

Au-Tel Linux Admin

Linux Administration Guide

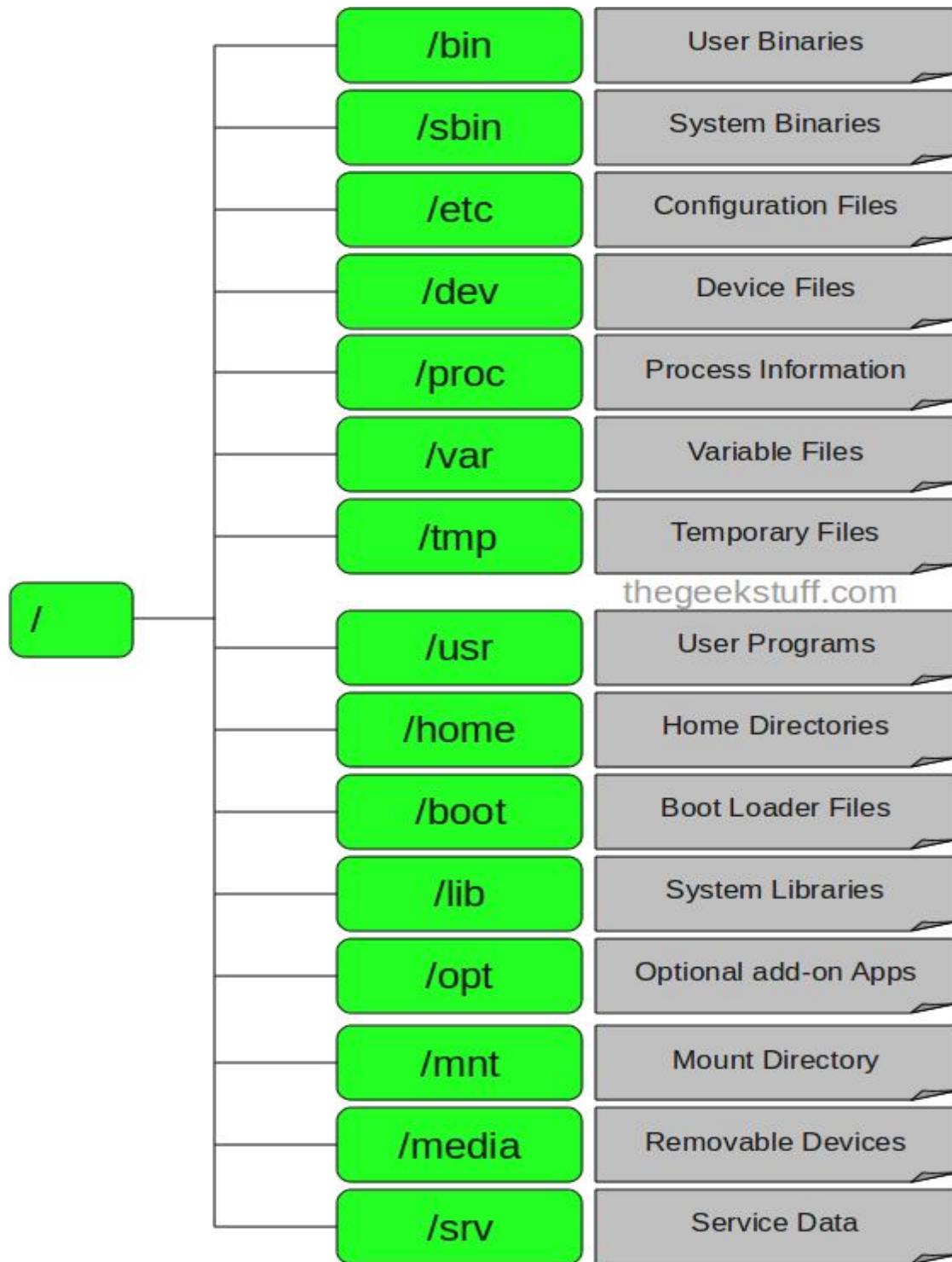
Sharing my Linux Experience

Written by

Karthi Manickaraj

Linux Interview Guide

File System Hierarchy in Linux



./ – Root

- Every single file and directory starts from the root directory.
- Only root user has write privilege under this directory.
- Please note that /root is root user's home directory, which is not same as ./.

2. /bin – User Binaries

- Contains binary executables.
- Common linux commands you need to use in single-user modes are located under this directory.
- Commands used by all the users of the system are located here.
- For example: ps, ls, ping, grep, cp.

3. /sbin – System Binaries

- Just like /bin, /sbin also contains binary executables.
- But, the linux commands located under this directory are used typically by system administrator, for system maintenance purpose.
- For example: iptables, reboot, fdisk, ifconfig, swapon

4. /etc – Configuration Files

- Contains configuration files required by all programs.
- This also contains startup and shutdown shell scripts used to start/stop individual programs.
- For example: /etc/resolv.conf, /etc/logrotate.conf

5. /dev – Device Files

- Contains device files.
- These include terminal devices, usb, or any device attached to the system.
- For example: /dev/tty1, /dev/usbmon0

6. /proc – Process Information

- Contains information about system process.
- This is a pseudo filesystem contains information about running process. For example: /proc/{pid} directory contains information about the process with that particular pid.
- This is a virtual filesystem with text information about system resources. For example: /proc/uptime

7. /var – Variable Files

- var stands for variable files.
- Content of the files that are expected to grow can be found under this directory.
- This includes — system log files (/var/log); packages and database files (/var/lib); emails (/var/mail); print queues (/var/spool); lock files (/var/lock); temp files needed across reboots

8. /tmp – Temporary Files

- Directory that contains temporary files created by system and users.
- Files under this directory are deleted when system is rebooted.

9. /usr – User Programs

- Contains binaries, libraries, documentation, and source-code for second level programs.
- /usr/bin contains binary files for user programs. If you can't find a user binary under /bin, look under /usr/bin. For example: at, awk, cc, less, scp
- /usr/sbin contains binary files for system administrators. If you can't find a system binary under /sbin, look under /usr/sbin. For example: atd, cron, sshd, useradd, userdel
- /usr/lib contains libraries for /usr/bin and /usr/sbin
- /usr/local contains users programs that you install from source. For example, when you install apache from source, it goes under /usr/local/apache2

10. /home – Home Directories

- Home directories for all users to store their personal files.
- For example: /home/john, /home/nikita

11. /boot – Boot Loader Files

- Contains boot loader related files.
- Kernel initrd, vmlinu, grub files are located under /boot
- For example: initrd.img-2.6.32-24-generic, vmlinuz-2.6.32-24-generic

12. /lib – System Libraries

- Contains library files that supports the binaries located under /bin and /sbin
- Library filenames are either ld* or lib*.so.*
- For example: ld-2.11.1.so, libncurses.so.5.7

13. /opt – Optional add-on Applications

- opt stands for optional.
- Contains add-on applications from individual vendors.

14. /mnt – Mount Directory

- Temporary mount directory where sysadmins can mount filesystems.

15. /media – Removable Media Devices

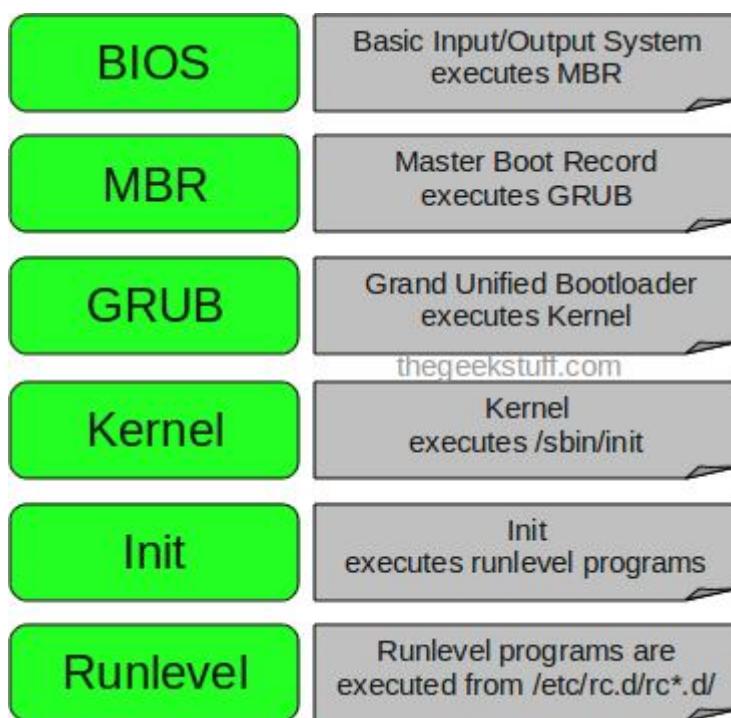
- Temporary mount directory for removable devices.
- For examples, /media/cdrom for CD-ROM; /media/floppy for floppy drives; /media/cdrecorder for CD writer

16. /srv – Service Data

- srv stands for service.
- Contains server specific services related data.
- For example, /srv/cvs contains CVS related data.

Linux Boot Process

6 Stages of Linux Boot Process (Startup Sequence)



1. BIOS

- BIOS stands for Basic Input/Output System
- Performs some system integrity checks
- Searches, loads, and executes the boot loader program.

- It looks for boot loader in floppy, cd-rom, or hard drive. You can press a key (typically F12 or F2, but it depends on your system) during the BIOS startup to change the boot sequence.
- Once the boot loader program is detected and loaded into the memory, BIOS gives the control to it.
- So, in simple terms BIOS loads and executes the MBR boot loader.

2. MBR

- MBR stands for Master Boot Record.
- It is located in the 1st sector of the bootable disk. Typically /dev/hda, or /dev/sda
- MBR is less than 512 bytes in size. This has three components 1) primary boot loader info in 1st 446 bytes 2) partition table info in next 64 bytes 3) mbr validation check in last 2 bytes.
- It contains information about GRUB (or LILO in old systems).
- So, in simple terms MBR loads and executes the GRUB boot loader.

3. GRUB

- GRUB stands for Grand Unified Bootloader.
- If you have multiple kernel images installed on your system, you can choose which one to be executed.
- GRUB displays a splash screen, waits for few seconds, if you don't enter anything, it loads the default kernel image as specified in the grub configuration file.
- GRUB has the knowledge of the filesystem (the older Linux loader LILO didn't understand filesystem).
- Grub configuration file is /boot/grub/grub.conf (/etc/grub.conf is a link to this). The following is sample grub.conf of CentOS.
- As you notice from the above info, it contains kernel and initrd image.
- So, in simple terms GRUB just loads and executes Kernel and initrd images.

4. Kernel

- Mounts the root file system as specified in the “root=” in grub.conf
- Kernel executes the /sbin/init program
- Since init was the 1st program to be executed by Linux Kernel, it has the process id (PID) of 1. Do a ‘ps -ef | grep init’ and check the pid.
- initrd stands for Initial RAM Disk.
- initrd is used by kernel as temporary root file system until kernel is booted and the real root file system is mounted. It also contains necessary drivers compiled inside, which helps it to access the hard drive partitions, and other hardware.

5. Init

- Looks at the /etc/inittab file to decide the Linux run level.
- Following are the available run levels
 - 0 – halt
 - 1 – Single user mode
 - 2 – Multiuser, without NFS
 - 3 – Full multiuser mode
 - 4 – unused
 - 5 – X11
 - 6 – reboot
- Init identifies the default initlevel from /etc/inittab and uses that to load all appropriate programs.
- Execute ‘grep initdefault /etc/inittab’ on your system to identify the default run level
- If you want to get into trouble, you can set the default run level to 0 or 6. Since you know what 0 and 6 means, probably you might not do that.
- Typically you would set the default run level to either 3 or 5.

6. Runlevel programs

- When the Linux system is booting up, you might see various services getting started. For example, it might say “starting sendmail OK”. Those are the runlevel programs, executed from the run level directory as defined by your run level.
- Depending on your default init level setting, the system will execute the programs from one of the following directories.
 - Run level 0 – /etc/rc.d/rc0.d/
 - Run level 1 – /etc/rc.d/rc1.d/
 - Run level 2 – /etc/rc.d/rc2.d/
 - Run level 3 – /etc/rc.d/rc3.d/
 - Run level 4 – /etc/rc.d/rc4.d/
 - Run level 5 – /etc/rc.d/rc5.d/
 - Run level 6 – /etc/rc.d/rc6.d/
- Please note that there are also symbolic links available for these directory under /etc directly. So, /etc/rc0.d is linked to /etc/rc.d/rc0.d.
- Under the /etc/rc.d/rc*.d/ directories, you would see programs that start with S and K.
- Programs starts with S are used during startup. S for startup.
- Programs starts with K are used during shutdown. K for kill.
- There are numbers right next to S and K in the program names. Those are the sequence number in which the programs should be started or killed.
- For example, S12syslog is to start the syslog deamon, which has the sequence number of 12. S80sendmail is to start the sendmail daemon, which has the sequence number of 80. So, syslog program will be started before sendmail.

Linux Log File

1. **/var/log/messages** – Contains global system messages, including the messages that are logged during system startup. There are several things that are logged in /var/log/messages including mail, cron, daemon, kern, auth, etc.
2. **/var/log/dmesg** – Contains kernel ring buffer information. When the system boots up, it prints number of messages on the screen that displays information about the hardware devices that the kernel detects during boot process. These messages are available in kernel ring buffer and whenever the new message comes the old message gets overwritten. You can also view the content of this file using the [dmesg command](#).
3. **/var/log/auth.log** – Contains system authorization information, including user logins and authentication machinsm that were used.
4. **/var/log/boot.log** – Contains information that are logged when the system boots
5. **/var/log/daemon.log** – Contains information logged by the various background daemons that runs on the system
6. **/var/log/dpkg.log** – Contains information that are logged when a package is installed or removed using [dpkg command](#)
7. **/var/log/kern.log** – Contains information logged by the kernel. Helpful for you to troubleshoot a custom-built kernel.
8. **/var/log/lastlog** – Displays the recent login information for all the users. This is not an ascii file. You should use lastlog command to view the content of this file.
9. **/var/log/maillog /var/log/mail.log** – Contains the log information from the mail server that is running on the system. For example, sendmail logs information about all the sent items to this file
10. **/var/log/user.log** – Contains information about all user level logs
11. **/var/log/Xorg.x.log** – Log messages from the X
12. **/var/log/alternatives.log** – Information by the update-alternatives are logged into this log file. On Ubuntu, update-alternatives maintains symbolic links determining default commands.
13. **/var/log/btmp** – This file contains information about failed login attempts. Use the last command to view the btmp file. For example, “last -f /var/log/btmp | more”

14. **/var/log/cups** – All printer and printing related log messages
 15. **/var/log/anaconda.log** – When you install Linux, all installation related messages are stored in this log file
 16. **/var/log/yum.log** – Contains information that are logged when a package is installed using yum
 17. **/var/log/cron** – Whenever [cron daemon](#) (or [anacron](#)) starts a cron job, it logs the information about the cron job in this file
 18. **/var/log/secure** – Contains information related to authentication and authorization privileges. For example, sshd logs all the messages here, including unsuccessful login.
 19. **/var/log/wtmp** or **/var/log/utmp** – Contains login records. Using wtmp you can find out who is logged into the system. who command uses this file to display the information.
 20. **/var/log/faillog** – Contains user failed login attempts. Use faillog command to display the content of this file.
- **/var/log/httpd/** (or) **/var/log/apache2** – Contains the apache web server access_log and error_log
 - **/var/log/lighttpd/** – Contains light HTTPD access_log and error_log
 - **/var/log/conman/** – Log files for ConMan client. conman connects remote consoles that are managed by command daemon.
 - **/var/log/mail/** – This subdirectory contains additional logs from your mail server. For example, sendmail stores the collected mail statistics in /var/log/mail/statistics file
 - **/var/log/prelink/** – prelink program modifies shared libraries and linked binaries to speed up the startup process. /var/log/prelink/prelink.log contains the information about the .so file that was modified by the prelink.
 - **/var/log/audit/** – Contains logs information stored by the Linux audit daemon (auditd).
 - **/var/log/setroubleshoot/** – SELinux uses setroubleshoot (SE Trouble Shoot Daemon) to notify about issues in the security context of files, and logs those information in this log file.
 - **/var/log/samba/** – Contains log information stored by samba, which is used to connect Windows to Linux.
 - **/var/log/sa/** – Contains the daily sar files that are collected by the [sysstat package](#).
 - **/var/log/sssd/** – Use by system security services daemon that manage access to remote directories and authentication mechanisms.

- **auth.log** – Authentication info
- **boot.log** – Boot info
- **crond** – Scheduled cron tasks
- **daemon.log** – Daemon specific alerts like, dhcpcd, gnome-session, ntfs-3g
- **dmesg** – Kernel specific messages
- **errors.log** – As you may have guess this logs errors
- **everything.log** – A misc. catch all log
- **httpd** – Apache access and error logs
- **mail.log** – Mail server logs
- **messages.log** – General system alerts
- **mysqld.log** – MySQL database log
- **secure** – Security log
- **syslog.log** – A log for the log system
- **vsftpd.log** – A log for the FTP server, vsftpd
- **Xorg.0.log** – X log

Port Number in Linux

- 20 – FTP Data (**For transferring FTP data**)
- 21 – FTP Control (**For starting FTP connection**)
- 22 – SSH(**For secure remote administration which uses SSL to encrypt the transmission**)
- 23 – Telnet (**For insecure remote administration**)
- 25 – SMTP(**Mail Transfer Agent for e-mail server such as SEND mail**)
- 53 – DNS(**Special service which uses both TCP and UDP**)
- 67 – Bootp
- 68 – DHCP
- 69 – TFTP(**Trivial file transfer protocol uses udp protocol for connection less transmission of data**)
- 80 – HTTP/WWW(**apache**)
- 88 – Kerberos
- 110 – POP3(**Mail delivery Agent**)
- 123 – NTP(**Network time protocol used for time syncing uses UDP protocol**)
- 137 – NetBIOS(**nmbd**)
- 139 – SMB-Samba(**smbd**)
- 143 – IMAP
- 161 – SNMP(**For network monitoring**)
- 389 – LDAP(**For centralized administration**)
- 443 – HTTPS(**HTTP+SSL for secure web access**)
- 514 – Syslogd(**udp port**)
- 636 – ldaps(both tcp and udp)
- 873 – rsync
- 989 – **FTPS-data**
- 990 – **FTPS**
- 993 – IMAPS
- 1194 – openVPN
- 1812 – RADIUS
- 995 – **POP3s**
- 2049 – NFS(nfsd, rpc.nfsd, rpc, portmap)
- 2401 – **CVS server**
- 3306 – **MySql**
- 3690 – SVN
- 6000-6063-X11

1. /proc Directories with names as numbers

Do a `ls -l /proc`, and you'll see lot of directories with just numbers. These numbers represents the process ids, the files inside this numbered directory corresponds to the process with that particular PID.

Following are the important files located under each numbered directory (for each process):

- `cmdline` – command line of the command.
- `environ` – environment variables.
- `fd` – Contains the file descriptors which is linked to the appropriate files.
- `limits` – Contains the information about the specific limits to the process.
- `mounts` – mount related information

Following are the important links under each numbered directory (for each process):

- `cwd` – Link to current working directory of the process.
- `exe` – Link to executable of the process.
- `root` – Link to the root directory of the process.

2. /proc Files about the system information

Following are some files which are available under `/proc`, that contains system information such as `cpuinfo`, `meminfo`, `loadavg`.

- </proc/cpuinfo> – information about CPU,
- </proc/meminfo> – information about memory,
- </proc/loadavg> – load average,
- </proc/partitions> – partition related information,
- </proc/version> – linux version

Some Linux commands read the information from this /proc files and displays it. For example, `free` command, reads the memory information from `/proc/meminfo` file, formats it, and displays it.

To learn more about the individual /proc files, do “man 5 FILENAME”.

- /proc/cmdline – Kernel command line
- /proc/cpuinfo – Information about the processors.
- /proc/devices – List of device drivers configured into the currently running kernel.
- /proc/dma – Shows which DMA channels are being used at the moment.
- /proc/fb – Frame Buffer devices.
- /proc/filesystems – File systems supported by the kernel.
- /proc/interrupts – Number of interrupts per IRQ on architecture.
- /proc/iomem – This file shows the current map of the system’s memory for its various devices
- /proc/ioports – provides a list of currently registered port regions used for input or output communication with a device
- /proc/loadavg – Contains load average of the system

The first three columns measure CPU utilization of the last 1, 5, and 10 minute periods.

The fourth column shows the number of currently running processes and the total number of processes.

The last column displays the last process ID used.

- /proc/locks – Displays the files currently locked by the kernel

Sample line:

1: POSIX ADVISORY WRITE 14375 08:03:114727 0 EOF

- /proc/meminfo – Current utilization of primary memory on the system
- /proc/misc – This file lists miscellaneous drivers registered on the miscellaneous major device, which is number 10
- /proc/modules – Displays a list of all modules that have been loaded by the system
- /proc/mounts – This file provides a quick list of all mounts in use by the system
- /proc/partitions – Very detailed information on the various partitions currently available to the system
- /proc/pci – Full listing of every PCI device on your system
- /proc/stat – Keeps track of a variety of different statistics about the system since it was last restarted

- /proc/swap – Measures swap space and its utilization
- /proc/uptime – Contains information about uptime of the system
- /proc/version – Version of the Linux kernel, gcc, name of the Linux flavor installed.

