.0 on QEMU/KVM

File   Virtual Machine   View   Send Key

```
[root@localhost ~]# lsblk
NAME            MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0              11:0   1 1024M  0 rom
vda             252:0    0   20G  0 disk
├─vda1          252:1    0    1G  0 part /boot
└─vda2          252:2    0   19G  0 part
  ├─centos-root 253:0    0   17G  0 lvm  /
  └─centos-swap 253:1    0    2G  0 lvm  [SWAP]
vdb             252:16   0    5G  0 disk
└─vdb4          252:20   0    5G  0 part
[root@localhost ~]# fdisk /dev/vdb
Welcome to fdisk (util-linux 2.23.2).

Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.


Command (m for help): _
```

3.

centos7.0 on QEMU/KVM

File   Virtual Machine   View   Send Key

```
   x   extra functionality (experts only)

Command (m for help): n
Partition type:
   p   primary (1 primary, 0 extended, 3 free)
   e   extended
Select (default p): p
Partition number (1-3, default 1): 1
No free sectors available

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

Calling ioctl() to re-read partition table.
Syncing disks.
[root@localhost ~]# lsblk
NAME            MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0              11:0   1 1024M  0 rom
vda             252:0    0   20G  0 disk
├─vda1          252:1    0    1G  0 part /boot
└─vda2          252:2    0   19G  0 part
  ├─centos-root 253:0    0   17G  0 lvm  /
  └─centos-swap 253:1    0    2G  0 lvm  [SWAP]
vdb             252:16   0    5G  0 disk
└─vdb4          252:20   0    5G  0 part
[root@localhost ~]# mkfs -t ext4 /dev/vdb4
mke2fs 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
327680 inodes, 1310464 blocks
65523 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=1342177280
40 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

[root@localhost ~]#
```

4.


```
Calling ioctl() to re-read partition table.
Syncing disks.
[root@localhost ~]# lsblk
NAME            MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0              11:0    1 1024M  0 rom
vda             252:0    0   20G  0 disk
├─vda1          252:1    0    1G  0 part /boot
└─vda2          252:2    0   19G  0 part
  ├─centos-root 253:0    0   17G  0 lvm  /
  └─centos-swap 253:1    0    2G  0 lvm  [SWAP]
vdb             252:16   0    5G  0 disk
└─vdb4          252:20   0    5G  0 part
[root@localhost ~]# mkfs -t ext4 /dev/vdb4
mke2fs 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
327680 inodes, 1310464 blocks
65523 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=1342177280
40 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

[root@localhost ~]# mkdir /data
[root@localhost ~]# mount /dev/vdb4 /data
[root@localhost ~]# lsblk
NAME            MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0              11:0    1 1024M  0 rom
vda             252:0    0   20G  0 disk
├─vda1          252:1    0    1G  0 part /boot
└─vda2          252:2    0   19G  0 part
  ├─centos-root 253:0    0   17G  0 lvm  /
  └─centos-swap 253:1    0    2G  0 lvm  [SWAP]
vdb             252:16   0    5G  0 disk
└─vdb4          252:20   0    5G  0 part /data
[root@localhost ~]#
```