Difference between EXT3 and EXT4

Specifications	EXT3	EXT4
File System	Ext3	Ext4
Introduced	2001	2008
Kernel version	2.4.15	2.6.19
Maximum RAM	1TB	16 TB
Maximum individual file size	16 GB to 2 TB	16 GB to 16 TB
Overall ext3 file system size	2 TB to 32 TB	1 EB (1 EB = 1024 PB (petabyte). 1 PB = 1024 TB (terabyte).
IP Address support	IPV4	IPV4,IPV6
No of Subdirectories	32k	64k
Journaling	supported	Supported ... also have turn on off
Format file system	Fast	Faster than ext3

Linux Server Complete Details

Server	Port No	Versio n	Config File	Package	Log File	Syntax Check	Service
Yum	-	3.2.29	/etc/yum.repos.d/ Serer.repo	Yum	Yum.log	Yum clean all	-
FTP	21	2.2.2	/etc/vsftpd/vsftpd.c onf	vsftpd	xferlog	Vsftpd	Vsftpd
HTTP	80	2.2.15	/etc/httpd/conf/ Httpd.conf	Httpd	Access.log Error.log	httpd -t	Httpd
NFS	2049	1.2.3	/etc/exports	Nfs-utils	Message ,Dracut.log		Rpcbind Nfs portmap
samba	139	3.5.10	/etc/samba/ smb.conf	samaba	Samba.log	Test Parm	Smb
telnet	23	0.17	/etc/xinetd.d/telent	telnet- server	Message		Xinetd telnet
SSH	21	5.3	/etc/ssh/ sshd_config	openssh	Message,au th,audit	Sshd -t	
DNS	53	9.8.2	/etc/named.conf	bind	message	named- checkcon f /etc/name d.conf	Named

DHCP	67,68	4.1.1	/etc/dhcp Dhcpd.conf	dhcpd	message	Dhcpd -t	Dhcpd
iscsi	3260		/etc/tgt/target.conf	Scsi-target	message		Tgtd
squid	3128	2.7	/etc/squid/squid.con f	squid	Access.log	Squid -k check	Squid
NTP	123		/etc/ntp.conf	ntp	message	Ntp -n	ntp
SMTP	25		/etc/postfix/main.cf	postfix	Mail.log		Postfix
VNC	5900		/etc/sysconfig/ Vncserver	Vnc			vncserve r
rsyslog	514		/etc/rsyslog.conf	rsyslog	message		Rsyslog
NIS							
LDAP	389						
PXE							
mysql	3306						

Linux Basic Commands Part I

```
root@server:~ [root@server ~]# uname -r  
2.6.32-71.el6.x86_64 [root@server ~]#
```

```
root@server:~ [root@server ~]# uname -s  
Linux [root@server ~]#
```

```
root@server:~ [root@server ~]# uname -p  
x86_64 [root@server ~]# uname -m  
x86_64 [root@server ~]#
```

```
root@server:~ [root@server ~]# uname -n  
server.au-tel.com [root@server ~]#
```

```
root@server:~ [root@server ~]# hostname  
server.au-tel.com [root@server ~]#
```

```
root@server:~ [root@server ~]# logname  
root [root@server ~]#
```

```
root@server:~  
[root@server ~]# whoami  
root  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# who  
root      tty1          2013-05-17 09:29  
root      pts/0          2013-05-17 10:18  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# umask  
0022  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# tty  
/dev/pts/0  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# date  
Fri May 17 10:25:34 PDT 2013  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# uptime  
10:25:49 up 57 min,  2 users,  load ave  
[root@server ~]#
```

```
[root@server:~]
```

```
[root@server ~]# volname  
volname: No medium found  
[root@server ~]#
```

```
[root@server:~]
```

```
[root@server ~]# pwd  
/root  
[root@server ~]#
```

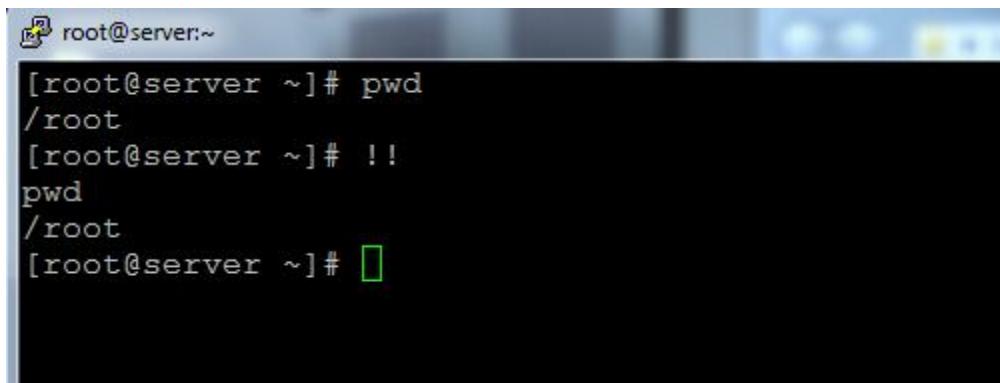
```
[root@server:~]
```

```
[root@server ~]# users  
root root  
[root@server ~]#
```

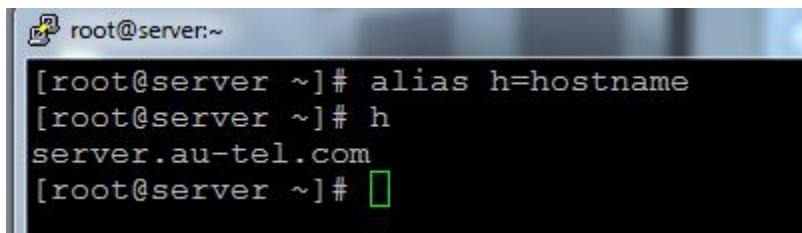
```
[root@server:~]
```

```
[root@server ~]# runlevel  
N 3  
[root@server ~]#
```

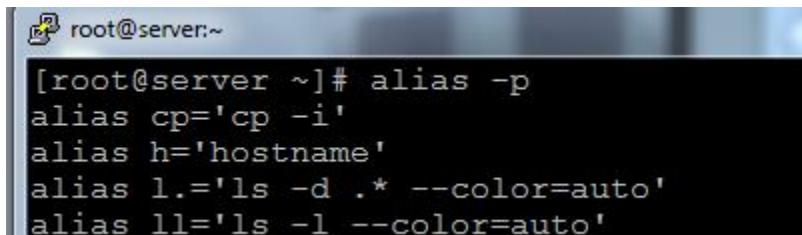
Linux Basic Commands Part II



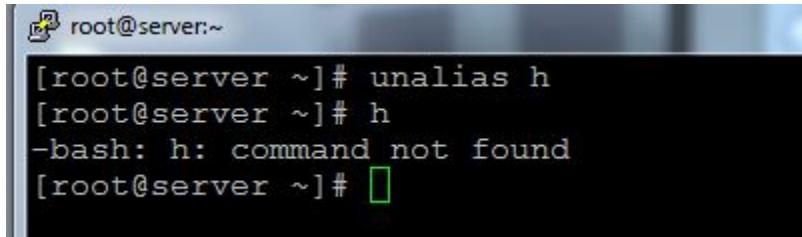
```
[root@server:~]# pwd
/root
[root@server ~]# !!
pwd
/root
[root@server ~]# 
```



```
[root@server:~]# alias h=hostname
[root@server ~]# h
server.au-tel.com
[root@server ~]# 
```



```
[root@server:~]# alias -p
alias cp='cp -i'
alias h='hostname'
alias l.='ls -d .* --color=auto'
alias ll='ls -l --color=auto'
```



```
[root@server:~]# unalias h
[root@server ~]# h
-bash: h: command not found
[root@server ~]# 
```

```
[root@server:~]# tee A B
AB
AB
^C
[root@server ~]# cat A
AB
[root@server ~]# cat B
AB
[root@server ~]# 
```

```
[root@server:~]
[root@server ~]# stat autel
  File: `autel'
  Size: 4096          Blocks: 8          IO Block: 4096   directory
Device: 802h/2050d      Inode: 402961      Links: 2
Access: (0444/dr--r--r--)  Uid: ( 500/  autel)  Gid: ( 505/    ADMIN)
Access: 2013-05-16 11:46:51.905925382 -0700
Modify: 2013-05-16 11:46:37.476603601 -0700
Change: 2013-05-16 11:55:09.304111546 -0700
[root@server ~]# 
```

```
[root@server:~]
[root@server ~]# groups
root bin daemon sys adm disk wheel
[root@server ~]# 
```

Linux Basic Commands Part III

```
root@server:~ [root@server ~]# dir  
1.txt anaconda-ks.cfg Documents  
2.txt autel Downloads  
3 autel.txt file
```

```
root@server:~ [root@server ~]# eject  
[root@server ~]# 
```

```
root@server:~ [root@server ~]# eject -t
```

```
root@server:~ [root@server ~]# dirs  
~  
[root@server ~]# pwd  
/root  
[root@server ~]# 
```

```
[root@server:~]# arch  
x86_64  
[root@server ~]# 
```

```
[root@server ~]# history | tail  
1029  eject -t  
1030  clear  
1031  eject -t  
1032  clear  
1033  dirs  
1034  pwd  
1035  clear  
1036  arch  
1037  clear  
1038  history | tail  
[root@server ~]# 
```

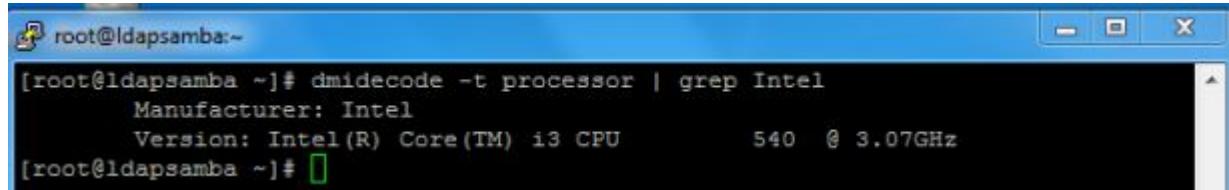
```
[root@server:~]# !ar  
arch  
x86_64  
[root@server ~]# 
```

```
[root@server:~]# !1034  
pwd  
/root  
[root@server ~]# 
```

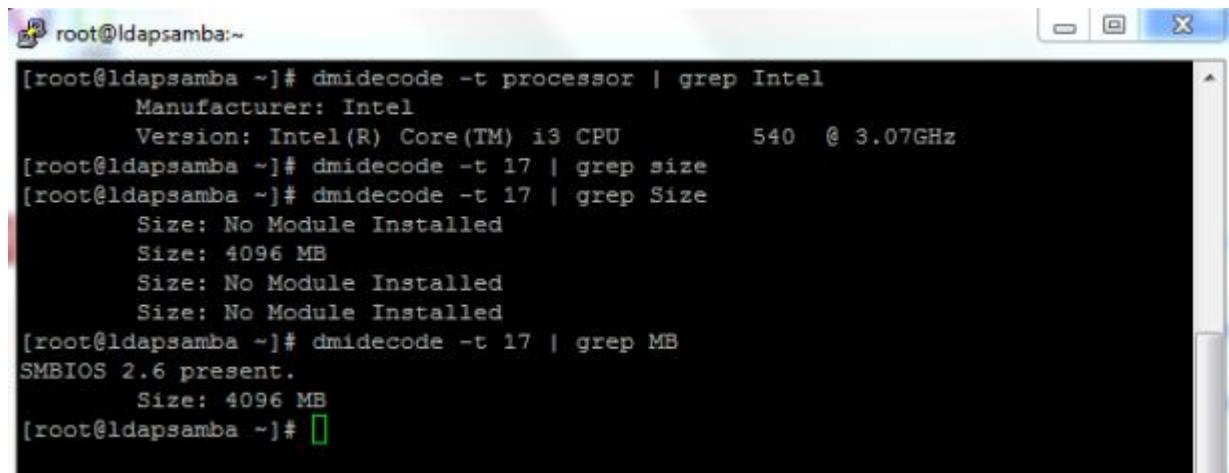
Gather Hardware Information in Linux Commands



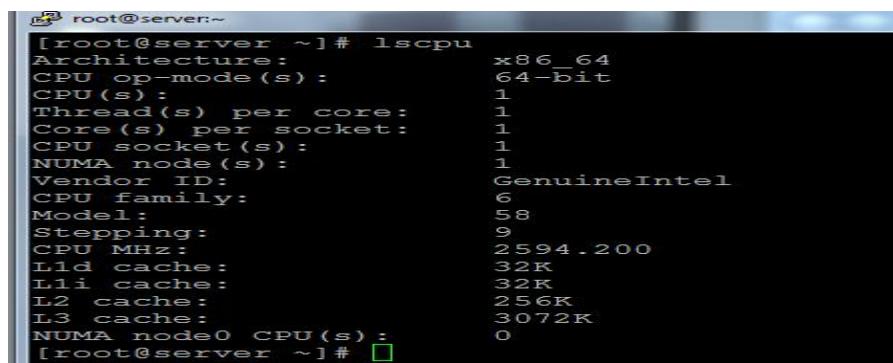
```
[root@ldapsamba:~]# fdisk -l |grep GB
Disk /dev/sda: 250.1 GB, 250058268160 bytes
[root@ldapsamba ~]#
```



```
[root@ldapsamba ~]# dmidecode -t processor | grep Intel
    Manufacturer: Intel
    Version: Intel(R) Core(TM) i3 CPU          540 @ 3.07GHz
[root@ldapsamba ~]#
```



```
[root@ldapsamba ~]# dmidecode -t processor | grep Intel
    Manufacturer: Intel
    Version: Intel(R) Core(TM) i3 CPU          540 @ 3.07GHz
[root@ldapsamba ~]# dmidecode -t 17 | grep size
[root@ldapsamba ~]# dmidecode -t 17 | grep Size
    Size: No Module Installed
    Size: 4096 MB
    Size: No Module Installed
    Size: No Module Installed
[root@ldapsamba ~]# dmidecode -t 17 | grep MB
SMBIOS 2.6 present.
    Size: 4096 MB
[root@ldapsamba ~]#
```



```
[root@server:~]# lscpu
Architecture:           x86_64
CPU op-mode(s):         64-bit
CPU(s):                 1
Thread(s) per core:     1
Core(s) per socket:     1
CPU socket(s):          1
NUMA node(s):            1
Vendor ID:              GenuineIntel
CPU family:              6
Model:                  58
Stepping:                9
CPU MHz:                 2594.200
L1d cache:               32K
L1i cache:               32K
L2 cache:                 256K
L3 cache:                 3072K
NUMA node0 CPU(s):       0
[root@server ~]#
```

```
[root@server ~]# lspci | tail -5
00:18.7 PCI bridge: VMware PCI Express Root Port (rev 01)
02:00.0 USB Controller: VMware USB1.1 UHCI Controller
02:01.0 Ethernet controller: Intel Corporation 82545EM Gigabit Ethernet Controller (Copper) (rev 01)
02:02.0 Multimedia audio controller: Ensoniq ES1371 [AudioPCI-97] (rev 02)
02:03.0 USB Controller: VMware USB2 EHCI Controller
[root@server ~]#
```

```
[root@server ~]#
[root@server ~]# mii-tool
eth0: negotiated 100baseTx-FD, link ok
[root@server ~]#
```

Run level Commands in Linux

```
root@server:~  
[root@server ~]# halt  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# poweroff  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# shutdown -f now  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# init 6  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# restart  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# reboot  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# logout  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# exit
```

```
root@server:~  
[root@server ~]# shutdown -h 10  
  
Broadcast message from root@server.au-tel.com  
(/dev/pts/0) at 10:37 ...  
  
The system is going down for halt in 10 minutes!
```

```
root@server:~  
[root@server ~]# shutdown -r 30  
  
Broadcast message from root@server.au-tel.com  
(/dev/pts/0) at 10:37 ...  
  
The system is going down for reboot in 30 minutes
```

How to Manage File and Folders in Linux

```
root@server:~/Desktop
[root@server Desktop]# mkdir /Au-tel
[root@server Desktop]# mkdir Au-tel
[root@server Desktop]# mkdir -p /server/ftp
[root@server Desktop]# mkdir ssh ftp scp
[root@server Desktop]# 
```

```
root@server:~/Au-tel
[root@server Desktop]# cd /Au-tel/
[root@server Au-tel]# pwd
/Au-tel
[root@server Au-tel]# 
```

```
root@server:/
[root@server Au-tel]# cd ..
[root@server /]# pwd
/
[root@server /]# 
```

```
root@server:~
[root@server /]# cd ~
[root@server ~]# pwd
/root
[root@server ~]# 
```

```
root@server:~]# cd /
[root@server /]# pwd
/
[root@server /]# 
```

```
root@server:~/Desktop
[root@server ~]# cd Desktop/
[root@server Desktop]# ls
autel Au-tel How to install Nagios Core 3.4.4 in CentOS.mp4 scp
au-tel ftp karthi.txt ssh
[root@server Desktop]# rm -rf ftp
[root@server Desktop]# ls
autel Au-tel karthi.txt ssh
au-tel How to install Nagios Core 3.4.4 in CentOS.mp4 scp
[root@server Desktop]# 
```

```
root@server:~/Desktop
[root@server Desktop]# touch tty pts dev sr0
[root@server Desktop]# ls
a autel au-tel Au-tel b c d dev karthi.txt pts scp sr0 ssh tty
[root@server Desktop]# 
```

```
root@server:~/Desktop
[root@server Desktop]# touch autel{1..10}
[root@server Desktop]# ls
a Au-tel autel2 autel5 autel8 c karthi.txt sr0
autel autel1 autel3 autel6 autel9 d pts ssh
au-tel autel10 autel4 autel7 b dev scp tty
[root@server Desktop]# 
```

```
root@server:~/Desktop
[root@server Desktop]# cat>network
192.168.1.100
^C
[root@server Desktop]# 
```

```
root@server:~/Desktop
[root@server Desktop]# cat network
192.168.1.100
[root@server Desktop]# 
```

```
root@server:~/Desktop
[root@server Desktop]# cat>>network
255.255.255.0
^C
[root@server Desktop]# cat network
192.168.1.100
255.255.255.0
[root@server Desktop]# 
```

```
root@server:~/Desktop
[root@server Desktop]# ls
a      Au-tel    autel2  autel5  autel8   c      dev      pts  ssh
autel  autel1    autel3  autel6  autel9   d      karthi.txt  scp  tty
au-tel autel10   autel4  autel7  b       demo   network   sr0
[root@server Desktop]# rm -f karthi.txt
[root@server Desktop]# ls
a      Au-tel    autel2  autel5  autel8   c      dev      scp  tty
autel  autel1    autel3  autel6  autel9   d      network  sr0
au-tel autel10   autel4  autel7  b       demo   pts      ssh
[root@server Desktop]# 
```

```
[root@server:~/Desktop]
[root@server Desktop]# ls
a      Au-tel    autel2  autel5  autel8  c      dev      scp  tty
autel   autel11  autel3  autel6  autel9  d      network  sr0
au-tel  autel10  autel4  autel7  b      demo    pts      ssh
[root@server Desktop]# cp network scp
[root@server Desktop]# ls scp
network
[root@server Desktop]# 
```

```
[root@server:~/Desktop]
[root@server Desktop]# ls
a      Au-tel    autel2  autel5  autel8  c      dev      scp  tty
autel   autel11  autel3  autel6  autel9  d      network  sr0
au-tel  autel10  autel4  autel7  b      demo    pts      ssh
[root@server Desktop]# cp -r scp/ Au-tel/
[root@server Desktop]# ls Au-tel/
scp
[root@server Desktop]# 
```

```
[root@server:~/Desktop]
[root@server Desktop]# ls
a      Au-tel    autel2  autel5  autel8  c      dev      scp  tty
autel   autel11  autel3  autel6  autel9  d      network  sr0
au-tel  autel10  autel4  autel7  b      demo    pts      ssh
[root@server Desktop]# mv network ip
[root@server Desktop]# ls
a      Au-tel    autel2  autel5  autel8  c      dev  scp  tty
autel   autel11  autel3  autel6  autel9  d      ip   sr0
au-tel  autel10  autel4  autel7  b      demo  pts  ssh
[root@server Desktop]# 
```

Text Processing Commands

```
root@server:~# [root@server ~]# cat>>Autel.txt  
Hi Admin  
love ur job  
network  
system  
server  
network admin  
system admin  
server admin  
hi wel come  
hi dude  
hi karthi  
^C  
[root@server ~]# 
```

```
root@server:~# [root@server ~]# nl Autel.txt  
1 Hi Admin  
2 love ur job  
3 network  
4 system  
5 server  
6 network admin  
7 system admin  
8 server admin  
9 hi wel come  
10 hi dude  
11 hi karthi  
[root@server ~]# 
```

```
[root@server:~]# wc Autel.txt
 11 21 115 Autel.txt
[root@server ~]#
```

```
[root@server:~]# sort Autel.txt
Hi Admin
hi dude
hi karthi
hi wel come
love ur job
network
network admin
server
server admin
system
system admin
[root@server ~]#
```

```
[root@server ~]# sort -r Autel.txt
system admin
system
server admin
server
network admin
network
love ur job
hi wel come
hi karthi
hi dude
Hi Admin
[root@server ~]#
```

```
root@server:~  
[root@server ~]# rev Autel.txt  
nimdA iH  
boj ru evol  
krowten  
metsys  
revres  
nimda krowten  
nimda metsys  
nimda revres  
emoc lew ih  
edud ih  
ihtrak ih  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# tac Autel.txt  
hi karthi  
hi dude  
hi wel come  
server admin  
system admin  
network admin  
server  
system  
network  
love ur job  
Hi Admin  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# grep admin Autel.txt  
network admin  
system admin  
server admin  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# head -3 Autel.txt  
Hi Admin  
love ur job  
network  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# tail -5 Autel.txt  
system admin  
server admin  
hi wel come  
hi dude  
hi karthi  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# cat>>test  
au  
au  
admin  
admin  
^C  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# uniq test  
au  
admin  
[root@server ~]#
```

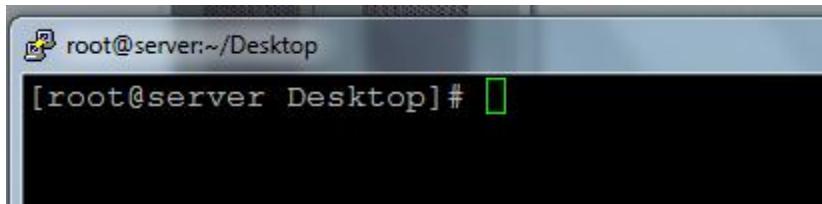
```
[root@server:~]  
[root@server ~]# uniq test  
au  
admin  
create admn  
[root@server ~]#
```

```
[root@server:~]  
[root@server ~]# uniq -d test  
au  
admin  
[root@server ~]#
```

```
[root@server ~]# cat no  
1  
2  
3  
4  
[root@server ~]# cat name  
A  
B  
C  
D  
[root@server ~]#
```

```
[root@server:~]  
[root@server ~]# paste no name  
1      A  
2      B  
3      C  
4      D  
[root@server ~]#
```

Operator's in Linux



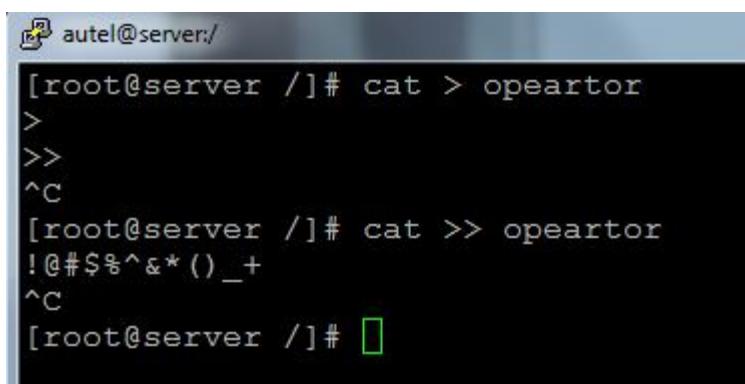
```
root@server:~/Desktop
[root@server Desktop]# 
```



```
autel@server:~
[autel@server ~]$ 
```



```
autel@server:~
[root@server ~]# cd ..
[root@server /]# cd ~
[root@server ~]# cd /
[root@server /]# 
```



```
autel@server:~
[root@server /]# cat > opeartor
>
>>
^C
[root@server /]# cat >> opeartor
!@#$%^&*()_+
^C
[root@server /]# 
```

```
autel@server:~/Desktop  
[root@server Desktop]# ls au*  
au-tel  autel10  autel3  autel5  autel7  autel9  
autel1  autel2   autel4  autel6  autel8  
  
autel:  
server  ttt  
[root@server Desktop]#
```

```
autel@server:~/Desktop  
[root@server Desktop]# ls -l | wc -l  
26  
[root@server Desktop]#
```

```
autel@server:~/Desktop  
[root@server Desktop]# ls ; pwd ; hostname -i  
a      Au-tel    autel2  autel5  autel8  c      dev  scp  tty  
autel  autel1   autel3  autel6  autel9  d      ip   sr0  
au-tel autel10  autel4  autel7  b      demo  pts  ssh  
/root/Desktop  
192.168.10.100 127.0.0.1  
[root@server Desktop]#
```

Compress and Decompress in Linux

```
autel@server:~/Desktop
```

```
[root@server Desktop]# du -sh etc/
31M      etc/
[root@server Desktop]# 
```

```
autel@server:~/Desktop
```

```
[root@server Desktop]# tar cf etc.tar etc/
[root@server Desktop]# ls
autel  Au-tel  etc  etc.tar
[root@server Desktop]# du -sh etc.tar
28M      etc.tar
[root@server Desktop]# 
```

```
autel@server:~/Desktop
```

```
[root@server Desktop]# gzip etc.tar
[root@server Desktop]# ls
autel  Au-tel  etc.tar.gz
[root@server Desktop]# du -sh etc.tar.gz
7.4M      etc.tar.gz
[root@server Desktop]# 
```

```
autel@server:~/Desktop
```

```
[root@server Desktop]# bzip2 etc.tar.gz
[root@server Desktop]# ls
autel  Au-tel  etc.tar.gz.bz2
[root@server Desktop]# du -sh etc.tar.gz.bz2
6.7M      etc.tar.gz.bz2
[root@server Desktop]# 
```

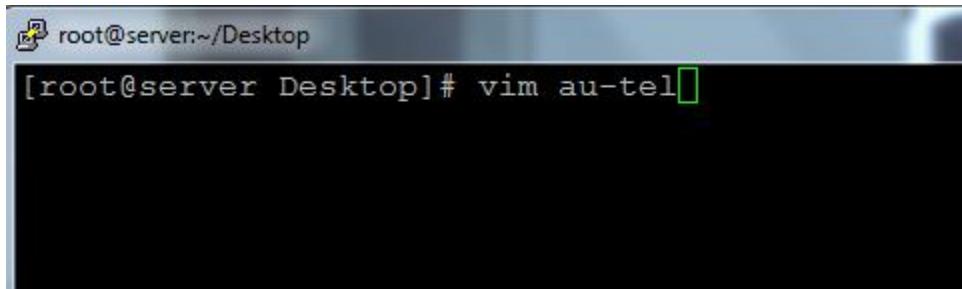
```
root@server:~/Desktop
```

```
[root@server Desktop]# bzip2 -d etc.tar.gz.bz2
[root@server Desktop]# ls
autel  Au-tel  etc.tar.gz
[root@server Desktop]# du -sh etc.tar.gz
7.4M      etc.tar.gz
[root@server Desktop]# 
```

```
root@server:~/Desktop  
[root@server Desktop]# gzip -d etc.tar.gz  
[root@server Desktop]# du -sh etc.tar  
28M      etc.tar  
[root@server Desktop]# ls  
autel  Au-tel  etc  etc.tar  
[root@server Desktop]# 
```

```
root@server:~/Desktop  
[root@server Desktop]# tar -xf etc.tar  
[root@server Desktop]# du -sh etc  
31M      etc  
[root@server Desktop]# ls  
autel  Au-tel  etc  etc.tar  
[root@server Desktop]# 
```

How to Use Vim in Linux

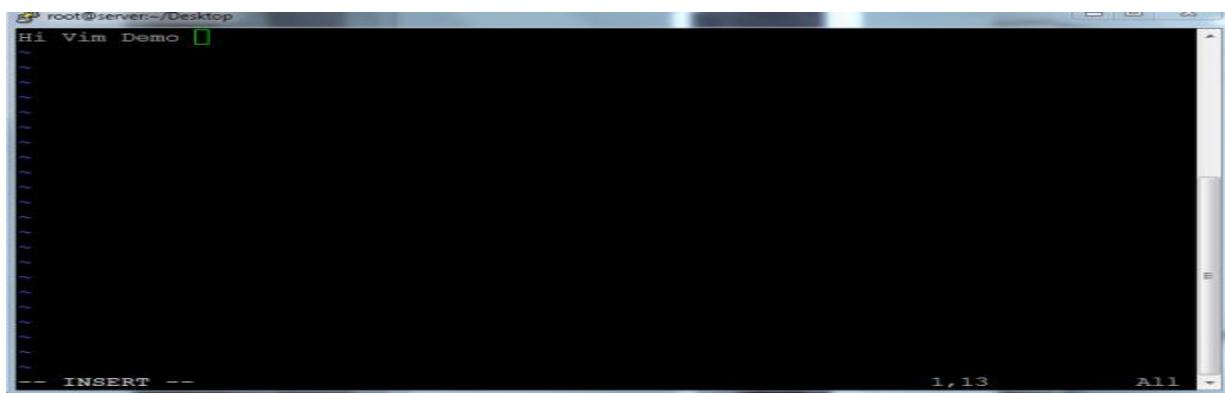


```
root@server:~/Desktop
[root@server Desktop]# vim au-tel
```

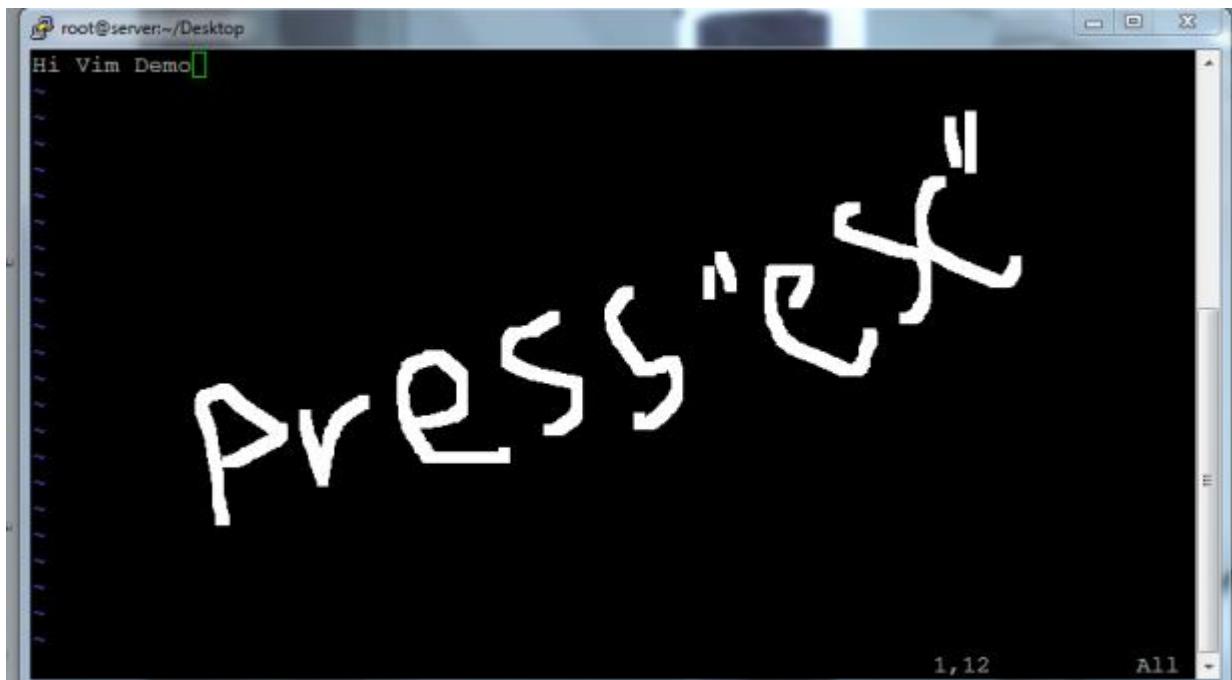


```
root@server:~/Desktop
au-tel" [New File]
0,0-1          All -
```

Press i



```
root@server:~/Desktop
Hi Vim Demo
-- INSERT --          1,13          All -
```



Hard & Soft Link in Linux

```
root@server:~/Desktop
```

```
[root@server Desktop]# cat>main  
hi admin  
^C  
[root@server Desktop]#
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# ls -i main  
666932 main  
[root@server Desktop]#
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# ln -s main link  
[root@server Desktop]#
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# cat link  
hi admin  
[root@server Desktop]#
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# ls -i link  
667015 link  
[root@server Desktop]#
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# cat>>main  
soft link test  
^C  
[root@server Desktop]#
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# cat link  
hi admin  
soft link test
```

```
[root@server Desktop]# [REDACTED]
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# rm -f main  
[root@server Desktop]# [REDACTED]
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# ls  
autel Au-tel etc etc.tar link
```

```
[root@server Desktop]# [REDACTED]
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# cat link  
cat: link: No such file or directory
```

```
[root@server Desktop]# [REDACTED]
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# cat>main1  
hi Link  
^C
```

```
[root@server Desktop]# [REDACTED]
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# ls -i main1  
666932 main1
```

```
[root@server Desktop]# [REDACTED]
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# ln main1 link1  
[root@server Desktop]# [REDACTED]
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# cat link1  
hi Link  
[root@server Desktop]#
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# ls -i link1  
666932 link1  
[root@server Desktop]#
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# cat>>main1  
This is Hard Link demo  
^C  
[root@server Desktop]#
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# cat link1  
hi Link  
This is Hard Link demo  
[root@server Desktop]#
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# rm -f main1  
[root@server Desktop]#
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# ls  
autel Au-tel etc etc.tar link link1  
[root@server Desktop]#
```

```
root@server:~/Desktop
```

```
[root@server Desktop]# cat link1  
hi Link  
This is Hard Link demo  
[root@server Desktop]#
```

Linux History Command

```
root@server:~ [root@server ~]# vim /etc/profile [root@server ~]# 
```

```
root@server:~ [root@server ~]# history | wc -l 1000 [root@server ~]# 
```

```
root@server:~ [root@server ~]# history | tail -10 1037 history 1038 clear 1039 history |wc -l 1040 clear 1041 vim /etc/profile 1042 clear 1043 history | wc -l 1044 history 1045 clear 1046 history | tail -10 [root@server ~]# 
```

```
root@server:~ [root@server ~]# history -c [root@server ~]# 
```

```
root@server:~ [root@server ~]# vim /etc/profile [root@server ~]# 
```

```
HOSTNAME=`/bin/hostname 2>/dev/null`  
HISTSIZE=0
```

```
root@server:~ [root@server ~]# vim /etc/profile [root@server ~]# init 6
```

```
root@server:~ [root@server ~]# cat .bash_history | head -20  
ls /aut-tel/  
cd /aut-tel/  
ls  
exit  
clear  
groupadd IT  
useradd -G IT software  
clear  
hostname  
hostname server.admin.com  
clear  
hostname  
vim /etc/sysconfig/network  
clear  
hostname  
clear  
vim /etc/sysconfig/network  
clear  
vim /etc/sysconfig/network  
init 6  
clear  
[root@server ~]# 
```

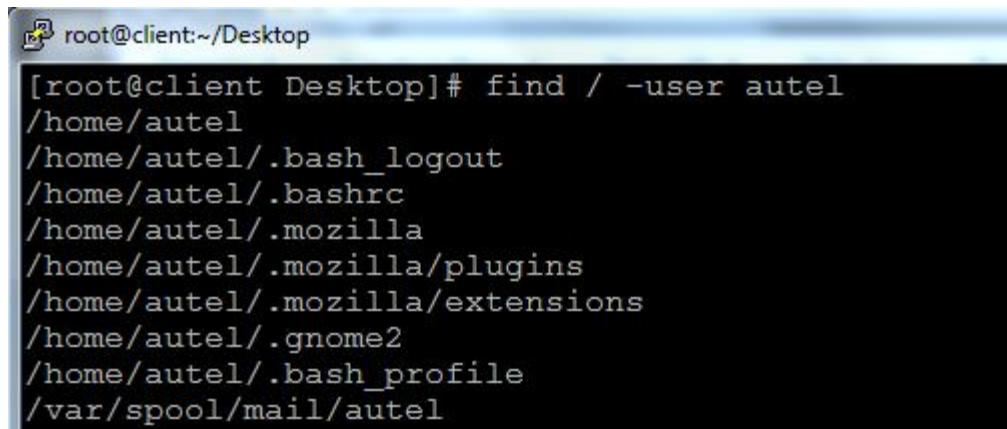
Find Commands in Linux

```
root@client:~/Desktop
[root@client Desktop]# find / -name autel
/home/autel
/root/Desktop/autel
/var/spool/mail/autel
/autel
[root@client Desktop]# 
```

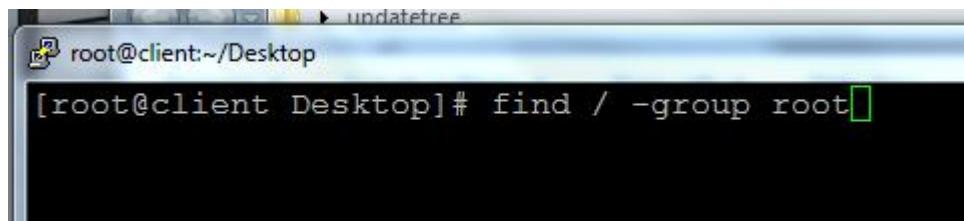
```
root@client:~/Desktop
[root@client Desktop]# find / -iname autel
/home/autel
/root/Desktop/Autel
/root/Desktop/autel
/var/spool/mail/autel
/autel
[root@client Desktop]# 
```

```
root@client:~/Desktop
[root@client Desktop]# find / -type d -name var
/var
[root@client Desktop]# 
```

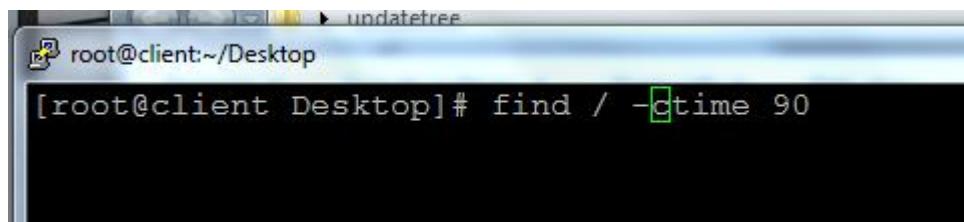
```
root@client:~/Desktop
[root@client Desktop]# find /root/Desktop/ -perm 755
/root/Desktop/
/root/Desktop/Autel
/root/Desktop/autel
[root@client Desktop]# 
```



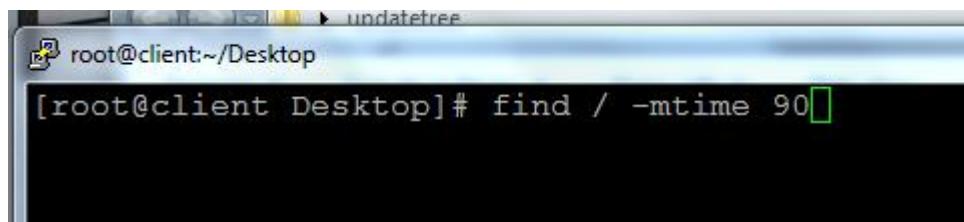
```
root@client:~/Desktop
[root@client Desktop]# find / -user autel
/home/autel
/home/autel/.bash_logout
/home/autel/.bashrc
/home/autel/.mozilla
/home/autel/.mozilla/plugins
/home/autel/.mozilla/extensions
/home/autel/.gnome2
/home/autel/.bash_profile
/var/spool/mail/autel
```



```
root@client:~/Desktop
[root@client Desktop]# find / -group root
```



```
root@client:~/Desktop
[root@client Desktop]# find / -ctime 90
```



```
root@client:~/Desktop
[root@client Desktop]# find / -mtime 90
```

```
root@client:~/Desktop
[root@client Desktop]# find /root/ -size -1c
/root/.gconf/apps/gnome-session/%gconf.xml
/root/.gconf/apps/gnome-terminal/profiles/%gconf.xml
/root/.gconf/apps/gnome-terminal/%gconf.xml
/root/.gconf/apps/panel/applets/clock/%gconf.xml
/root/.gconf/apps/panel/applets/workspace_switcher/%gconf.xml
/root/.gconf/apps/panel/applets/window_list/%gconf.xml
/root/.gconf/apps/panel/applets/%gconf.xml
/root/.gconf/apps/panel/%gconf.xml
/root/.gconf/apps/nautilus/%gconf.xml
/root/.gconf/apps/nautilus/desktop-metadata/%gconf.xml
/root/.gconf/apps/brasero/%gconf.xml
/root/.gconf/apps/%gconf.xml
/root/.gconf/desktop/gnome/peripherals/keyboard/%gconf.xml
/root/.gconf/desktop/gnome/peripherals/%gconf.xml
/root/.gconf/desktop/gnome/accessibility/%gconf.xml
/root/.gconf/desktop/gnome/%gconf.xml
/root/.gconf/desktop/%gconf.xml
/root/.local/share/.converted-launchers
/root/.gnupg/secring.gpg
/root/.gnupg/pubring.gpg
[root@client Desktop]#
```

```
root@client:~/Desktop
[root@client Desktop]# find /root -size +1M
/root/Desktop/flash-plugin-11.2.202.285-release.x86_64.rpm
/root/Desktop/teamviewer_linux.rpm
[root@client Desktop]#
```

```
[root@client:~/Desktop]
[root@client Desktop]# find /root -size 1M | tail -10
/root/vsftpd-2.2.2-6.el6.x86_64.rpm
/root/.cshrc
/root/.dbus
/root/.dbus/session-bus
/root/.dbus/session-bus/f61440dae7725ccc0382b16600000021-0
/root/Music
/root/Desktop
/root/Desktop/Autel
/root/Desktop/autel
/root/Pictures
[root@client Desktop]# █
```

Swap Partition in Linux

```
[root@server ~]# swapon -s
Filename                                Type      Size
/dev/sda3                                partition 3112952
[root@server ~]#
```

```
[root@server ~]# free -m
              total        used        free
Mem:          1511         268       1243
-/+ buffers/cache:         153       1357
Swap:         3039           0       3039
[root@server ~]#
```

```
[root@server ~]# fdisk /dev/sdc
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):
```

```
Command (m for help): n
Command action
  l  logical (5 or over)
  p  primary partition (1-4)
l
First cylinder (263-1305, default 263):
Using default value 263
Last cylinder, +cylinders or +size{K,M,G} (263-1305, default 1305): +512M
```

```
Command (m for help): t
Partition number (1-6): 6
Hex code (type L to list codes): 82
Changed system type of partition 6 to 82 (Linux swap
```

```
Command (m for help): p

Disk /dev/sdc: 10.7 GB, 10737418240 bytes
255 heads, 63 sectors/track, 1305 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x8f2a3b0b

      Device Boot      Start        End    Blocks   Id  System
/dev/sdc1            1       1305    10482381   5  Extended
/dev/sdc5            1        262     2104452   83  Linux
/dev/sdc6           263        328      530113+   82  Linux swap / Solaris
```

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

Calling ioctl() to re-read partition table.