5.


```
[root@localhost ~]# nmcli connection show
NAME     UUID                                  TYPE            DEVICE
Bridge1  033ab5a5-645b-4421-b07f-ad4ca51a5349  bridge          nm-bridge
eth0     be22ce07-fe11-4a6f-a629-5c749928f249  802-3-ethernet  --
[root@localhost ~]# nmcli
nm-bridge: connected to Bridge1
        "nm-bridge"
        bridge, 26:D6:FE:03:90:58, sw, mtu 1500
        ip4 default
        inet4 192.168.10.1/24

eth0: disconnected
        "Red Hat Virtio network device"
        1 connection available
        ethernet (virtio_net), 52:54:00:E9:C1:4B, hw, mtu 1500

lo: unmanaged
        "lo"
        loopback (unknown), 00:00:00:00:00:00, sw, mtu 65536

DNS configuration:
        servers: 192.168.10.51
        interface: nm-bridge

Use "nmcli device show" to get complete information about known devices and
"nmcli connection show" to get an overview on active connection profiles.

Consult nmcli(1) and nmcli-examples(5) manual pages for complete usage details.
[root@localhost ~]#
```

```
  407 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfsalloc
  408 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs_mru_cache
  409 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-buf/dm-0
  410 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-data/dm-0
  411 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-conv/dm-0
  412 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-cil/dm-0
  413 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-reclaim/dm-
  414 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-log/dm-0
  415 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-eofblocks/d
  416 root      20   0       0       0       0 S   0.0  0.0   0:00.05 xfsaild/dm-0
  485 root      20   0   34988    2368    2052 S   0.0  0.2   0:00.04 systemd-journal
  507 root      20   0  195088    6200    2580 S   0.0  0.6   0:00.00 lvmetad
  514 root      20   0   46904    4904    2804 S   0.0  0.5   0:00.05 systemd-udevd
  533 root      20   0       0       0       0 S   0.0  0.0   0:00.00 hwrng
  568 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-buf/vda1
  569 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-data/vda1
  570 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-conv/vda1
  571 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-cil/vda1
  572 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-reclaim/vda
  573 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-log/vda1
  574 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 xfs-eofblocks/v
  575 root      20   0       0       0       0 S   0.0  0.0   0:00.00 xfsaild/vda1
  589 root      20   0       0       0       0 S   0.0  0.0   0:00.00 kworker/1:3
  609 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 kvm-irqfd-clean
  611 root      20   0       0       0       0 S   0.0  0.0   0:00.00 kworker/0:4
  630 root      16  -4   55452     884     484 S   0.0  0.1   0:00.00 auditd
  653 polkitd   20   0  534892   11804    4856 S   0.0  1.2   0:00.01 polkitd
  654 root      20   0   21608    1240     960 S   0.0  0.1   0:00.00 irqbalance
  656 root      20   0  210200    4260    2572 S   0.0  0.4   0:00.02 rsyslogd
  661 dbus      20   0   32776    1040    1400 S   0.0  0.2   0:00.02 dbus-daemon
  668 chrony    20   0  115640    1660    1240 S   0.0  0.2   0:00.00 chronyd
  676 root      20   0   24252    1712    1392 S   0.0  0.2   0:00.01 systemd-logind
  678 root      20   0  126232    1628    1800 S   0.0  0.2   0:00.11 crond
  683 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 kworker/1:1H
  685 root      20   0   94304    2448    1700 S   0.0  0.2   0:00.09 login
  688 root      20   0  334068   28600    6680 S   0.0  2.0   0:00.20 firewalld
  691 root      20   0  547800   11164    6680 S   0.0  1.1   0:00.05 NetworkManager