WARNING: Re-reading the partition table failed with error
busy.
The kernel still uses the old table. The new table will be
the next reboot or after you run partprobe(8) or kpartx(8)
Syncing disks.
[root@server ~]# 
```

```
PuTTY (inactive)
[root@server ~]# init 6
[root@server ~]# 
```

```
[root@server ~]# mkswap /dev/sdc6
Setting up swapspace version 1, size = 530108 KiB
no label, UUID=f7681fce-0400-4a7c-8d19-f1029dd379cb
[root@server ~]#
```

```
[root@server ~]#
[root@server ~]# vim /etc/fstab
[root@server ~]#
```

tmpfs	/dev/shm	tmpfs	defaults	0 0
devpts	/dev/pts	devpts	gid=5,mode=620	0 0
sysfs	/sys	sysfs	defaults	0 0
proc	/proc	proc	defaults	0 0
/dev/sdc5	/serverbackup	ext4	defaults	0 0
/dev/sdc6	swap	swap	defaults	0 0

```
[root@server ~]#
[root@server ~]# swapon -a
[root@server ~]# swapon -s
Filename                Type      Size   Used   Priority
/dev/sda3               partition 3112952 0      -1
/dev/sdc6               partition 530104  0      -2
[root@server ~]#
```

```
[root@server ~]#
[root@server ~]# free -m
              total        used        free
Mem:          1511         266       1245
-/+ buffers/cache:       152       1359
Swap:         3557           0       3557
[root@server ~]#
```

Extended Partition in Linux

```
root@server:~  
[root@server ~]# fdisk /dev/sdc
```

```
root@server:~  
[root@server ~]# fdisk /dev/sdc  
Device contains neither a valid DOS partition table, nor Sun, SGI or OSF disklabel  
Building a new DOS disklabel with disk identifier 0x8f2a3b0b.  
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):
```

```
Command (m for help): n  
Command action  
  e   extended  
  p   primary partition (1-4)  
e  
Partition number (1-4): 1  
First cylinder (1-1305, default 1):  
Using default value 1  
Last cylinder, +cylinders or +size{K,M,G} (1-1305, default 1305):  
  
Command (m for help): p  
  
Disk /dev/sdc: 10.7 GB, 10737418240 bytes  
255 heads, 63 sectors/track, 1305 cylinders  
Units = cylinders of 16065 * 512 = 8225280 bytes  
Sector size (logical/physical): 512 bytes / 512 bytes  
I/O size (minimum/optimal): 512 bytes / 512 bytes  
Disk identifier: 0x8f2a3b0b  
  
      Device Boot      Start        End      Blocks   Id  System  
  /dev/sdc1            1       1305     10482381    5  Extended  
  
Command (m for help): wq
```

```
root@server:~  
[root@server ~]# fdisk -l | grep Extended  
/dev/sdc1              1      1305  10482381      5  Extended  
[root@server ~]# █
```

```
root@server:~  
[root@server ~]# fdisk -l | grep Extended  
/dev/sdc1              1      1305    10482381      5  Extended  
[root@server ~]# 
```

How To Check USB/External HDD is Mounted or Not in Linux

```
root@server:~  
[root@server ~]# fdisk -l | grep FAT  
/dev/sdc1      *        1      2944    7913440+    b  W95 FAT32  
[root@server ~]# 
```

```
root@server:~  
[root@server ~]# lsusb  
Bus 002 Device 004: ID 0e0f:0008 VMware, Inc.  
Bus 002 Device 003: ID 0e0f:0002 VMware, Inc. Virtual USB Hub  
Bus 002 Device 002: ID 0e0f:0003 VMware, Inc. Virtual Mouse  
Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub  
Bus 001 Device 002: ID 03f0:5607 Hewlett-Packard  
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub  
[root@server ~]# 
```

```
root@server:~  
[root@server ~]# mount /dev/sdc1 /mnt/  
[root@server ~]# 
```

```
root@server:~  
[root@server ~]# df -h  
Filesystem           Size   Used  Avail Use% Mounted on  
/dev/sda2            17G   5.4G   11G  35% /  
tmpfs                756M     0  756M  0% /dev/shm  
/dev/sda1            291M   30M   246M  11% /boot  
/dev/sdc1            7.6G  810M   6.8G  11% /mnt  
[root@server ~]# 
```

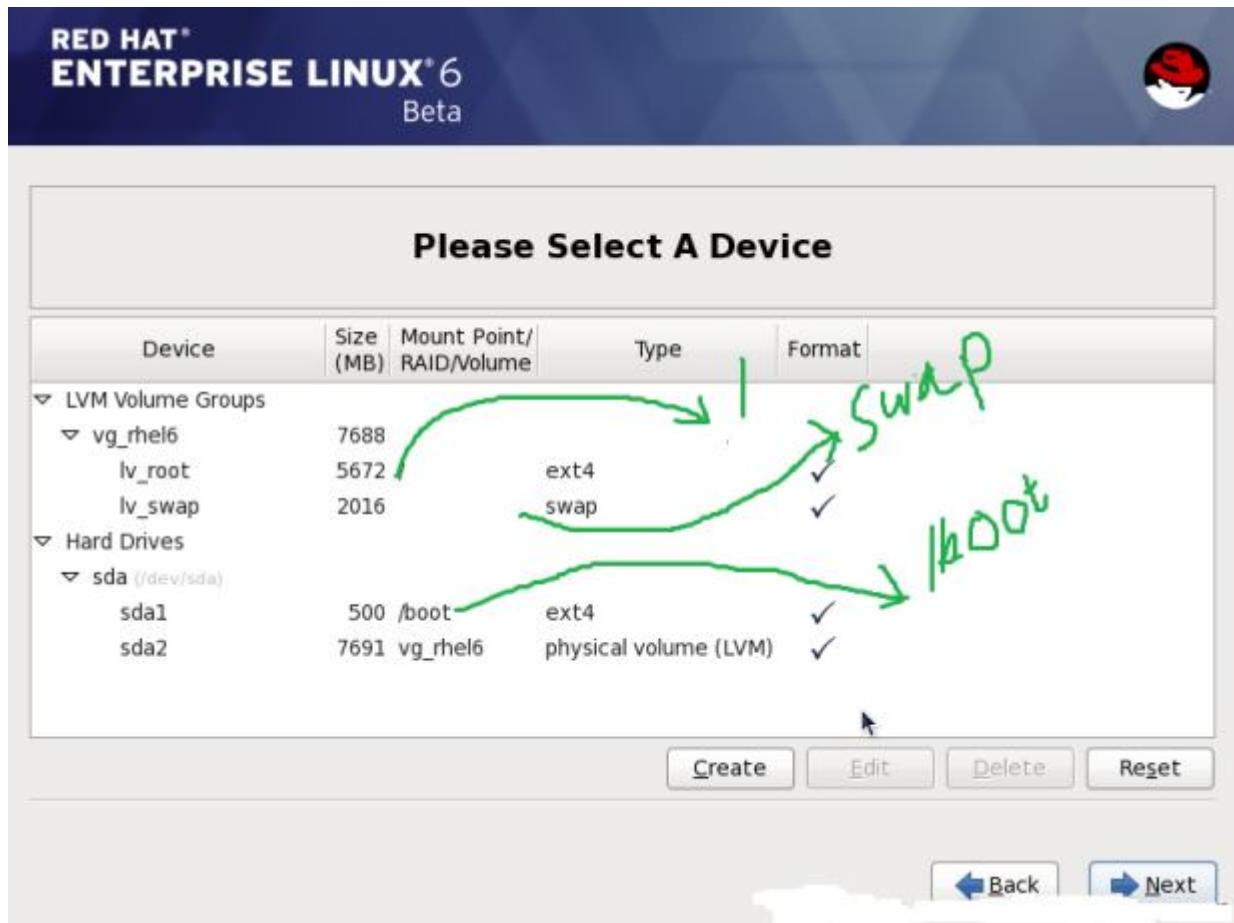
How to Find Partition File System Type in Linux

```
[root@ldapsamba ~]# df -T
Filesystem      Type  1K-blocks   Used Available Use% Mounted on
/dev/sda2        ext4  151189708 125716496 17793212  88% /
tmpfs           tmpfs  1858124     112    1858012   1% /dev/shm
/dev/sda1        ext4  198337     32402   155695  18% /boot
/dev/sda5        ext4  68811960  41995488 23320964  65% /sdlshare
[root@ldapsamba ~]# 
```

How to View Partition With Size and Mount Point in Linux

```
[root@ldapsamba ~]# df -h
Filesystem          Size  Used Avail Use% Mounted on
/dev/sda2           145G  120G   17G  88% /
tmpfs              1.8G  112K  1.8G   1% /dev/shm
/dev/sda1           194M   32M  153M  18% /boot
/dev/sda5            66G   41G   23G  65% /sdlshare
[root@ldapsamba ~]# 
```

What are the Partition Important While Installing Linux Operating System



How to find File Belong to which Partition in Linux

```
[root@ldapsamba ~]# df -h /etc/
Filesystem           Size   Used  Avail Use% Mounted on
/dev/sda2            145G  120G   17G  88% /
[root@ldapsamba ~]# df -h /boot/
Filesystem           Size   Used  Avail Use% Mounted on
/dev/sda1            194M   32M  153M  18% /boot
[root@ldapsamba ~]# 
```

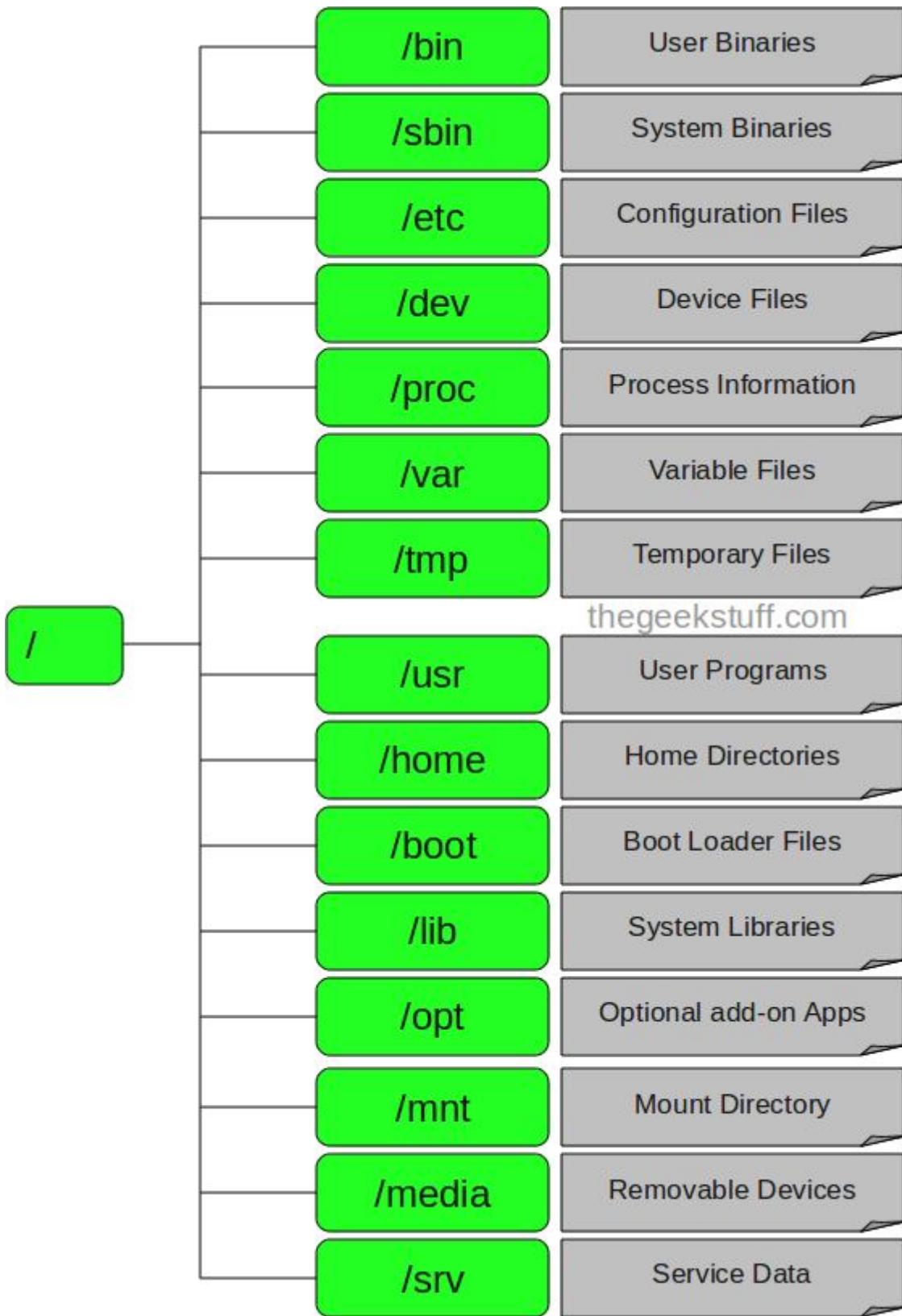
File System Directory in Linux



Display Grant Total of the Partition Size in Linux

```
[root@ldapsamba ~]# df -h --total
Filesystem      Size  Used Avail Use% Mounted on
/dev/sda2       145G  120G   17G  88% /
tmpfs           1.8G  112K  1.8G   1% /dev/shm
/dev/sda1       194M   32M  153M  18% /boot
/dev/sda5        66G   41G   23G  65% /sdlshare
total          212G  160G   42G  80%
[root@ldapsamba ~]# 
```

File-system Hierarchy Standard in Linux



How to Mount & View ISO File in Linux



```
root@server:~/Desktop
[root@server Desktop]# ls
RHEL 6 64bit.nrg
[root@server Desktop]# 
```

```
root@server:~/Desktop
[root@server Desktop]# mount -o loop /root/Desktop/RHEL\ 6\ 64bit.nrg /mnt
[root@server Desktop]# 
```

```
root@server:~/Desktop
[root@server Desktop]# ls /mnt/
EFI                                RELEASE-NOTES-es-ES.html    RELEASE-NOTES-si-LK.html
EULA                               RELEASE-NOTES-fr-FR.html    RELEASE-NOTES-ta-IN.html
GPL                                 RELEASE-NOTES-gu-IN.html    RELEASE-NOTES-te-IN.html
HighAvailability                   RELEASE-NOTES-hi-IN.html    RELEASE-NOTES-zh-CN.html
images                             RELEASE-NOTES-it-IT.html    RELEASE-NOTES-zh-TW.html
isolinux                           RELEASE-NOTES-ja-JP.html    repodata
LoadBalancer                        RELEASE-NOTES-kn-IN.html    ResilientStorage
media.repo                          RELEASE-NOTES-ko-KR.html    RPM-GPG-KEY-redhat-beta
Packages                            RELEASE-NOTES-ml-IN.html    RPM-GPG-KEY-redhat-release
README                             RELEASE-NOTES-mr-IN.html    ScalableFileSystem
RELEASE-NOTES-as-IN.html           RELEASE-NOTES-ox-IN.html    Server
RELEASE-NOTES-bn-IN.html           RELEASE-NOTES-pa-IN.html    TRANS.TBL
RELEASE-NOTES-de-DE.html           RELEASE-NOTES-pt-BR.html
RELEASE-NOTES-en-US.html           RELEASE-NOTES-ru-RU.html
```

LVM Reduce in Linux

```
root@server:/  
[root@server /]# umount -l /dev/HDD/drive1  
[root@server /]# 
```

```
root@server:/  
[root@server /]# e2fsck -f /dev/HDD/drive1  
e2fsck 1.41.12 (17-May-2010)  
Pass 1: Checking inodes, blocks, and sizes  
Pass 2: Checking directory structure  
Pass 3: Checking directory connectivity  
Pass 4: Checking reference counts  
Pass 5: Checking group summary information  
/dev/HDD/drive1: 11/262144 files (0.0% non-contiguous)  
[root@server /]# 
```

```
root@server:/  
[root@server /]# resize2fs /dev/HDD/drive1 1G  
resize2fs 1.41.12 (17-May-2010)  
Resizing the filesystem on /dev/HDD/drive1 to 262144 (4k) blocks.  
The filesystem on /dev/HDD/drive1 is now 262144 blocks long. 
```

```
root@server:/  
[root@server /]# lvreduce -L 1G /dev/HDD/drive1  
WARNING: Reducing active logical volume to 1.00 GiB  
THIS MAY DESTROY YOUR DATA (filesystem etc.)  
Do you really want to reduce drive1? [y/n]: y  
Reducing logical volume drive1 to 1.00 GiB  
Logical volume drive1 successfully resized  
[root@server /]# 
```

```
[root@server:/]
[root@server /]# mount -a
[root@server /]# 
```

```
[root@server:/]
[root@server /]# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/sda2        17G  5.4G  11G  35% /
tmpfs           756M    0  756M   0% /dev/shm
/dev/sda1       291M   30M  246M  11% /boot
/dev/sdc5        2.0G   68M  1.9G   4% /serverbackup
/dev/mapper/HDD-drive1
                  1008M   68M  889M   8% /autel
[root@server /]# 
```

LVM Extend in Linux

```
[root@server /]# df -h
Filesystem           Size   Used  Avail Use% Mounted on
/dev/sda2              17G   5.4G   11G  35% /
tmpfs                  756M     0  756M   0% /dev/shm
/dev/sda1              291M   30M  246M  11% /boot
/dev/sdc5              2.0G   68M  1.9G   4% /serverbackup
/dev/mapper/HDD-drive1      3.0G   69M  2.8G   3% /autel
[root@server /]# 
```

```
[root@server /]# vgs
  VG     #PV #LV #SN Attr   VSize  VFree
  HDD      1   1   0 wz--n-  6.00g   3.00g
  autel    1   1   0 wz--n-  4.99g 1016.00m
[root@server /]# lvs
  LV      VG     Attr   LSize Origin Snap%
  drive1  HDD    -wi-ao 3.00g
  demo    autel -wi-ao 4.00g
[root@server /]# 
```

```
[root@server /]
[root@server /]# lvextend -L 4G /dev/HDD/drive1
  Extending logical volume drive1 to 4.00 GiB
  Logical volume drive1 successfully resized
[root@server /]# 
```

```
[root@server /]# resize2fs -p /dev/HDD/drive1
resize2fs 1.41.12 (17-May-2010)
Filesystem at /dev/HDD/drive1 is mounted on /autel; on-line resizing required
old_desc_blocks = 1, new_desc_blocks = 1
Performing an on-line resize of /dev/HDD/drive1 to 1048576 (4k) blocks.
The filesystem on /dev/HDD/drive1 is now 1048576 blocks long.