  972 root      20   0  105996    4068    3092 S   0.0  0.4   0:00.00 sshd
  973 root      20   0  562392   16556    5872 S   0.0  1.6   0:00.09 tuned
[root@localhost ~]# for i in $(seq 1 4)
> do
> sha1sum /dev/zero &
> done
[1] 1151
[2] 1152
[3] 1153
[4] 1154
[root@localhost ~]#
```

```
top - 11:20:01 up 3 min,  1 user,  load average: 1.77, 0.44, 0.15
Tasks: 113 total,   5 running, 100 sleeping,   0 stopped,   0 zombie
%Cpu(s): 92.2 us,  7.8 sy,  0.0 ni,  0.0 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
KiB Mem :  1016020 total,   792600 free,   100512 used,   122020 buff/cache
KiB Swap:  2097148 total,  2097148 free,        0 used,   766296 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU %MEM     TIME+ COMMAND
 1154 root      20   0  116604    1068     788 R  50.3  0.1   0:19.86 sha1sum
 1151 root      20   0  116604    1068     788 R  50.0  0.1   0:19.87 sha1sum
 1152 root      20   0  116604    1068     788 R  50.0  0.1   0:19.95 sha1sum
 1153 root      20   0  116604    1064     788 R  50.0  0.1   0:19.86 sha1sum
    1 root      20   0  128164    6812    4044 S   0.0  0.7   0:00.66 systemd
    2 root      20   0       0       0       0 S   0.0  0.0   0:00.00 kthreadd
    3 root      20   0       0       0       0 S   0.0  0.0   0:00.00 ksoftirqd/0
    4 root      20   0       0       0       0 S   0.0  0.0   0:00.00 kworker/0:0
    5 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 kworker/0:0H
    6 root      20   0       0       0       0 S   0.0  0.0   0:00.00 kworker/u4:0
    7 root      rt   0       0       0       0 S   0.0  0.0   0:00.00 migration/0
    8 root      20   0       0       0       0 S   0.0  0.0   0:00.00 rcu_bh
    9 root      20   0       0       0       0 S   0.0  0.0   0:00.02 rcu_sched
   10 root      rt   0       0       0       0 S   0.0  0.0   0:00.00 watchdog/0
   11 root      rt   0       0       0       0 S   0.0  0.0   0:00.00 watchdog/1
   12 root      rt   0       0       0       0 S   0.0  0.0   0:00.00 migration/1
   13 root      20   0       0       0       0 S   0.0  0.0   0:00.00 ksoftirqd/1
   14 root      20   0       0       0       0 S   0.0  0.0   0:00.00 kworker/1:0
   15 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 kworker/1:0H
   17 root      20   0       0       0       0 S   0.0  0.0   0:00.00 kdevtmpfs
   18 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 netns
   19 root      20   0       0       0       0 S   0.0  0.0   0:00.00 khungtaskd
   20 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 writeback
   21 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 kintegrityd
   22 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 bioset
   23 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 kblockd
   24 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 md
   25 root      20   0       0       0       0 S   0.0  0.0   0:00.02 kworker/0:1
   30 root      20   0       0       0       0 S   0.0  0.0   0:00.00 kswapd0
   31 root      25   5       0       0       0 S   0.0  0.0   0:00.00 ksmd
   32 root      39  19       0       0       0 S   0.0  0.0   0:00.00 khugepaged
   33 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 crypto
   41 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 kthrotld
   42 root      20   0       0       0       0 S   0.0  0.0   0:00.00 kworker/u4:1
   43 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 kmpath_rdacd
   44 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 kpsmoused
   45 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 ipv6_addrconf
   46 root      20   0       0       0       0 S   0.0  0.0   0:00.14 kworker/0:2
   65 root       0 -20       0       0       0 S   0.0  0.0   0:00.00 deferwq
   66 root      20   0       0       0       0 S   0.0  0.0   0:00.00 kworker/1:1
  101 root      20   0       0       0       0 S   0.0  0.0   0:00.00 kauditd
```

centos7.0 on QEMU/KVM

File   Virtual Machine   View   Send Key

```
 1151 root      20   0  116604   1068    788 R  49.8  0.1   0:22.87 sha1sum
 1152 root      20   0  116604   1068    788 R  49.8  0.1   0:22.95 sha1sum
    1 root      20   0  128164   6812   4044 S   0.0  0.7   0:00.66 systemd
    2 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kthreadd
    3 root      20   0       0      0      0 S   0.0  0.0   0:00.00 ksoftirqd/0
    4 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kworker/0:0
    5 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kworker/0:0H
    6 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kworker/u4:0
    7 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 migration/0
    8 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcu_bh
    9 root      20   0       0      0      0 S   0.0  0.0   0:00.02 rcu_sched
   10 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 watchdog/0
   11 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 watchdog/1
   12 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 migration/1
   13 root      20   0       0      0      0 S   0.0  0.0   0:00.00 ksoftirqd/1
   14 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kworker/1:0
   15 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kworker/1:0H
   17 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kdevtmpfs
   18 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 netns
   19 root      20   0       0      0      0 S   0.0  0.0   0:00.00 khungtaskd
   20 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 writeback
   21 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kintegrityd
   22 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 bioset
   23 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kblockd
   24 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 md
   25 root      20   0       0      0      0 S   0.0  0.0   0:00.02 kworker/0:1
   30 root      20   0       0      0      0 S   0.0  0.0   0:00.00 ksuapd0
   31 root      25   5       0      0      0 S   0.0  0.0   0:00.00 ksmd
   32 root      39  19       0      0      0 S   0.0  0.0   0:00.00 khugepaged
   33 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 crypto
   41 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kthrotld
   42 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kworker/u4:1
   43 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kmpath_rdacd
   44 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kpsmoused
   45 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 ipv6_addrconf
   46 root      20   0       0      0      0 S   0.0  0.0   0:00.14 kworker/0:2
   65 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 deferwq
   66 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kworker/1:1
  101 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kauditd
[root@localhost ~]# ps
  PID TTY          TIME CMD
 1123 tty1     00:00:00 bash
 1151 tty1     00:00:24 sha1sum
 1152 tty1     00:00:24 sha1sum
 1153 tty1     00:00:24 sha1sum
 1154 tty1     00:00:24 sha1sum
 1157 tty1     00:00:00 ps
[root@localhost ~]# _
```

6.

centos7.0 on QEMU/KVM

File   Virtual Machine   View   Send Key

```
[2]   Running                 sha1sum /dev/zero &
[3]   Running                 sha1sum /dev/zero &
[4]   Running                 sha1sum /dev/zero &
[5]   Running                 sleep 1000 &
[6]-  Running                 sleep 2000 &
[7]+  Running                 sleep 20290 &
[root@localhost ~]# fg %1
sha1sum /dev/zero

q
^C
[root@localhost ~]# jobs
[2]   Running                 sha1sum /dev/zero &
[3]   Running                 sha1sum /dev/zero &
[4]   Running                 sha1sum /dev/zero &
[5]   Running                 sleep 1000 &
[6]-  Running                 sleep 2000 &
[7]+  Running                 sleep 20290 &
[root@localhost ~]# fg %4
sha1sum /dev/zero
^C
[root@localhost ~]# jobs
[2]   Running                 sha1sum /dev/zero &
[3]   Running                 sha1sum /dev/zero &
[5]   Running                 sleep 1000 &
[6]-  Running                 sleep 2000 &
[7]+  Running                 sleep 20290 &
[root@localhost ~]# bg %1
-bash: bg: %1: no such job
[root@localhost ~]# kill -SIGTERM %3
[root@localhost ~]# jobs
[2]   Running                 sha1sum /dev/zero &
[3]   Terminated              sha1sum /dev/zero
[5]   Running                 sleep 1000 &
[6]-  Running                 sleep 2000 &
[7]+  Running                 sleep 20290 &
[root@localhost ~]# kill -SIGSTOP %4
-bash: kill: %4: no such job
[root@localhost ~]# kill -SIGSTOP %2

[2]+  Stopped                 sha1sum /dev/zero
[root@localhost ~]# kill -SIGCONT %2
[root@localhost ~]# jobs
[2]+  Running                 sha1sum /dev/zero &
[5]   Running                 sleep 1000 &
[6]   Running                 sleep 2000 &
[7]-  Running                 sleep 20290 &
[root@localhost ~]# _
```

```
[root@localhost ~]# fg %1
sha1sum /dev/zero

q
^C
[root@localhost ~]# jobs
[2]   Running                 sha1sum /dev/zero &
[3]   Running                 sha1sum /dev/zero &
[4]   Running                 sha1sum /dev/zero &
[5]   Running                 sleep 1000 &
[6]-  Running                 sleep 2000 &
[7]+  Running                 sleep 20290 &
[root@localhost ~]# fg %4
sha1sum /dev/zero
^C
[root@localhost ~]# jobs
[2]   Running                 sha1sum /dev/zero &
[3]   Running                 sha1sum /dev/zero &
[5]   Running                 sleep 1000 &
[6]-  Running                 sleep 2000 &
[7]+  Running                 sleep 20290 &
[root@localhost ~]# bg %1
-bash: bg: %1: no such job
[root@localhost ~]# kill -SIGTERM %3
[root@localhost ~]# jobs
[2]   Running                 sha1sum /dev/zero &
[3]   Terminated              sha1sum /dev/zero
[5]   Running                 sleep 1000 &
[6]-  Running                 sleep 2000 &
[7]+  Running                 sleep 20290 &
[root@localhost ~]# kill -SIGSTOP %4
-bash: kill: %4: no such job
[root@localhost ~]# kill -SIGSTOP %2

[2]+  Stopped                 sha1sum /dev/zero
[root@localhost ~]# kill -SIGCONT %2
[root@localhost ~]# jobs
[2]+  Running                 sha1sum /dev/zero &
[5]   Running                 sleep 1000 &
[6]   Running                 sleep 2000 &
[7]-  Running                 sleep 20290 &
[root@localhost ~]# kill -SIGKILL %6
[root@localhost ~]# jobs
[2]+  Running                 sha1sum /dev/zero &
[5]   Running                 sleep 1000 &
[6]   Killed                  sleep 2000
[7]-  Running                 sleep 20290 &
[root@localhost ~]#
```