[root@server /]# 
```

```
[root@server /]

[root@server /]# df -h
Filesystem           Size   Used  Avail Use% Mounted on
/dev/sda2            17G   5.4G   11G  35% /
tmpfs                756M     0  756M  0% /dev/shm
/dev/sda1            291M   30M   246M 11% /boot
/dev/sdc5             2.0G   68M   1.9G  4% /serverbackup
/dev/mapper/HDD-drive1
                      4.0G   70M   3.7G  2% /autel

[root@server /]# 
```

LVM Partition in Linux

```
[root@server ~]# fdisk /dev/sdc

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): 
```

```
Command (m for help): n
Command action
  l    logical (5 or over)
  p    primary partition (1-4)
l
First cylinder (329-1305, default 329):
Using default value 329
Last cylinder, +cylinders or +size(K,M,G) (329-1305, default 1305): +6G
```

```
Command (m for help): t
Partition number (1-7): 7
Hex code (type L to list codes): 8e
Changed system type of partition 7 to 8e (Linux LVM)
```

```
Command (m for help): p

Disk /dev/sdc: 10.7 GB, 10737418240 bytes
255 heads, 63 sectors/track, 1305 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x8f2a3b0b

      Device Boot      Start        End    Blocks   Id  System
/dev/sdc1            1       1305    10482381    5  Extended
                  1          262     2104452   83  Linux
/dev/sdc6           263         328     530113+   82  Linux swap / Solaris
/dev/sdc7           329        1112    6297448+   8e  Linux LVM
```

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

Calling ioctl() to re-read partition table.

WARNING: Re-reading the partition table failed with error 16: Device or resource busy.
The kernel still uses the old table. The new table will be used at
the next reboot or after you run partprobe(8) or kpartx(8)
syncing disks.
[root@server ~]# 
```

```
[PuTTY (inactive)]
[root@server ~]# init 6
[root@server ~]# 
```

```
[root@server:~]
[root@server ~]# pvcreate /dev/sdc7
Physical volume "/dev/sdc7" successfully created
[root@server ~]# pvs
PV          VG      Fmt  Attr PSize PFree
/dev/sdb1    autel  lvm2  a-   4.99g 1016.00m
/dev/sdc7        lvm2  a-   6.01g   6.01g
[root@server ~]# 
```

```
[root@server:~]
[root@server ~]# vgcreate HDD /dev/sdc7
Volume group "HDD" successfully created
[root@server ~]# vgs
VG      #PV #LV #SN Attr   VSize VFree
HDD      1   0   0 wz--n- 6.00g   6.00g
autel    1   1   0 wz--n- 4.99g 1016.00m
[root@server ~]# 
```

```
[root@server:~]# lvcreate -L 3G -n drive1 /dev/HDD
Logical volume "drive1" created
[root@server ~]# lvs
  LV      VG      Attr   LSize Origin Snap%  Move Log
  drive1  HDD    -wi-a- 3.00g
  demo    autel -wi-ao 4.00g
[root@server ~]#
```

```
[root@server:~]
[root@server ~]# mkfs.ext4 /dev/HDD/drive1
mke2fs 1.41.12 (17-May-2010)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
196608 inodes, 786432 blocks
39321 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=805306368
24 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
            32768, 98304, 163840, 229376, 294912

Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

This filesystem will be automatically checked every 22 mounts or
180 days, whichever comes first.  Use tune2fs -c or -i to override.
[root@server ~]#
```

```
[root@server:~]
[root@server ~]# mkdir /auttel
[root@server ~]#
```

```
root@server:~  
[root@server ~]# vim /etc/fstab  
[root@server ~]# 
```

```
root@server:/  
[root@server /]# vim /etc/fstab  
[root@server /]# mount -a  
[root@server /]# 
```

```
root@server:/  
[root@server /]# df -h  
Filesystem           Size  Used Avail Use% Mounted on  
/dev/sda2            17G  5.4G  11G  35% /  
tmpfs              756M    0  756M   0% /dev/shm  
/dev/sda1            291M   30M  246M  11% /boot  
/dev/sdc5            2.0G   68M  1.9G   4% /serverbackup  
/dev/mapper/HDD-drive1  
                      3.0G   69M  2.8G   3% /autel  
[root@server /]# 
```

Network and Server Monitoring Commands in Linux

```
[root@server ~]# nmap 192.168.100.250

Starting Nmap 5.21 ( http://nmap.org ) at 2013-05-09 21:26 PDT
Nmap scan report for server.autellinux.com (192.168.100.250)
Host is up (0.0000060s latency).
Not shown: 989 closed ports
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh
23/tcp    open  telnet
80/tcp    open  http
111/tcp   open  rpcbind
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
2049/tcp  open  nfs
3128/tcp  open  squid-http
3260/tcp  open  iscsi
3306/tcp  open  mysql

Nmap done: 1 IP address (1 host up) scanned in 0.08 seconds
[root@server ~]# 
```

```
[root@server ~]# nmap -v 192.168.100.0/24 |tail -10
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds
2049/tcp open  nfs
3128/tcp open  squid-http
3260/tcp open  iscsi
3306/tcp open  mysql

Read data files from: /usr/share/nmap
Nmap done: 256 IP addresses (4 hosts up) scanned in 16.92 seconds
          Raw packets sent: 4518 (197.778KB) | Rcvd: 5014 (204.710KB)
[root@server ~]# 
```

```
[root@server ~]# nmap -v -sP 192.168.100.250
Starting Nmap 5.21 ( http://nmap.org ) at 2013-05-09 21:45 PDT
Nmap scan report for server.autellinux.com (192.168.100.250)
Host is up.

Nmap done: 1 IP address (1 host up) scanned in 0.00 seconds
    Raw packets sent: 0 (0B) | Rcvd: 0 (0B)
[root@server ~]# 
```

```
[root@server ~]# nmap -v -sP 192.168.100.0/24 | grep "Host is up" |wc -l
4
[root@server ~]# 
```

```
[root@server ~]# nmap -v -sP 192.168.100.0/24 | grep "down" |wc -l
252
[root@server ~]# 
```

```
[root@server ~]# netstat -tla | grep ssh
tcp      0      0 *:ssh                          *:*
EN
tcp      0      0 server.autellinux.com:ssh     192.168.100.207:53487
BLISHED
tcp      0      52 server.autellinux.com:ssh    192.168.100.208:outlaws
BLISHED
tcp      0      0 server.autellinux.com:ssh     192.168.100.201:47638
BLISHED
tcp      0      0 *:ssh                          *:*
EN
[root@server ~]# 
```

```
[root@client ~]# netstat -ula
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address          Foreign Address        State
udp     0      0 *:mdns                         *:*
udp     0      0 *:sunrpc                       *:*
udp     0      0 *:ipp                          *:*
udp     0      0 *:905                          *:*
udp     0      0 *:49428                        *:*
udp     0      0 *:33206                        *:*
udp     0      0 *:bootpc                       *:*
udp     0      0 *:36304                        *:*
udp     0      0 *:977                          *:*
udp     0      0 *:sunrpc                       *:*
udp     0      0 *:905                          *:*
udp     0      0 *:44107                        *:*
udp     0      0 *:41038                        *:*
[root@client ~]# 
```

```
[root@client ~]# netstat -tla
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address          Foreign Address        State
tcp      0      0 *:mysql                *:*
tcp      0      0 *:55658               *:*
tcp      0      0 *:sunrpc              *:*
tcp      0      0 *:ssh                 *:*
tcp      0      0 localhost.localdomain:ipp  *:*
tcp      0      0 localhost.localdomain:smtp *:*
tcp      0      0 client.autellinux.com:47638 192.168.100.250:ssh ESTABLISHED
tcp      0      132 client.autellinux.com:ssh  192.168.100.208:5610 ESTABLISHED
tcp      0      0 *:sunrpc              *:*
tcp      0      0 *:38130               *:*
tcp      0      0 *:ssh                 *:*
tcp      0      0 client.autellinux.com:ipp  *:*
tcp      0      0 *:squid               *:*
[root@client ~]#
```

```
[root@server ~]# tcpdump -c 5 -i eth0
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
22:32:18.682968 IP server.autellinux.com.ssh > 192.168.100.208.outlaws: Flags [P.], seq 1988505307:1988505503, ack 4093513595, win 80, length 196
22:32:18.683272 IP 192.168.100.208.outlaws > server.autellinux.com.ssh: Flags [.], ack 196, win 251, length 0
22:32:18.684968 IP server.autellinux.com.ssh > 192.168.100.208.outlaws: Flags [P.], seq 196:504, ack 1, win 80, length 308
22:32:18.685957 IP server.autellinux.com.ssh > 192.168.100.208.outlaws: Flags [P.], seq 504:668, ack 1, win 80, length 164
22:32:18.686197 IP 192.168.100.208.outlaws > server.autellinux.com.ssh: Flags [.], ack 668, win 256, length 0
5 packets captured
5 packets received by filter
0 packets dropped by kernel
[root@server ~]#
```

```
[root@server ~]# tcpdump -c 5 -n -i eth0
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
22:32:55.257897 IP 192.168.100.250.ssh > 192.168.100.208.outlaws: Flags [P.], seq 1988511575:1988511771, ack 4093515623, win 80, length 196
22:32:55.258218 IP 192.168.100.208.outlaws > 192.168.100.250.ssh: Flags [.], ack 196, win 252, length 0
22:32:55.259721 IP 192.168.100.250.ssh > 192.168.100.208.outlaws: Flags [P.], seq 196:488, ack 1, win 80, length 292
22:32:55.261757 IP 192.168.100.250.ssh > 192.168.100.208.outlaws: Flags [P.], seq 488:652, ack 1, win 80, length 164
22:32:55.261999 IP 192.168.100.208.outlaws > 192.168.100.250.ssh: Flags [.], ack 652, win 256, length 0
5 packets captured
5 packets received by filter
0 packets dropped by kernel
[root@server ~]#
```

Process Monitoring Command in Linux

```
root@server:~ top - 23:40:40 up 58 min, 5 users, load average: 0.12, 0.09, 0.03
Tasks: 102 total, 1 running, 101 sleeping, 0 stopped, 0 zombie
Cpu(s): 0.0%us, 0.4%sy, 0.0%ni, 98.5%id, 0.7%wa, 0.0%hi, 0.4%si, 0.0%st
Mem: 1547892k total, 602512k used, 945380k free, 105432k buffers
Swap: 3112952k total, 0k used, 3112952k free, 128324k cached
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
3093 root 20 0 14940 1168 904 R 0.7 0.1 0:00.03 top
  1 root 20 0 19228 1432 1156 S 0.0 0.1 0:01.16 init
  2 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kthreadd
  3 root RT 0 0 0 0 S 0.0 0.0 0:00.00 migration/0
  4 root 20 0 0 0 0 S 0.0 0.0 0:00.00 ksoftirqd/0
  5 root RT 0 0 0 0 S 0.0 0.0 0:00.00 watchdog/0
  6 root 20 0 0 0 0 S 0.0 0.0 0:00.04 events/0
  7 root 20 0 0 0 0 S 0.0 0.0 0:00.00 cpuset
  8 root 20 0 0 0 0 S 0.0 0.0 0:00.00 khelper
  9 root 20 0 0 0 0 S 0.0 0.0 0:00.00 netns
 10 root 20 0 0 0 0 S 0.0 0.0 0:00.00 async/mgr
 11 root 20 0 0 0 0 S 0.0 0.0 0:00.00 pm
 12 root 20 0 0 0 0 S 0.0 0.0 0:00.00 sync_supers
 13 root 20 0 0 0 0 S 0.0 0.0 0:00.00 bdi-default
 14 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kintegrityd/0
 15 root 20 0 0 0 0 S 0.0 0.0 0:00.09 kblockd/0
 16 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kacpid
 17 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kacpi_notify
 18 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kacpi_hotplug
 19 root 20 0 0 0 0 S 0.0 0.0 0:00.02 ata/0
 20 root 20 0 0 0 0 S 0.0 0.0 0:00.00 ata_aux
 21 root 20 0 0 0 0 S 0.0 0.0 0:00.00 ksuspend_usbd
 22 root 20 0 0 0 0 S 0.0 0.0 0:00.00 khubd
```

```
root@server:~ ps -ef | head -10
UID      PID  PPID  C STIME TTY      TIME CMD
root      1      0  0 22:42 ?        00:00:01 /sbin/init
root      2      0  0 22:42 ?        00:00:00 [kthreadd]
root      3      2  0 22:42 ?        00:00:00 [migration/0]
root      4      2  0 22:42 ?        00:00:00 [ksoftirqd/0]
root      5      2  0 22:42 ?        00:00:00 [watchdog/0]
root      6      2  0 22:42 ?        00:00:00 [events/0]
root      7      2  0 22:42 ?        00:00:00 [cpuset]
root      8      2  0 22:42 ?        00:00:00 [khelper]
root      9      2  0 22:42 ?        00:00:00 [netns]
```

```
[root@server ~]# ps -eo comm,pmem,pcpu | sort -k1 -r | head -10
xinetd          0.0  0.0
wpa_supplicant  0.0  0.0
watchdog/0      0.0  0.0
vsftpd          0.0  0.0
vmware-vmblock- 0.0  0.0
vmtoolsd        0.2  0.0
vmmemctl        0.0  0.0
usbhid_resumer  0.0  0.0
udevd           0.0  0.0
udevd           0.0  0.0
[root@server ~]#
```

```
[root@server ~]# mpstat 3 3
Linux 2.6.32-71.el6.x86_64 (server.autel.com) 05/23/2013 _x86_64_ (1 CPU)

11:44:10 PM CPU %usr %nice %sys %iowait %irq %soft %steal %guest %idle
11:44:13 PM all 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 100.00
11:44:16 PM all 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 100.00
11:44:19 PM all 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 100.00
Average: all 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 100.00
[root@server ~]#
```

```
[root@server ~]# sar
Linux 2.6.32-71.el6.x86_64 (server.autel.com) 05/23/2013 _x86_64_ (1 CPU)

05:40:59 PM      LINUX RESTART

05:50:01 PM      CPU      %user      %nice      %system      %iowait      %steal      %idle
06:00:01 PM      all      0.03      0.00      0.12      0.08      0.00      99.77
06:10:01 PM      all      0.02      0.00      0.12      0.06      0.00      99.80
06:20:01 PM      all      0.02      0.00      0.12      0.05      0.00      99.80
06:30:01 PM      all      0.03      2.79      5.91      22.35      0.00      68.94
06:40:01 PM      all      0.02      0.00      0.11      0.04      0.00      99.84
06:50:01 PM      all      0.02      0.00      0.12      0.04      0.00      99.83
07:00:01 PM      all      0.03      0.00      0.11      0.04      0.00      99.82
07:10:01 PM      all      0.03      0.00      0.15      0.04      0.00      99.77
07:20:01 PM      all      1.07      0.00      1.43      3.55      0.00      93.96
07:30:01 PM      all      0.03      0.00      0.12      0.06      0.00      99.79
Average:         all      0.13      0.27      0.82      2.57      0.00      96.21

10:42:26 PM      LINUX RESTART

10:50:01 PM      CPU      %user      %nice      %system      %iowait      %steal      %idle
11:00:01 PM      all      0.05      0.00      0.22      0.12      0.00      99.62
11:10:01 PM      all      0.10      0.00      0.41      0.81      0.00      98.69
11:20:01 PM      all      0.12      0.00      0.29      0.11      0.00      99.48
11:30:01 PM      all      0.53      0.00      0.70      2.44      0.00      96.33
11:40:01 PM      all      0.05      0.00      1.34      3.52      0.00      95.09
Average:         all      0.17      0.00      0.59      1.40      0.00      97.84
[root@server ~]#
```

```
[root@server ~]# vmstat 2 2
procs --memory-- --swap-- ----io---- --system-- -----cpu-----
r b    swpd   free   buff   cache   si   so   bi   bo   in   cs us sy id wa st
1 0     0 945280 105432 128552   0   0    60    15    46   59  0  1 97  2  0
0 0     0 945264 105432 128580   0   0    0     0    24   35  0  0 100  0  0
[root@server ~]#
```

```
[root@server ~]# iostat
Linux 2.6.32-71.el6.x86_64 (server.autel.com) 05/23/2013 _x86_64_ (1 CPU)

avg-cpu:  %user  %nice  %system  %iowait  %steal  %idle
          0.25    0.00    0.77    1.57    0.00   97.40

Device:    tps  Blk_read/s  Blk_wrtn/s  Blk_read  Blk_wrtn
sda       6.93      116.48      28.99    454980    113240

[root@server ~]#
```

```
[root@server ~]# lsof -u karthi
COMMAND PID USER FD TYPE DEVICE SIZE/OFF NODE NAME
bash 2597 karthi cwd DIR 8,2 4096 262246 /home/karthi
bash 2597 karthi rtd DIR 8,2 4096 2 /
bash 2597 karthi txt REG 8,2 943248 786543 /bin/bash
bash 2597 karthi mem REG 8,2 150672 135213 /lib64/ld-2.12.so
bash 2597 karthi mem REG 8,2 22536 138096 /lib64/libdl-2.12.so
bash 2597 karthi mem REG 8,2 1838296 138092 /lib64/libc-2.12.so
bash 2597 karthi mem REG 8,2 138280 138132 /lib64/libtinfo.so.5.7
bash 2597 karthi mem REG 8,2 99158752 395450 /usr/lib/locale/locale-archive
bash 2597 karthi mem REG 8,2 61624 131118 /lib64/libnss_files-2.12.so
bash 2597 karthi mem REG 8,2 26050 395706 /usr/lib64/gconv/gconv-modules.cache
bash 2597 karthi 0u CHR 4,3 0t0 5258 /dev/tty3
bash 2597 karthi 1u CHR 4,3 0t0 5258 /dev/tty3
bash 2597 karthi 2u CHR 4,3 0t0 5258 /dev/tty3
bash 2597 karthi 255u CHR 4,3 0t0 5258 /dev/tty3
[root@server ~]#
```

```
[root@server ~]# lsof -i 4
COMMAND PID USER FD TYPE DEVICE SIZE/OFF NODE NAME
avahi-dae 1514 avahi 13u IPv4 9319 0t0 UDP *:mdns
avahi-dae 1514 avahi 14u IPv4 9320 0t0 UDP *:33325
sshd 1653 root 3u IPv4 9879 0t0 TCP *:ssh (LISTEN)
vsftpd 1672 root 3u IPv4 9932 0t0 TCP *:ftp (LISTEN)
master 1751 root 12u IPv4 10158 0t0 TCP localhost.localdomain:smtp (LISTEN)
dhcpd 2358 root 7u IPv4 11795 0t0 UDP *:bootps
sshd 2361 root 3r IPv4 11858 0t0 TCP server.autel.com:ssh->192.168.50.102
:adapt-sna (ESTABLISHED)
[root@server ~]#
```

```
[root@server ~]
[root@server ~]# ps -ef |wc -l
112
[root@server ~]#
```

```
[root@server ~]
[root@server ~]# ps -u autel u
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
autel 2781 0.0 0.1 108244 1724 tty2 Ss 09:50 0:00 -bash
autel 2801 1.2 0.2 143448 3172 tty2 S+ 09:50 0:00 vim autel.txt
[root@server ~]#
```

```
[root@server ~]# ps -ef |grep dhcpcd
root      1804      1  0 08:59 ?          00:00:00 /usr/sbin/dhcpcd
root      2808  2343  0 09:51 pts/1      00:00:00 grep dhcpcd
[root@server ~]#
```

```
[root@server ~]# ps -p 1794
 PID TTY      TIME CMD
 1794 ?        00:00:00 vsftpd
[root@server ~]#
```

```
[root@server ~]# pidof nfsd
1709 1708 1707 1706 1705 1704 1703 1702
[root@server ~]#
```

```
[root@server ~]# ps -ef | grep vsftpd
root      2873      1  0 09:57 ?          00:00:00 /usr/sbin/vsftpd /etc/vsftpd/vsftpd.conf
root      2881  2343  0 09:59 pts/1      00:00:00 grep vsftpd
[root@server ~]# kill 2873
[root@server ~]# ps -ef | grep vsftpd
root      2883  2343  0 09:59 pts/1      00:00:00 grep vsftpd
[root@server ~]#
```

```
[root@server ~]# ps -ef | grep vsftpd
root      2924      1  0 09:59 ?          00:00:00 /usr/sbin/vsftpd /etc/vsftpd/vsftpd.conf
root      2935  2343  0 10:00 pts/1      00:00:00 grep vsftpd
[root@server ~]# killall vsftpd
[root@server ~]# ps -ef | grep vsftpd
root      2938  2343  0 10:00 pts/1      00:00:00 grep vsftpd
[root@server ~]#
```

Memory Monitoring Commands in Linux

```
[root@server ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/sda2        17G   8.4G  7.4G  54% /
tmpfs           756M     0  756M   0% /dev/shm
/dev/sdal       291M   30M  246M  11% /boot
[root@server ~]#
```

```
[root@server ~]# df -h --total
Filesystem      Size  Used Avail Use% Mounted on
/dev/sda2        17G   8.4G  7.4G  54% /
tmpfs           756M     0  756M   0% /dev/shm
/dev/sdal       291M   30M  246M  11% /boot
total           18G   8.4G  8.4G  51%
[root@server ~]#
```

```
[root@server ~]
[root@server ~]# du -sh /var/
3.1G    /var/
[root@server ~]#
```

```
[root@server ~]
[root@server ~]# free -m
              total        used         free       shared      buffers
Mem:          1511         588         923          0         102
-/+ buffers/cache:        360        1151
Swap:         3039          0        3039
[root@server ~]#
```