7.


```
[root@localhost ~]# renice -10 -p 1153
1153 (process ID) old priority 0, new priority -10
[root@localhost ~]#
```



```
top - 11:22:40 up 6 min,  1 user,  load average: 3.95, 1.95, 0.77
Tasks: 103 total,   5 running,  98 sleeping,   0 stopped,   0 zombie
%Cpu(s): 92.7 us,  7.3 sy,  0.0 ni,  0.0 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
KiB Mem :  1016020 total,   792392 free,   108740 used,   122888 buff/cache
KiB Swap:  2097148 total,  2097148 free,        0 used.   766032 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU %MEM     TIME+ COMMAND
 1153 root      10 -10  116604   1060    788 R  98.7  0.1   2:35.20 sha1sum
 1154 root      20   0  116604   1060    788 R  35.3  0.1   1:21.23 sha1sum
 1151 root      20   0  116604   1060    788 R  34.3  0.1   1:20.67 sha1sum
 1152 root      20   0  116604   1060    788 R  31.3  0.1   1:20.03 sha1sum
    1 root      20   0  128164   6812   4844 S   0.0  0.7   0:00.66 systemd
    2 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kthreadd
    3 root      20   0       0      0      0 S   0.0  0.0   0:00.00 ksoftirqd/0
    5 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kworker/0:0H
    7 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 migration/0
    8 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcu_bh
    9 root      20   0       0      0      0 S   0.0  0.0   0:00.02 rcu_sched
   10 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 watchdog/0
   11 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 watchdog/1
   12 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 migration/1
   13 root      20   0       0      0      0 S   0.0  0.0   0:00.00 ksoftirqd/1
   15 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kworker/1:0H
   17 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kdevtmpfs
   18 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 netns
   19 root      20   0       0      0      0 S   0.0  0.0   0:00.00 khungtaskd
   20 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 writeback
   21 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kintegrityd
   22 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 bioset
   23 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kblockd
   24 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 md
   25 root      20   0       0      0      0 S   0.0  0.0   0:00.02 kworker/0:1
   30 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kswapd0
   31 root      25   5       0      0      0 S   0.0  0.0   0:00.00 ksmd
   32 root      39  19       0      0      0 S   0.0  0.0   0:00.00 khugepaged
   33 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 crypto
   41 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kthrotld
   43 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kmpath_rdacd
   44 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kpsmoused
   45 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 ipv6_addrconf
   46 root      20   0       0      0      0 S   0.0  0.0   0:00.15 kworker/0:2
   65 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 deferwq
  101 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kauditd
  282 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 ata_sff
  287 root      20   0       0      0      0 S   0.0  0.0   0:00.00 scsi_eh_0
  297 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 scsi_tmf_0
  298 root      20   0       0      0      0 S   0.0  0.0   0:00.00 scsi_eh_1
  299 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 scsi_tmf_1
```

```
[root@localhost ~]# renice 0 -p 1153
1153 (process ID) old priority -10, new priority 0
[root@localhost ~]# _
```


8.