How To Monitor User Logged,Total Number of User logged,How Long Work,What They Do, IDLE, Information, previously Executed Command, What Time logged in Linux

```
root@server:~ [root@server ~]# w
23:12:10 up 29 min, 5 users, load average: 0.00, 0.00, 0.00
USER      TTY      FROM             LOGIN@     IDLE     JCPU    PCPU WHAT
autel     tty2      -               23:10     1:52    0.01s  0.01s -bash
karthi   tty3      -               23:11    47.00s  0.00s  0.00s -bash
root     tty1      -               22:44    52.00s  0.03s  0.03s -bash
admin    tty5      -               23:11    40.00s  0.00s  0.00s -bash
root     pts/0  192.168.50.102  22:47     0.00s  0.09s  0.00s w
[root@server ~]# 
```

```
root@server:~ [root@server ~]# w autel
23:12:54 up 30 min, 5 users, load average: 0.00, 0.00, 0.00
USER      TTY      FROM             LOGIN@     IDLE     JCPU    PCPU WHAT
autel     tty2      -               23:10     2:36    0.01s  0.01s -bash
[root@server ~]# 
```

```
root@server:~ [root@server ~]# who am i
root     pts/0      2013-05-23 22:47 (192.168.50.102)
[root@server ~]# 
```

```
root@server:~ [root@server ~]# who
autel     tty2      2013-05-23 23:10
karthi   tty3      2013-05-23 23:11
root     tty1      2013-05-23 22:44
admin    tty5      2013-05-23 23:11
root     pts/0      2013-05-23 22:47 (192.168.50.102)
[root@server ~]# 
```

```
[root@server:~]# who -a
      system boot 2013-05-23 22:42
      run-level 3 2013-05-23 22:42
autel    + tty2      2013-05-23 23:10 00:04      1824
karthi   + tty3      2013-05-23 23:11 00:03      1826
root     + tty1      2013-05-23 22:44 00:03      1822
LOGIN    tty4      2013-05-23 22:43          1828 id=4
admin    + tty5      2013-05-23 23:11 00:03      1830
LOGIN    tty6      2013-05-23 22:43          1832 id=6
root     + pts/0      2013-05-23 22:47      .      2363 (192.168.50.102)
[root@server ~]#
```

```
[root@server:~]
[root@server ~]# who -b
      system boot 2013-05-23 22:42
[root@server ~]#
```

```
[root@server:~]
[root@server ~]# who -l
LOGIN    tty4      2013-05-23 22:43          1828 id=4
LOGIN    tty6      2013-05-23 22:43          1832 id=6
[root@server ~]#
```

```
[root@server:~]
[root@server ~]# who -H
NAME      LINE      TIME      COMMENT
autel    tty2      2013-05-23 23:10
karthi   tty3      2013-05-23 23:11
root     tty1      2013-05-23 22:44
admin    tty5      2013-05-23 23:11
root     pts/0      2013-05-23 22:47 (192.168.50.102)
[root@server ~]#
```

```
[root@server:~]
[root@server ~]# who -q
autel karthi root admin root
# users=5
[root@server ~]#
```

```
[root@server:~]
```

```
[root@server ~]# who -r  
run-level 3 2013-05-23 22:42  
[root@server ~]# [REDACTED]
```

```
[root@server:~]
```

```
[root@server ~]# users  
admin autel karthi root root  
[root@server ~]# [REDACTED]
```

```
[root@server:~]
```

```
[root@server ~]# id karthi  
uid=502(karthi) gid=502(karthi) groups=502(karthi)  
[root@server ~]# id root  
uid=0(root) gid=0(root) groups=0(root),1(bin),2(daemon),3(sys),4(adm)  
0(wheel)  
[root@server ~]# [REDACTED]
```

```
[root@server:~]
```

```
[root@server ~]# finger  
Login      Name          Tty      Idle  Login Time   Office    Office  
admin      Admin         tty5      14   May 23 23:11 IBM      235-823  
autel      Au-Tel        tty2      15   May 23 23:10 SDL      887-056  
karthi     Manickaraj    tty3      14   May 23 23:11 Mazenet   x3-3333  
root       Don           tty1      14   May 23 22:44 Redhat   3859285  
root       Don           pts/0      14   May 23 22:47 (192.168.50.102)  
[root@server ~]# [REDACTED]
```

```
[root@server:~]
```

```
[root@server ~]# finger -l karthi  
Login: karthi                                Name: Manickaraj  
Directory: /home/karthi                         Shell: /bin/bash  
Office: Mazenet, x3-3333                        Home Phone: 555555  
On since Thu May 23 23:11 (PDT) on tty3  15 minutes 47 seconds idle  
No mail.  
No Plan.  
[root@server ~]# [REDACTED]
```

```
[root@server ~]# lastcomm
clear          root    pts/0      0.00 secs Thu May 23 23:27
chkconfig     root    pts/0      0.17 secs Thu May 23 23:27
service        root    pts/0      0.01 secs Thu May 23 23:27
psacct         root    pts/0      0.01 secs Thu May 23 23:27
touch          root    pts/0      0.00 secs Thu May 23 23:27
accton          S      root    pts/0      0.00 secs Thu May 23 23:27
[root@server ~]#
```

```
[root@server ~]#
[root@server ~]# lastcomm tty2
ls            autel   tty2      0.00 secs Thu May 23 23:28
[root@server ~]#
```

```
[root@server ~]#
[root@server ~]# lastcomm karthi
du           karthi  tty3      0.00 secs Thu May 23 23:28
df           karthi  tty3      0.00 secs Thu May 23 23:28
[root@server ~]#
```

```
[root@server ~]#
[root@server ~]# lastcomm df
df           karthi  tty3      0.00 secs Thu May 23 23:28
[root@server ~]#
```

```
[root@server ~]# last reboot
reboot      system boot 2.6.32-71.el6.x8 Thu May 23 22:42 - 23:30  (00:47)
reboot      system boot 2.6.32-71.el6.x8 Thu May 23 17:40 - 23:30  (05:49)
reboot      system boot 2.6.32-71.el6.x8 Wed May 22 22:03 - 23:30  (1+01:26)
reboot      system boot 2.6.32-71.el6.x8 Tue May 21 23:40 - 23:30  (1+23:49)
reboot      system boot 2.6.32-71.el6.x8 Tue May 21 23:14 - 23:40  (00:25)
reboot      system boot 2.6.32-71.el6.x8 Tue May 21 16:04 - 23:14  (07:10)

wtmp begins Tue May 21 16:04:31 2013
[root@server ~]#
```

```
[root@server ~]#
[root@server ~]# last -x | grep shutdown
shutdown    system down 2.6.32-71.el6.x8 Tue May 21 23:40 - 23:40  (00:00)
shutdown    system down 2.6.32-71.el6.x8 Tue May 21 23:14 - 23:14  (00:00)
[root@server ~]#
```

```
[root@server ~]# last -n 5
admin      tty5                               Thu May 23 23:11    still logged in
karthi     tty3                               Thu May 23 23:11    still logged in
autel      tty2                               Thu May 23 23:10    still logged in
root       pts/0      192.168.50.102   Thu May 23 22:47    still logged in
root       tty1                               Thu May 23 22:44    still logged in

wtmp begins Tue May 21 16:04:31 2013
[root@server ~]#
```

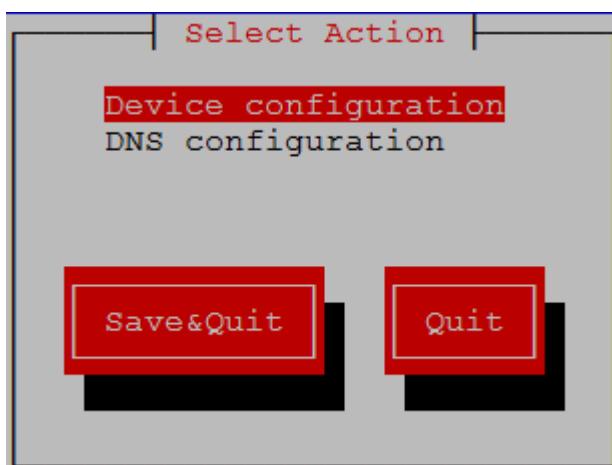
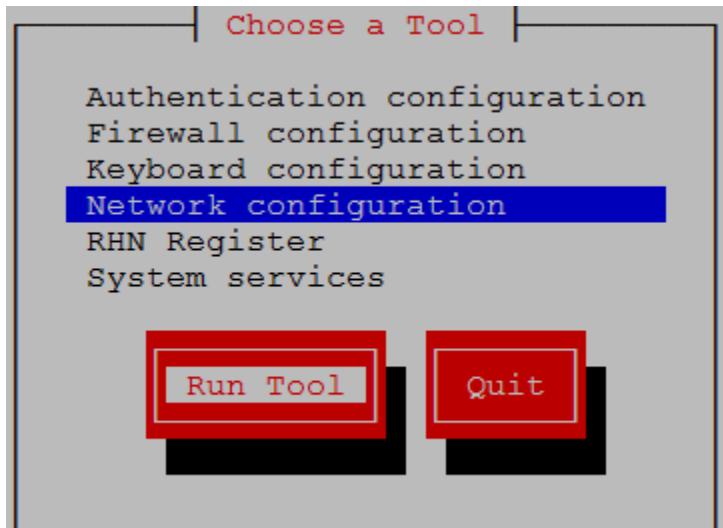
```
[root@server ~]#
[root@server ~]# ac -p
      admin           0.37
      karthi          0.38
      autel           0.39
      root            6.31
      total           7.46
[root@server ~]#
```

```
[root@server ~]#
[root@server ~]# sa -u | head -10
15519235  0.00 cpu      958k mem accton
15519235  0.00 cpu      26272k mem touch
15519235  0.01 cpu      27088k mem psacct
15519235  0.01 cpu      26576k mem service
15519235  0.17 cpu      25760k mem chkconfig
15519235  0.00 cpu      1536k mem clear
15519235  0.00 cpu      1619k mem lastcomm
15519235  0.04 cpu      19216k mem packagekitd
15519235  0.00 cpu      2748k mem udev-acl.ck
15519235  0.00 cpu      28896k mem ls
[root@server ~]#
```

```
[root@server ~]#
[root@server ~]# sa -m
              65      550.16re    0.01cp    7890k
root          62      550.16re    0.01cp    6993k
karthi        2       0.00re     0.00cp    25216k
autel         1       0.00re     0.00cp    28896k
[root@server ~]#
```

Assign Static IP Address Using setup Command in Linux

```
root@server:/var/log/httpd
[root@server httpd]# setup
[root@server httpd]# 
```



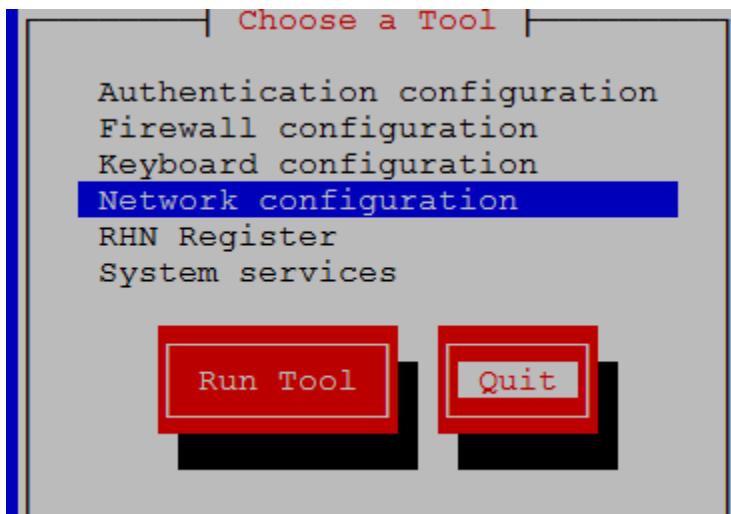
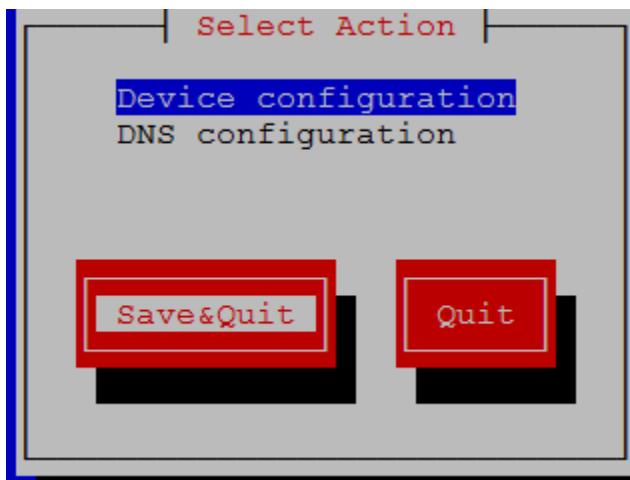


Network Configuration

Name	eth0
Device	eth0
Use DHCP	[]
Static IP	192.168.10.100
Netmask	255.255.255.0
Default gateway IP	192.168.10.100
Primary DNS Server	192.168.10.100
Secondary DNS Server	

Ok Cancel





```
root@server:/var/log/httpd
[root@server httpd]# setup
[root@server httpd]# service network restart
Shutting down interface eth0: Device state: 3 (disconnected)
[ _ OK   ]
Shutting down loopback interface: [ _ OK   ]
Bringing up loopback interface: [ _ OK   ]
Bringing up interface eth0: Active connection state: activated
Active connection path: /org/freedesktop/NetworkManager/ActiveConnection/1
[ _ OK   ]
[root@server httpd]# chkconfig network on
[root@server httpd]# [ ]
```

```
[root@server httpd]# ifconfig eth0
eth0      Link encap:Ethernet HWaddr 00:0C:29:38:0F:97
          inet addr:192.168.10.100 Bcast:192.168.10.255 Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:fe38:f97/64 Scope:Link
            UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
            RX packets:13509 errors:0 dropped:0 overruns:0 frame:0
            TX packets:9024 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:1220154 (1.1 MiB) TX bytes:2025832 (1.9 MiB)

[root@server httpd]# hostname -i
192.168.10.100 127.0.0.1
[root@server httpd]#
```

Enable IP Forwarding in Linux

```
[root@client ~]# sysctl -p | grep ipv4
net.ipv4.ip_forward = 0
net.ipv4.conf.default.rp_filter = 1
net.ipv4.conf.default.accept_source_route = 0
net.ipv4.tcp_syncookies = 1
[root@client ~]#
```

```
[root@client ~]
[root@client ~]# vim /etc/sysctl.conf
[root@client ~]#
```

```
# Controls IP packet forwarding
net.ipv4.ip_forward = 1

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

# Do not accept source routing
net.ipv4.conf.default.accept_source_route = 0
```

```
[root@client ~]# sysctl -p | grep ipv4
net.ipv4.ip_forward = 1
net.ipv4.conf.default.rp_filter = 1
net.ipv4.conf.default.accept_source_route = 0
net.ipv4.tcp_syncookies = 1
[root@client ~]#
```

How to Assign Hostname in Linux

```
[root@server ~]# hostname
server.admin.com
[root@server ~]#
```

```
[root@server ~]#
[root@server ~]# vim /etc/sysconfig/network
[root@server ~]#
```

```
[root@server ~]#
NETWORKING=yes
HOSTNAME=server.au-tel.com
~
```

```
[root@server ~]#
[root@server ~]# vim /etc/sysconfig/network
[root@server ~]# init 6
```

How to Enable/Disable LAN Connection in Linux

```
root@client:~ [root@client ~]# ifup eth0
Active connection state: activating
Active connection path: /org/freedesktop/NetworkManager/
state: activated
Connection activated
[root@client ~]# 
```

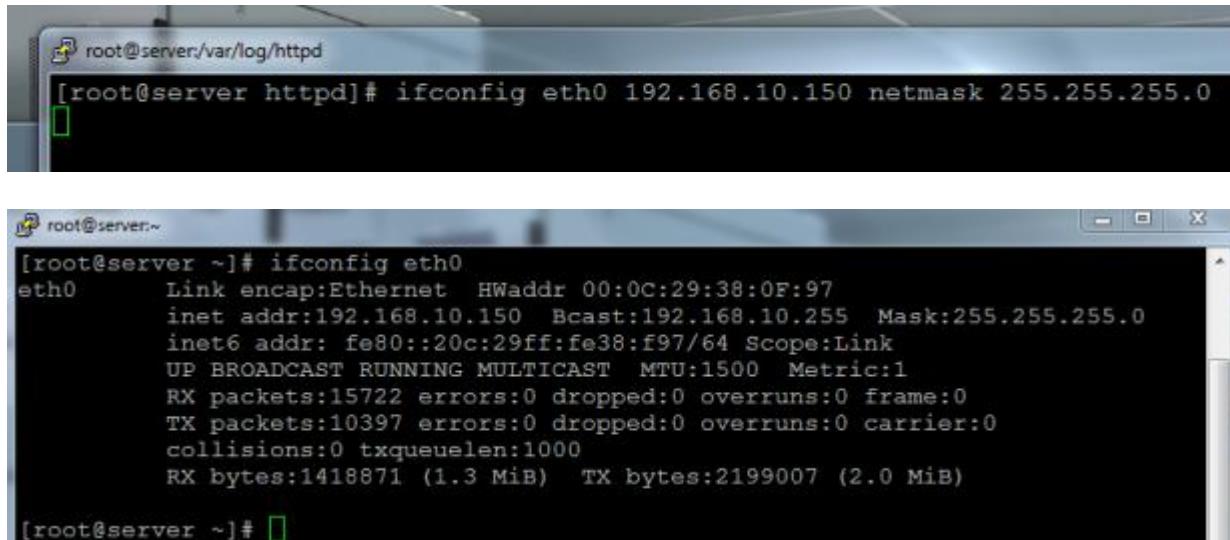
```
root@client:~ [root@client ~]# ifdown eth0
[ ]
```

Assign IP Address Using ip addr Command in Linux

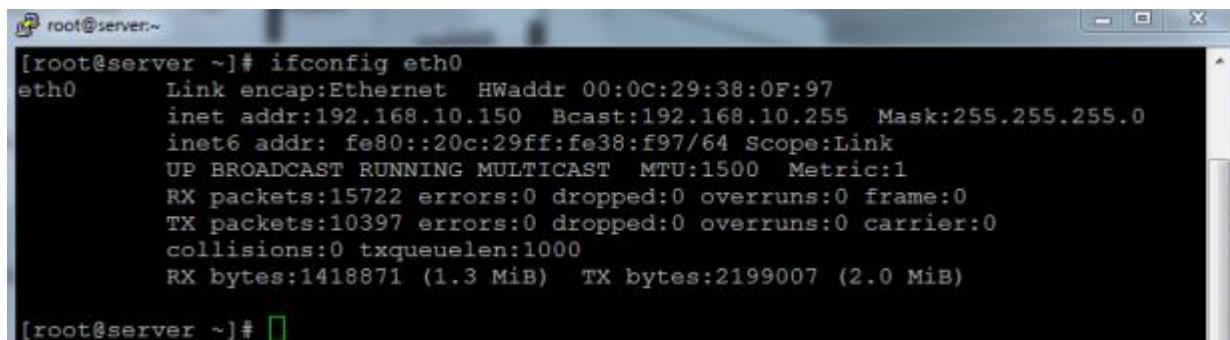
```
root@server:/var/log/httpd [root@server httpd]# ip addr add 192.168.10.108 dev eth0
[root@server httpd]# 
```

```
root@server:/var/log/httpd [root@server httpd]# ip addr show eth0
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast
    link/ether 00:0c:29:38:0f:97 brd ff:ff:ff:ff:ff:ff
        inet 192.168.10.100/24 brd 192.168.10.255 scope global eth0
            inet 192.168.10.108/32 scope global eth0
                inet6 fe80::20c:29ff:fe38:f97/64 scope link
                    valid_lft forever preferred_lft forever
[root@server httpd]# 
```

Assign IP Address Using ifconfig Command in Linux



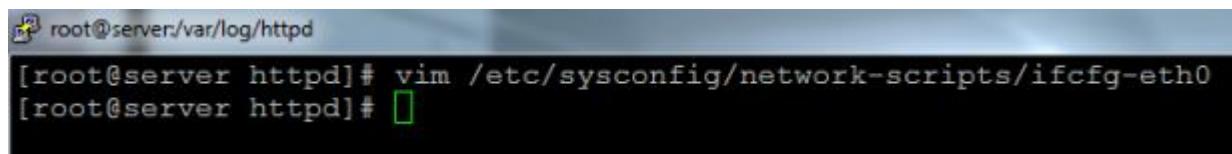
```
[root@server /var/log/httpd]
[root@server httpd]# ifconfig eth0 192.168.10.150 netmask 255.255.255.0
```

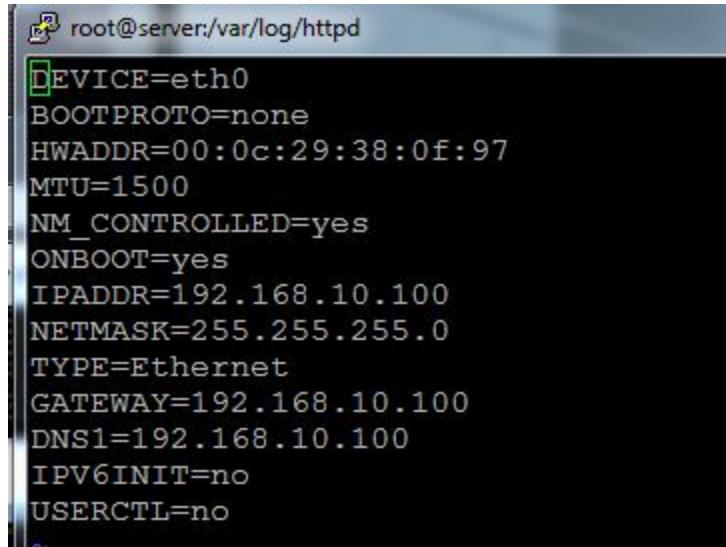
```
[root@server ~]# ifconfig eth0
eth0      Link encap:Ethernet HWaddr 00:0C:29:38:0F:97
          inet addr:192.168.10.150 Bcast:192.168.10.255 Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:fe38:f97/64 Scope:Link
             UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
             RX packets:15722 errors:0 dropped:0 overruns:0 frame:0
             TX packets:10397 errors:0 dropped:0 overruns:0 carrier:0
             collisions:0 txqueuelen:1000
             RX bytes:1418871 (1.3 MiB) TX bytes:2199007 (2.0 MiB)

[root@server ~]#
```

Assign IP Address Using Configuration File in Linux



```
[root@server /var/log/httpd]
[root@server httpd]# vim /etc/sysconfig/network-scripts/ifcfg-eth0
[root@server httpd]#
```

```
DEVICE=eth0
BOOTPROTO=none
HWADDR=00:0c:29:38:0f:97
MTU=1500
NM_CONTROLLED=yes
ONBOOT=yes
IPADDR=192.168.10.100
NETMASK=255.255.255.0
TYPE=Ethernet
GATEWAY=192.168.10.100
DNS1=192.168.10.100
IPV6INIT=no
USERCTL=no
```

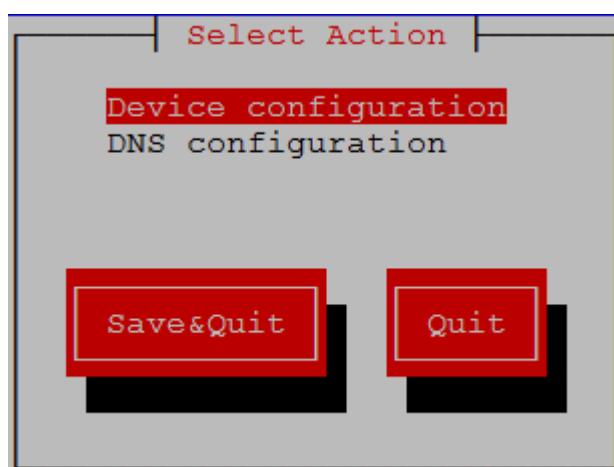
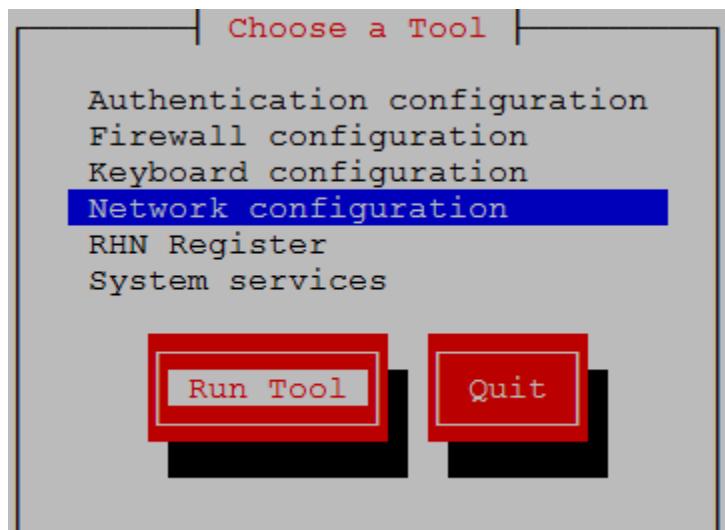
```
[root@server var/log/httpd]
[root@server httpd]# vim /etc/sysconfig/network-scripts/ifcfg-eth0
[root@server httpd]# service network restart
Shutting down interface eth0: Device state: 3 (disconnected) [ OK ]
Shutting down loopback interface: [ OK ]
Bringing up loopback interface: [ OK ]
Bringing up interface eth0: Active connection state: activated
Active connection path: /org/freedesktop/NetworkManager/ActiveConnection/2 [ OK ]
[root@server httpd]# chkconfig network on
[root@server httpd]#
```

```
[root@server var/log/httpd]
[root@server httpd]# ifconfig eth0
eth0      Link encap:Ethernet HWaddr 00:0C:29:38:0F:97
          inet addr:192.168.10.100 Bcast:192.168.10.255 Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:fe38:f97/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
          RX packets:13509 errors:0 dropped:0 overruns:0 frame:0
          TX packets:9024 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1220154 (1.1 MiB) TX bytes:2025832 (1.9 MiB)

[root@server httpd]# hostname -i
192.168.10.100 127.0.0.1
[root@server httpd]#
```

Assign Dynamic IP Address Using setup Command in Linux

```
root@server:/var/log/httpd
[root@server httpd]# setup
[root@server httpd]# 
```



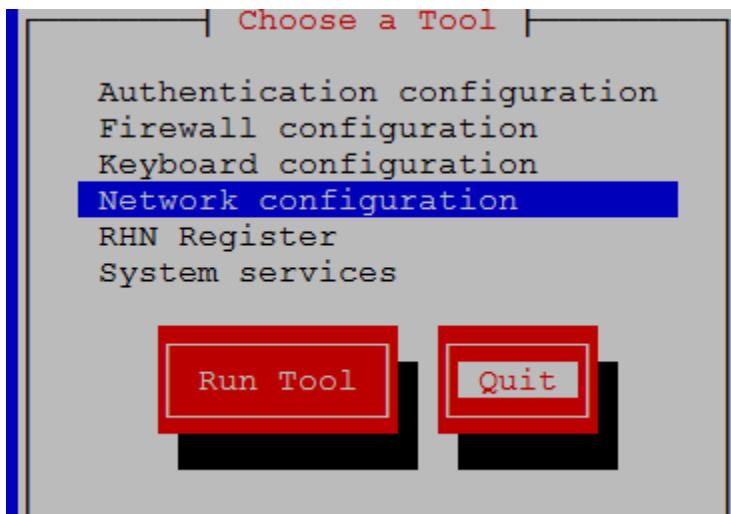
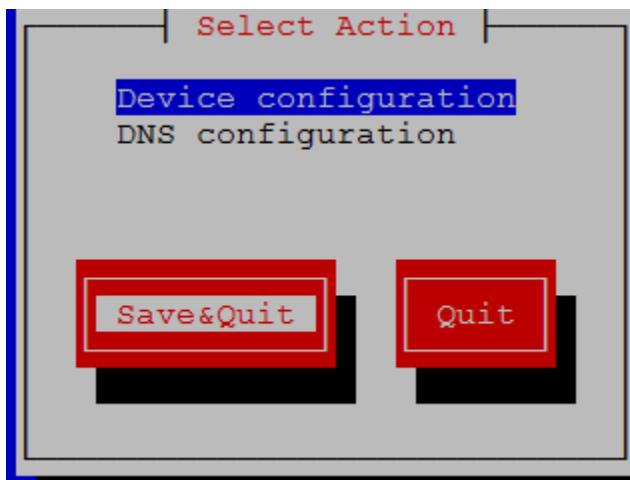


Network Configuration

Name	eth0
Device	eth0
Use DHCP	[*]
Static IP	192.168.10.100
Netmask	255.255.255.0
Default gateway IP	192.168.10.100
Primary DNS Server	192.168.10.100
Secondary DNS Server	

Ok Cancel





```
root@server:/var/log/httpd
[root@server httpd]# setup
[root@server httpd]# service network restart
Shutting down interface eth0: Device state: 3 (disconnected)
[ _ OK   ]
Shutting down loopback interface: [ _ OK   ]
Bringing up loopback interface: [ _ OK   ]
Bringing up interface eth0: Active connection state: activated
Active connection path: /org/freedesktop/NetworkManager/ActiveConnection/1
[ _ OK   ]
[root@server httpd]# chkconfig network on
[root@server httpd]# 
```

```
[root@server httpd]# ifconfig eth0
eth0      Link encap:Ethernet HWaddr 00:0C:29:38:0F:97
          inet addr:192.168.10.100 Bcast:192.168.10.255 Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:fe38:f97/64 Scope:Link
            UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
            RX packets:13509 errors:0 dropped:0 overruns:0 frame:0
            TX packets:9024 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:1220154 (1.1 MiB) TX bytes:2025832 (1.9 MiB)

[root@server httpd]# hostname -i
192.168.10.100 127.0.0.1
[root@server httpd]# 
```

Network Statistics Commands in Linux

```
[root@server ~]# netstat -r
Kernel IP routing table
Destination      Gateway          Genmask        Flags   MSS Window irtt Iface
192.168.100.0    *               255.255.255.0    U        0 0          0 eth0
default         server.autellin  0.0.0.0       UG       0 0          0 eth0
[root@server ~]# 
```

```
[root@server ~]# netstat -i
Kernel Interface table
Iface      MTU Met      RX-OK RX-ERR RX-DRP RX-OVR      TX-OK TX-ERR TX-DRP TX-OVR Flg
eth0       1500 0      11987      0      0      0      15740      0      0      0 BMRU
lo        16436 0     20783      0      0      0     20783      0      0      0 LRU
[root@server ~]# 
```

```
[root@client ~]# netstat -ula
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address          Foreign Address        State
udp    0      0 *:mdns                *:*
udp    0      0 *:sunrpc              *:*
udp    0      0 *:ipp                 *:*
udp    0      0 *:905                 *:*
udp    0      0 *:49428              *:*
udp    0      0 *:33206              *:*
udp    0      0 *:bootpc              *:*
udp    0      0 *:36304              *:*
udp    0      0 *:977                 *:*
udp    0      0 *:sunrpc              *:*
udp    0      0 *:905                 *:*
udp    0      0 *:44107              *:*
udp    0      0 *:41038              *:*
[root@client ~]# 
```

```
[root@client ~]# netstat -tla
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address          Foreign Address        State
tcp    0      0 *:mysql              *:*
tcp    0      0 *:55658              *:*
tcp    0      0 *:sunrpc              *:*
tcp    0      0 *:ssh                 *:*
tcp    0      0 localhost.localdomain:ipp  *:*
tcp    0      0 localhost.localdomain:smtp *:*
tcp    0      0 client.autellinux.com:47638 192.168.100.250:ssh ESTABLISHED
tcp    0      132 client.autellinux.com:ssh  192.168.100.208:5610 ESTABLISHED
tcp    0      0 *:sunrpc              *:*
tcp    0      0 *:38130              *:*
tcp    0      0 *:ssh                 *:*
tcp    0      0 client.autellinux.com:ipp *:*
tcp    0      0 *:squid               *:*
[root@client ~]# 
```

Network Mapper in Linux

```
[root@server ~]# nmap 192.168.100.250

Starting Nmap 5.21 ( http://nmap.org ) at 2013-05-09 21:26 PDT
Nmap scan report for server.autellinux.com (192.168.100.250)
Host is up (0.0000060s latency).
Not shown: 989 closed ports
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh
23/tcp    open  telnet
80/tcp    open  http
111/tcp   open  rpcbind
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
2049/tcp  open  nfs
3128/tcp  open  squid-http
3260/tcp  open  iscsi
3306/tcp  open  mysql

Nmap done: 1 IP address (1 host up) scanned in 0.08 seconds
[root@server ~]# 
```

```
[root@server ~]# nmap -v 192.168.100.250
Starting Nmap 5.21 ( http://nmap.org ) at 2013-05-09 21:30 PDT
Initiating SYN Stealth Scan at 21:30
Scanning server.autellinux.com (192.168.100.250) [1000 ports]
Discovered open port 21/tcp on 192.168.100.250
Discovered open port 445/tcp on 192.168.100.250
Discovered open port 23/tcp on 192.168.100.250
Discovered open port 80/tcp on 192.168.100.250
Discovered open port 22/tcp on 192.168.100.250
Discovered open port 3306/tcp on 192.168.100.250
Discovered open port 139/tcp on 192.168.100.250
Discovered open port 111/tcp on 192.168.100.250
Discovered open port 3128/tcp on 192.168.100.250
Discovered open port 2049/tcp on 192.168.100.250
Discovered open port 3260/tcp on 192.168.100.250
Completed SYN Stealth Scan at 21:30, 0.03s elapsed (1000 total ports)
Nmap scan report for server.autellinux.com (192.168.100.250)
Host is up (0.000010s latency).
Not shown: 989 closed ports
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh
23/tcp    open  telnet
80/tcp    open  http
111/tcp   open  rpcbind
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
2049/tcp  open  nfs
3128/tcp  open  squid-http
3260/tcp  open  iscsi
3306/tcp  open  mysql

Read data files from: /usr/share/nmap
Nmap done: 1 IP address (1 host up) scanned in 0.11 seconds
    Raw packets sent: 1000 (44.000KB) | Rcvd: 2011 (84.484KB)
[root@server ~]# 
```

```
[root@server ~]# nmap -v 192.168.100.0/24 |tail -10
139/tcp  open  netbios-ssn
445/tcp  open  microsoft-ds
2049/tcp open  nfs
3128/tcp open  squid-http
3260/tcp open  iscsi
3306/tcp open  mysql

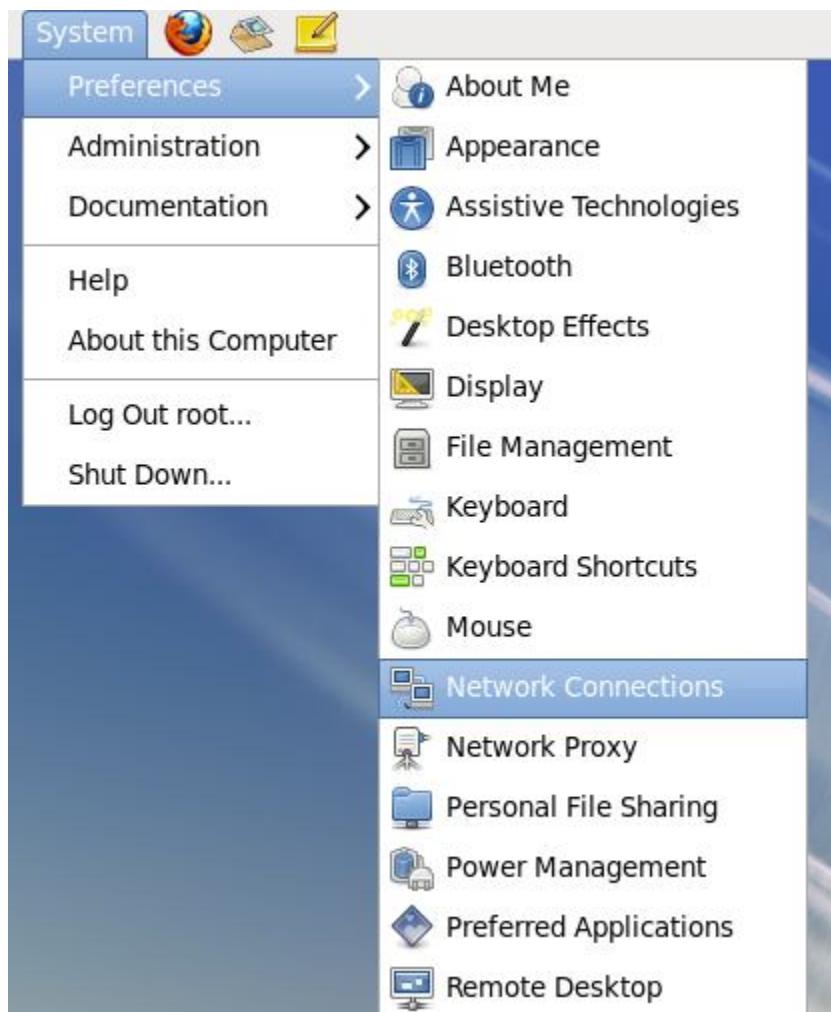
Read data files from: /usr/share/nmap
Nmap done: 256 IP addresses (4 hosts up) scanned in 16.92 seconds
    Raw packets sent: 4518 (197.778KB) | Rcvd: 5014 (204.710KB)
[root@server ~]# 
```

```
[root@server ~]# nmap -v -sP 192.168.100.250
Starting Nmap 5.21 ( http://nmap.org ) at 2013-05-09 21:45 PDT
Nmap scan report for server.autellinux.com (192.168.100.250)
Host is up.
Nmap done: 1 IP address (1 host up) scanned in 0.00 seconds
    Raw packets sent: 0 (0B) | Rcvd: 0 (0B)
[root@server ~]# 
```

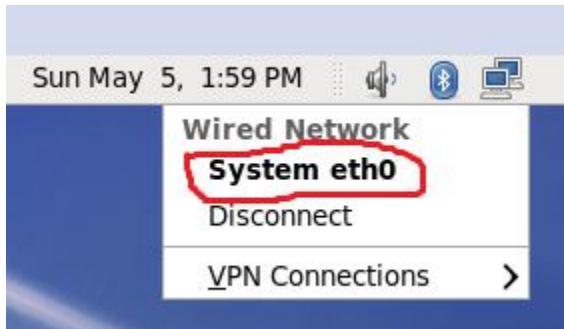
```
[root@server ~]# nmap -v -sP 192.168.100.0/24 | grep "Host is up" |wc -l
4
[root@server ~]# 
```

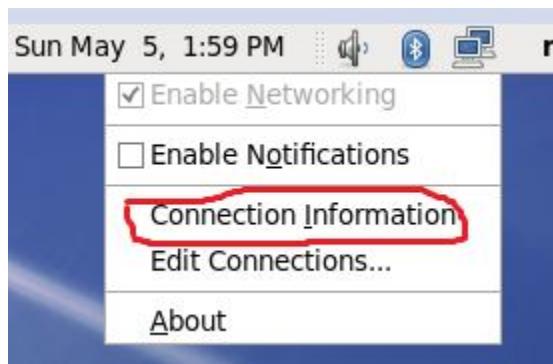
```
[root@server ~]# nmap -v -sP 192.168.100.0/24 | grep "down" |wc -l
252
[root@server ~]# 
```

Assign IP Address Using GUI in Linux









IP Aliases in Linux

```
[root@server:~/Desktop/usr]
[root@server usr]# ifconfig eth0:1 192.168.10.8 netmask 255.255.255.0
[root@server usr]# 
```

```
[root@server:~/Desktop/usr]
[root@server usr]# ifconfig eth0:1
eth0:1      Link encap:Ethernet HWaddr 00:0C:29:38:0F:97
            inet addr:192.168.10.8 Bcast:192.168.10.255 Mask:255.255.255.0
                      UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

[root@server usr]# 
```

```
[root@server:~/Desktop/usr]
[root@server usr]# ping -c 2 192.168.10.8
PING 192.168.10.8 (192.168.10.8) 56(84) bytes of data.
64 bytes from 192.168.10.8: icmp_seq=1 ttl=64 time=0.044 ms
64 bytes from 192.168.10.8: icmp_seq=2 ttl=64 time=0.050 ms

--- 192.168.10.8 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1000ms
rtt min/avg/max/mdev = 0.044/0.047/0.050/0.003 ms
[root@server usr]# 
```

How to Check Server IP in Linux

```
[root@server ~]# vim /etc/sysconfig/network-scripts/ifcfg-eth0
[root@server ~]#
```

```
[root@server ~]# DEVICE=eth0
[redacted]
BOOTPROTO=none
HWADDR=00:0c:29:38:0f:97
MTU=1500
NM_CONTROLLED=yes
ONBOOT=yes
IPADDR=192.168.10.100
NETMASK=255.255.255.0
TYPE=Ethernet
GATEWAY=192.168.10.100
DNS1=192.168.10.100
[redacted]
IPV6INIT=no
USERCTL=no
~
```

```
[root@server ~]# cat /etc/resolv.conf
# Generated by NetworkManager
search au-tel.com
nameserver 192.168.10.100
[root@server ~]#
```

How to Find MAC Address in Linux

```
[root@server Desktop]# arp -v
Address          HWtype  HWaddress          Flags Mask   Iface
192.168.100.208 ether    30:f9:ed:e9:c2:5a  C      eth0
192.168.100.201 ether    00:0c:29:e1:be:99  C      eth0
192.168.100.207 ether    00:0c:29:4c:99:f1  C      eth0
Entries: 3      Skipped: 0      Found: 3
[root@server Desktop]#
```

Packet Capture commands in Linux

```
[root@server ~]# tcpdump -c 5 -i eth0
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
22:32:18.682968 IP server.autellinux.com.ssh > 192.168.100.208.outlaws: Flags [P.], seq 1988505307:1988505503, ack 4093513595, win 80, length 196
22:32:18.683272 IP 192.168.100.208.outlaws > server.autellinux.com.ssh: Flags [.], ack 196, win 251, length 0
22:32:18.684968 IP server.autellinux.com.ssh > 192.168.100.208.outlaws: Flags [P.], seq 196:504, ack 1, win 80, length 308
22:32:18.685957 IP server.autellinux.com.ssh > 192.168.100.208.outlaws: Flags [P.], seq 504:668, ack 1, win 80, length 164
22:32:18.686197 IP 192.168.100.208.outlaws > server.autellinux.com.ssh: Flags [.], ack 668, win 256, length 0
5 packets captured
5 packets received by filter
0 packets dropped by kernel
[root@server ~]#
```

```
[root@server ~]# tcpdump -c 5 -n -i eth0
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
22:32:55.257897 IP 192.168.100.250.ssh > 192.168.100.208.outlaws: Flags [P.], seq 1988511575:1988511771, ack 4093515623, win 80, length 196
22:32:55.258218 IP 192.168.100.208.outlaws > 192.168.100.250.ssh: Flags [.], ack 196, win 252, length 0
22:32:55.259721 IP 192.168.100.250.ssh > 192.168.100.208.outlaws: Flags [P.], seq 196:488, ack 1, win 80, length 292
22:32:55.261757 IP 192.168.100.250.ssh > 192.168.100.208.outlaws: Flags [P.], seq 488:652, ack 1, win 80, length 164
22:32:55.261999 IP 192.168.100.208.outlaws > 192.168.100.250.ssh: Flags [.], ack 652, win 256, length 0
5 packets captured
5 packets received by filter
0 packets dropped by kernel
[root@server ~]#
```

```
[root@server Desktop]# tcpdump -c 3 -w sshh.pcap -i eth0
tcpdump: listening on eth0, link-type EN10MB (Ethernet), ...
5
3 packets captured
3 packets received by filter
0 packets dropped by kernel
[root@server Desktop]#
[root@server Desktop]#
```

```
[root@server Desktop]# ls
sshh.pcap
[root@server Desktop]#
```

```
[root@server Desktop]# tcpdump -tttt -r sshh.pcap
reading from file sshh.pcap, link-type EN10MB (Ethernet)
2013-05-09 22:34:13.311093 IP server.autellinux.com.ssh > 192.168.100.208.outlaw
s: Flags [P.], seq 1988519251:1988519383, ack 4093520355, win 80, length 132
2013-05-09 22:34:13.311418 IP 192.168.100.208.outlaws > server.autellinux.com.ss
h: Flags [.], ack 132, win 252, length 0
2013-05-09 22:34:13.777663 IP6 fe80::e44b:a063:c581:3d2d.51673 > ff02::c.ssdp: U
DP, length 146
[root@server Desktop]#
```