9.

10.

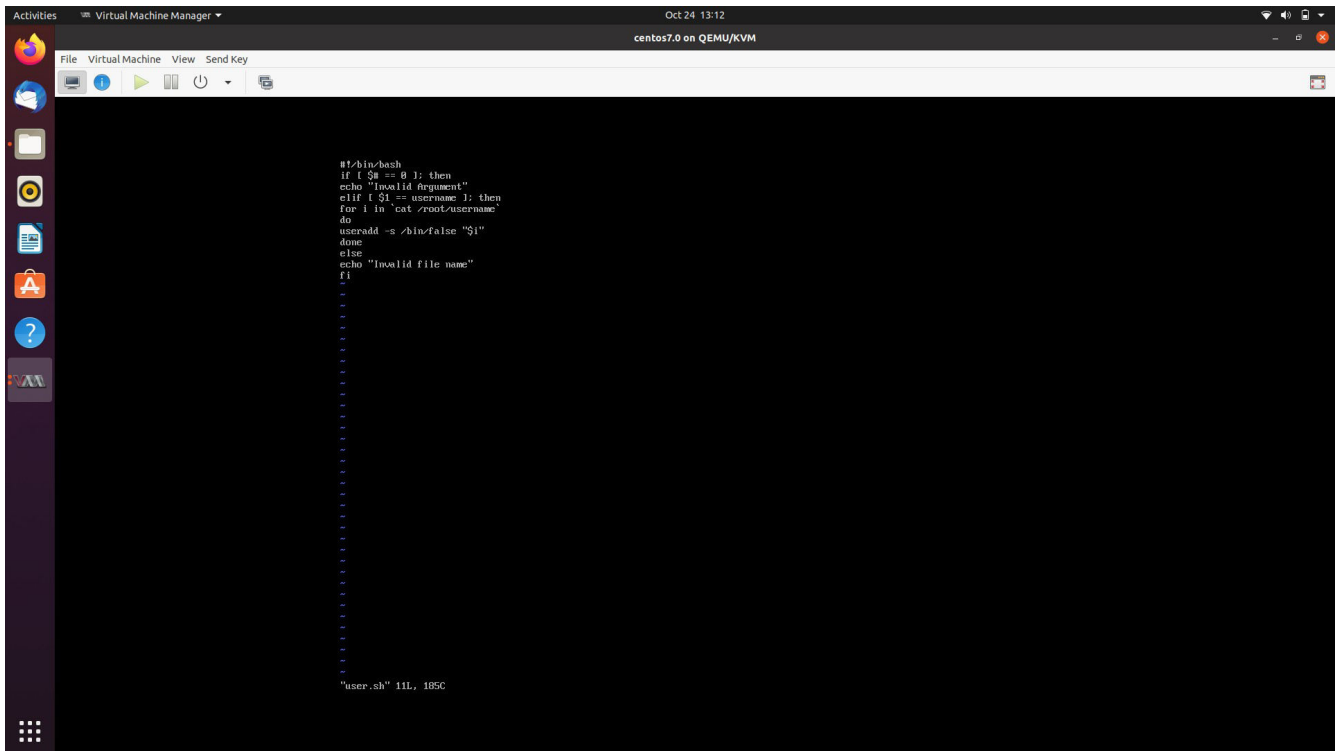centos7.0 on QEMU/KVM
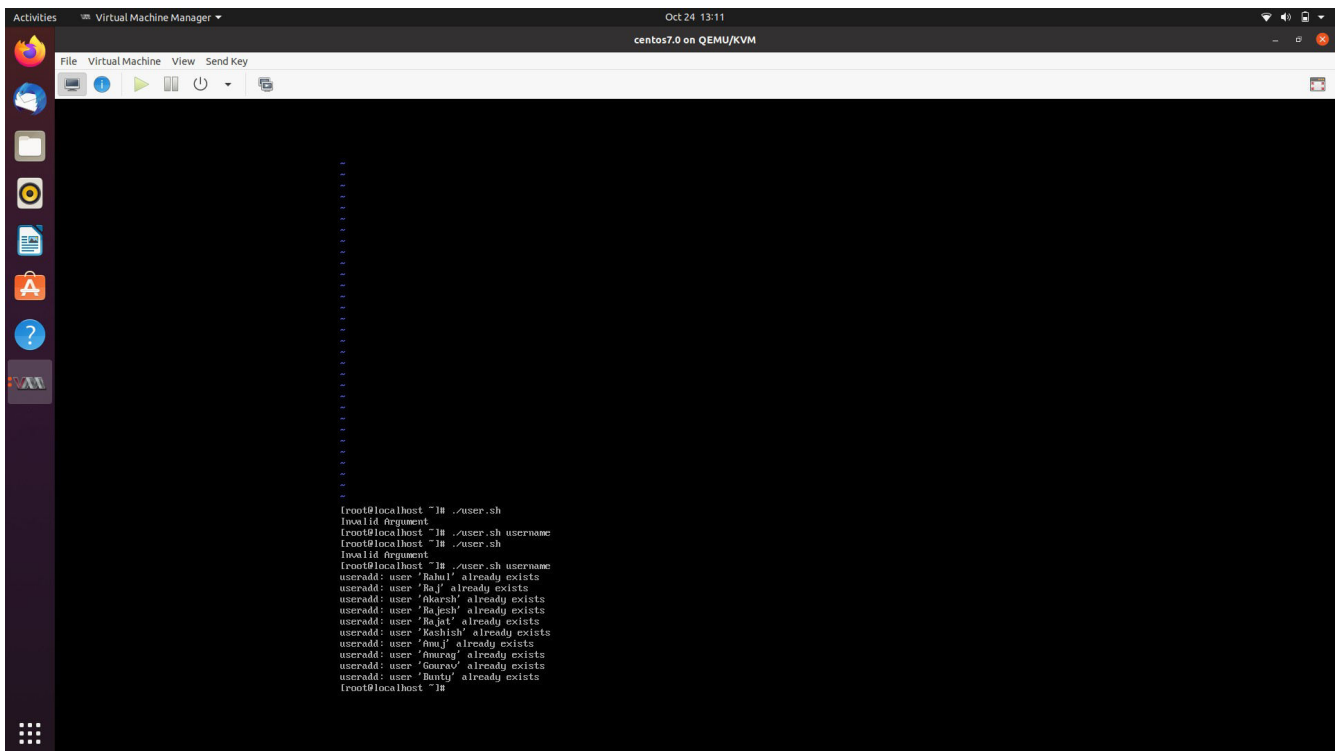
File   Virtual Machine   View   Send Key

```
#!/bin/bash
if [ $# == 0 ]; then
echo "Invalid Argument"
elif [ $1 == username ]; then
for i in `cat /root/username`
do
useradd -s /bin/false "$i"
done
else
echo "Invalid file name"
fi
```

"user.sh" 11L, 185C

centos7.0 on QEMU/KVM

File   Virtual Machine   View   Send Key

```
[root@localhost ~]# ./user.sh
Invalid Argument
[root@localhost ~]# ./user.sh username
[root@localhost ~]# ./user.sh
Invalid Argument
[root@localhost ~]# ./user.sh username
useradd: user 'Rahul' already exists
useradd: user 'Raj' already exists
useradd: user 'Akarsh' already exists
useradd: user 'Rajesh' already exists
useradd: user 'Rajat' already exists
useradd: user 'Kashish' already exists
useradd: user 'Anuj' already exists
useradd: user 'Anurag' already exists
useradd: user 'Gourav' already exists
useradd: user 'Bunty' already exists
[root@localhost ~]#
```

11.

centos7.0 on QEMU/KVM

File   Virtual Machine   View   Send Key

```
#!/bin/bash
echo "Enter filename where you want to create backup:-"
read file
if [ -f $file ]; then
cat /etc/passwd > "$file"
else
tail -n5 /etc/passwd >> "$file"
fi
~
~
~
~
~
~
~
~
~
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~
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~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
"backup.sh" 8L, 166C
```

centos7.0 on QEMU/KVM

File   Virtual Machine   View   Send Key

```
~
~
~
~
~
~
"backup.sh" [New] 8L, 166C written
[root@localhost ~]# ./backup.sh
-bash: ./backup.sh: Permission denied
[root@localhost ~]# chmod u+x backup.sh
[root@localhost ~]# ./backup.sh
Enter filename where you want to create backup:-
username
[root@localhost ~]# cat -n username
     1  root:x:0:0:root:/root:/bin/bash
     2  bin:x:1:1:bin:/bin:/sbin/nologin
     3  daemon:x:2:2:daemon:/sbin:/sbin/nologin
     4  adm:x:3:4:adm:/var/adm:/sbin/nologin
     5  lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
     6  sync:x:5:0:sync:/sbin:/bin/sync
     7  shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
     8  halt:x:7:0:halt:/sbin:/sbin/halt
     9  mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
    10  operator:x:11:0:operator:/root:/sbin/nologin
    11  games:x:12:100:games:/usr/games:/sbin/nologin
    12  ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
    13  nobody:x:99:99:Nobody:/:/sbin/nologin
    14  systemd-network:x:192:192:systemd Network Management:/:/sbin/nologin
    15  dbus:x:81:81:System message bus:/:/sbin/nologin
    16  polkitd:x:999:997:User for polkitd:/:/sbin/nologin
    17  postfix:x:89:89::/var/spool/postfix:/sbin/nologin
    18  chrony:x:998:996::/var/lib/chrony:/sbin/nologin
    19  sshd:x:74:74:Privilege-separated SSH:/var/empty/sshd:/sbin/nologin
    20  admin:x:1000:1000:admin:/home/admin:/bin/bash
    21  s1:x:1001:1001::/home/s1:/bin/bash
    22  s2:x:1002:1002::/home/s2:/bin/bash
    23  Rahul:x:1003:1004::/home/Rahul:/bin/false
    24  Raj:x:1004:1005::/home/Raj:/bin/false
    25  Akarsh:x:1005:1006::/home/Akarsh:/bin/false
    26  Rajesh:x:1006:1007::/home/Rajesh:/bin/false
    27  Rajat:x:1007:1008::/home/Rajat:/bin/false
    28  Kashish:x:1008:1009::/home/Kashish:/bin/false
    29  Anuj:x:1009:1010::/home/Anuj:/bin/false
    30  Anurag:x:1010:1011::/home/Anurag:/bin/false
    31  Gourav:x:1011:1012::/home/Gourav:/bin/false
    32  Bunty:x:1012:1013::/home/Bunty:/bin/false
[root@localhost ~]#
```

12.

13.

14.

```
"check.sh" [New] 9L, 184C written
[root@localhost ~]# chmod u+x check.sh
[root@localhost ~]# ls
a   anaconda-ks.cfg  backup.sh  check.sh  createuser  files  files13  number.sh  odd.sh  shell  temp  username  user.sh
[root@localhost ~]# bash check.sh
Enter filename:-
odd.sh
This file odd.sh is exist
[root@localhost ~]# bash check.sh
Enter filename:-
file1
This file file1 does not exist in current directory
[root@localhost ~]# _
```

15.


```
then
echo "number ii equal to 10"
else
echo "You didn't enter the number"
fi
```

```
"great.sh" 16L, 281C written
[root@localhost ~]# ./great.sh
Enter the number:-6
number is less than 10
[root@localhost ~]# ./great.sh
Enter the number:-23
number is greater than 10
[root@localhost ~]# ./great.sh
Enter the number:-10
number ii equal to 10
[root@localhost ~]#
```