How To Check Listening and Establishing Port in Linux

```
root@server:~ [REDACTED]
[root@server ~]# netstat -tla | grep LISTEN | wc -l
13
[root@server ~]#
```

```
root@server:~ [REDACTED]
[root@server ~]# netstat -tla | grep ESTABLISH | wc -l
3
[root@server ~]#
```

How to Check Total Number of Running and Stopped Services in Linux

```
root@server:~  
[root@server ~]# ls /etc/init.d/* | wc -l  
55  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# service --status-all | grep running | wc -l  
23  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# service --status-all | grep stop | wc -l  
14  
[root@server ~]#
```

Ethernet Tool Command in Linux

```
root@server:~ [root@server ~]# ethtool eth0
Settings for eth0:
  Supported ports: [ TP ]
  Supported link modes:  10baseT/Half 10baseT/Full
                         100baseT/Half 100baseT/Full
                         1000baseT/Full
  Supports auto-negotiation: Yes
  Advertised link modes:   10baseT/Half 10baseT/Full
                         100baseT/Half 100baseT/Full
                         1000baseT/Full
  Advertised pause frame use: No
  Advertised auto-negotiation: Yes
  Speed: 1000Mb/s
  Duplex: Full
  Port: Twisted Pair
  PHYAD: 0
  Transceiver: internal
  Auto-negotiation: on
  MDI-X: Unknown
  Supports Wake-on: d
  Wake-on: d
  Current message level: 0x00000007 (7)
  Link detected: yes
[root@server ~]# 
```

```
root@server:~ [root@server ~]# ethtool eth0 | grep Speed
  Speed: 1000Mb/s
[root@server ~]# 
```

```
root@server:~ [root@server ~]# ethtool -i eth0
driver: e1000
version: 7.3.21-k6-NAPI
firmware-version: N/A
bus-info: 0000:02:01.0
[root@server ~]# 
```

```
root@server:~ [root@server ~]# ethtool -a eth0
Pause parameters for eth0:
Autonegotiate: on
RX: off
TX: off
[root@server ~]# 
```

How To Ping Multiple IP Address using Single Command line

```
root@server:~ [root@server ~]# for i in {1..254}; do ping -c 2 192.168.10.$i; done
```

LFTP (sophisticated ftp) File Transfer in Linux

```
[root@server Desktop]# lftp 192.168.100.207
lftp 192.168.100.207:~> mirror pub/
Total: 1 directory, 192 files, 0 symlinks
lftp 192.168.100.207:/> cd pub/
lftp 192.168.100.207:/pub> get squid-3.1.4-1.el6.x86_64.rpm
1761028 bytes transferred
lftp 192.168.100.207:/pub> 
```

```
[root@server Desktop]# lftp 192.168.100.207:/pub
cd ok, cwd=/pub
lftp 192.168.100.207:/pub> 
```

SFTP (Secure FTP) File Transfer in Linux

```
[root@server ~]# sftp 192.168.100.201
Connecting to 192.168.100.201...
root@192.168.100.201's password:
sftp> pwd
Remote working directory: /root
sftp> ls
Desktop           Documents        Downloads       Music
Pictures          Public          Templates      Videos
anaconda-ks.cfg   install.log    install.log.syslog  karthi
kkkk.txt
sftp> get kkkk.txt
Fetching /root/kkkk.txt to kkkk.txt
/root/kkkk.txt                                              100%   6     0.0KB/s  00:00
sftp> lls
```

```
[root@server ~]# sftp 192.168.100.201
Connecting to 192.168.100.201...
root@192.168.100.201's password:
sftp> lls
anaconda-ks.cfg                  performance.sh
Desktop                         Pictures
Documents                        Public
Downloads                        report.txt
firefox-3.6.9-2.el6.x86_64.rpm  squid-2.6.STABLE21-3.el5.x86_64.rpm
install.log                      sshh.pcap
install.log.syslog                Templates
karthi                           Videos
kkkk.txt                         vinagre-2.28.1-7.el6.x86_64.rpm
Music
sftp> mput report.txt
Uploading report.txt to /root/report.txt
report.txt                                         100%  659     0.6KB/s  00:00
sftp> ls
Desktop           Documents        Downloads       Music
Pictures          Public          Templates      Videos
anaconda-ks.cfg   install.log    install.log.syslog  karthi
kkkk.txt          report.txt
sftp> █
```

SCP (secure copy) Commands in Linux

```
[root@server Desktop]# scp sshh.pcap 192.168.100.201:/mnt
root@192.168.100.201's password:
sshh.pcap                                         100%   526      0.5KB/s
[root@server Desktop]# ssh 192.168.100.201 'ls -1 /mnt'
root@192.168.100.201's password:
hgfs
sshh.pcap
[root@server Desktop]# 
```

```
[root@server ~]# scp -r karthi/ 192.168.100.201:/root/
root@192.168.100.201's password:
2                                         100%    0      0.0KB/s  00:00
4                                         100%    0      0.0KB/s  00:00
3                                         100%    0      0.0KB/s  00:00
1                                         100%    0      0.0KB/s  00:00
5                                         100%    0      0.0KB/s  00:00
[root@server ~]# ssh 192.168.100.201 'ls /root'
root@192.168.100.201's password:
anaconda-ks.cfg
Desktop
Documents
Downloads
install.log
install.log.syslog
karthi
kkkk.txt
Music
Pictures
Public
Templates
Videos
[root@server ~]# 
```

SSH (secure shell) Commands in Linux

```
[root@server Desktop]# ssh 192.168.100.201  
root@192.168.100.201's password: [REDACTED]
```

```
[root@server Desktop]# ssh 192.168.100.201  
root@192.168.100.201's password:  
Last login: Thu May  9 22:28:48 2013 from 192.168.100.208  
[root@client ~]# [REDACTED]
```

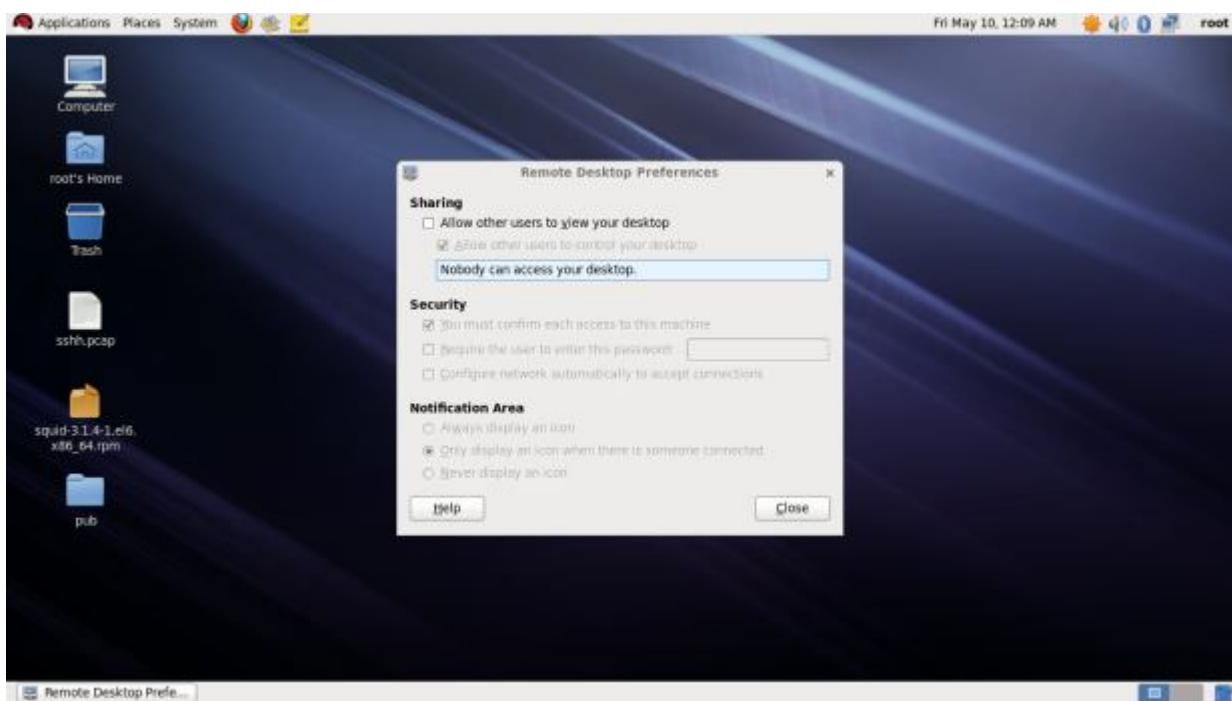
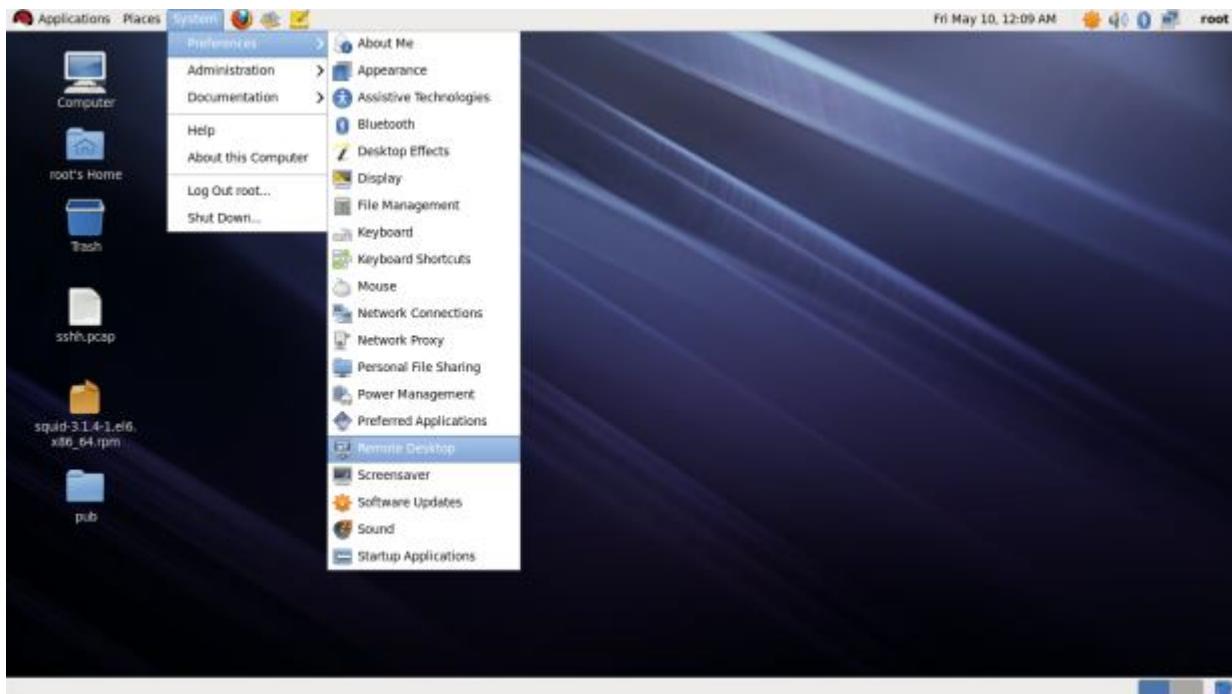
```
[root@server Desktop]# ssh client.autellinux.com [REDACTED]
```

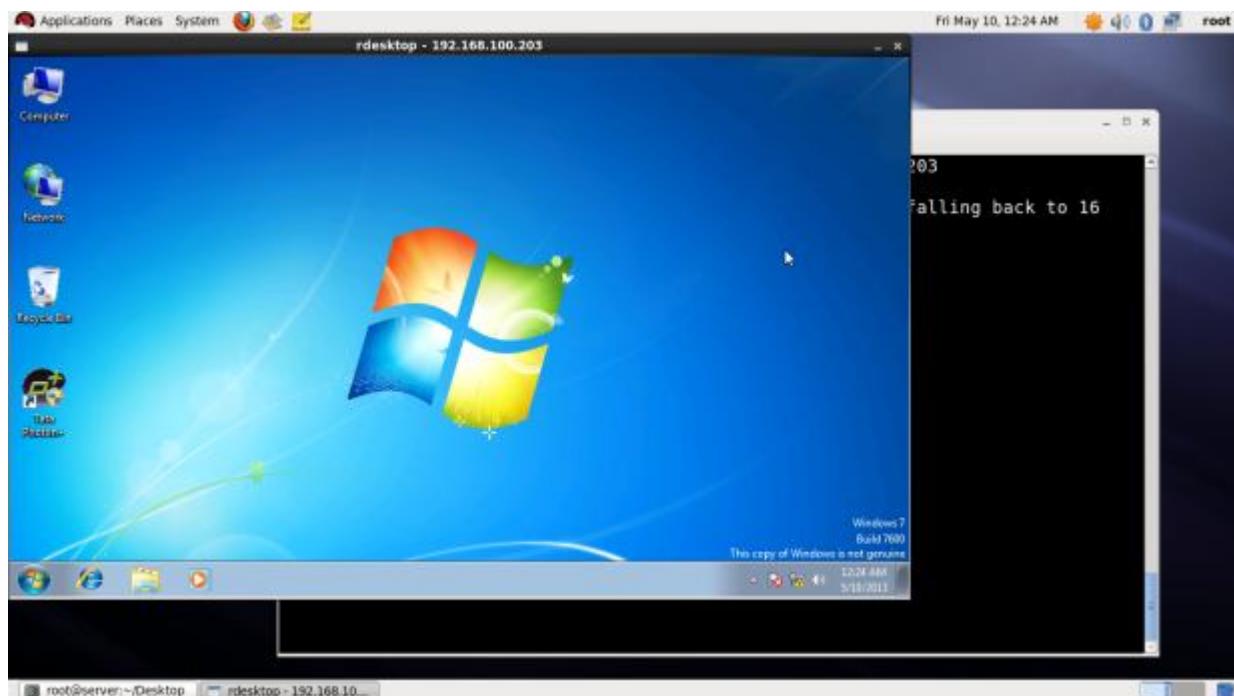
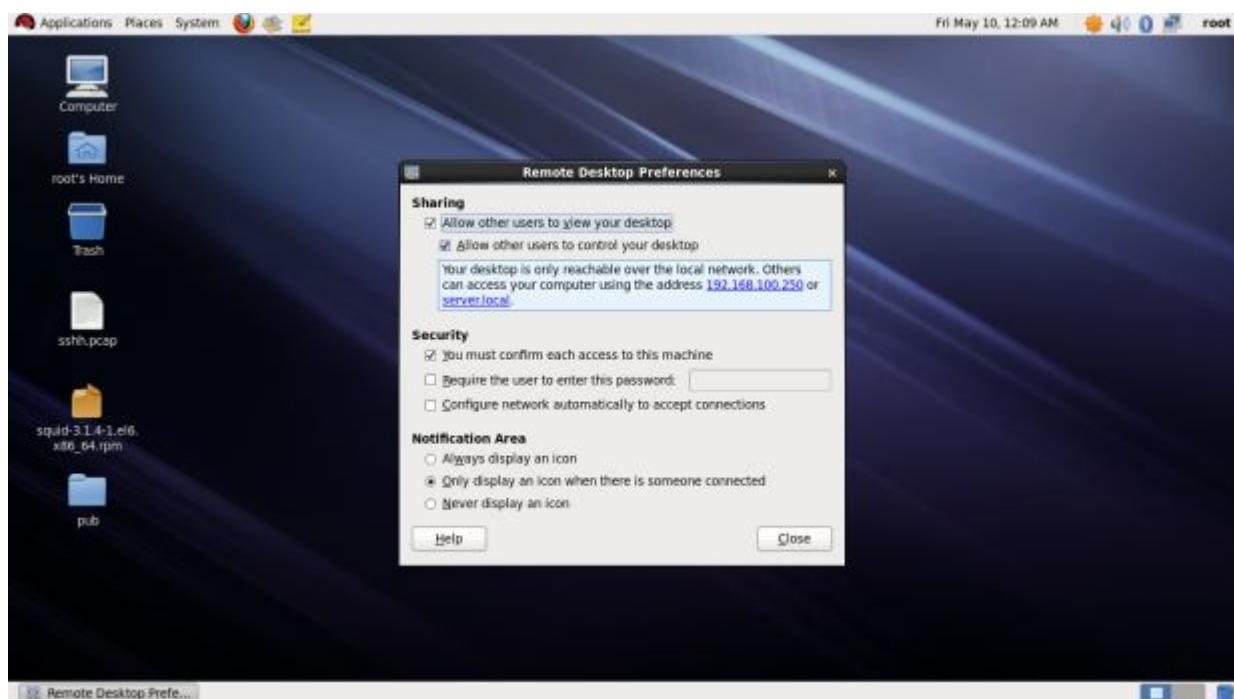
```
[root@server Desktop]# ssh karthi@client.autellinux.com
```

```
[root@server Desktop]# ssh root@192.168.100.201
```

```
[root@server Desktop]# ssh 192.168.100.201 'df -h'  
root@192.168.100.201's password:  
Filesystem      Size  Used Avail Use% Mounted on  
/dev/sda2        17G  2.6G   13G  17% /  
tmpfs           812M    0   812M   0% /dev/shm  
/dev/sda1       291M   30M   246M  11% /boot  
[root@server Desktop]# [REDACTED]
```

Remote Desktop Connection Enable in Linux; Windwos





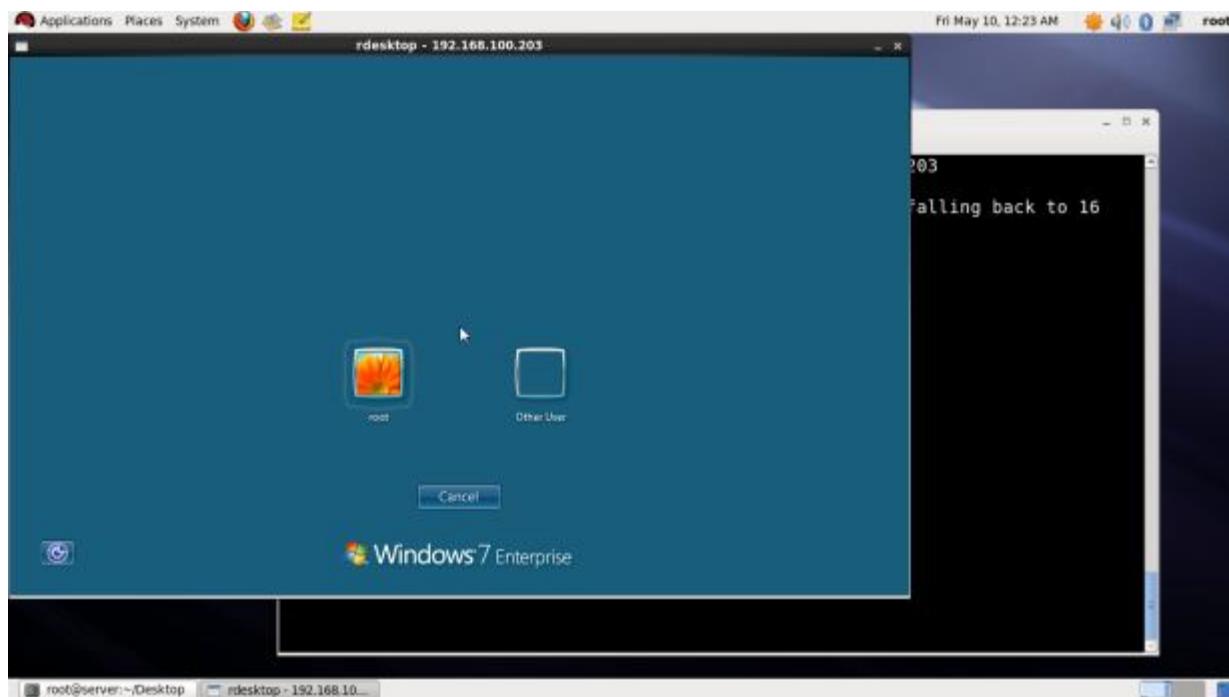
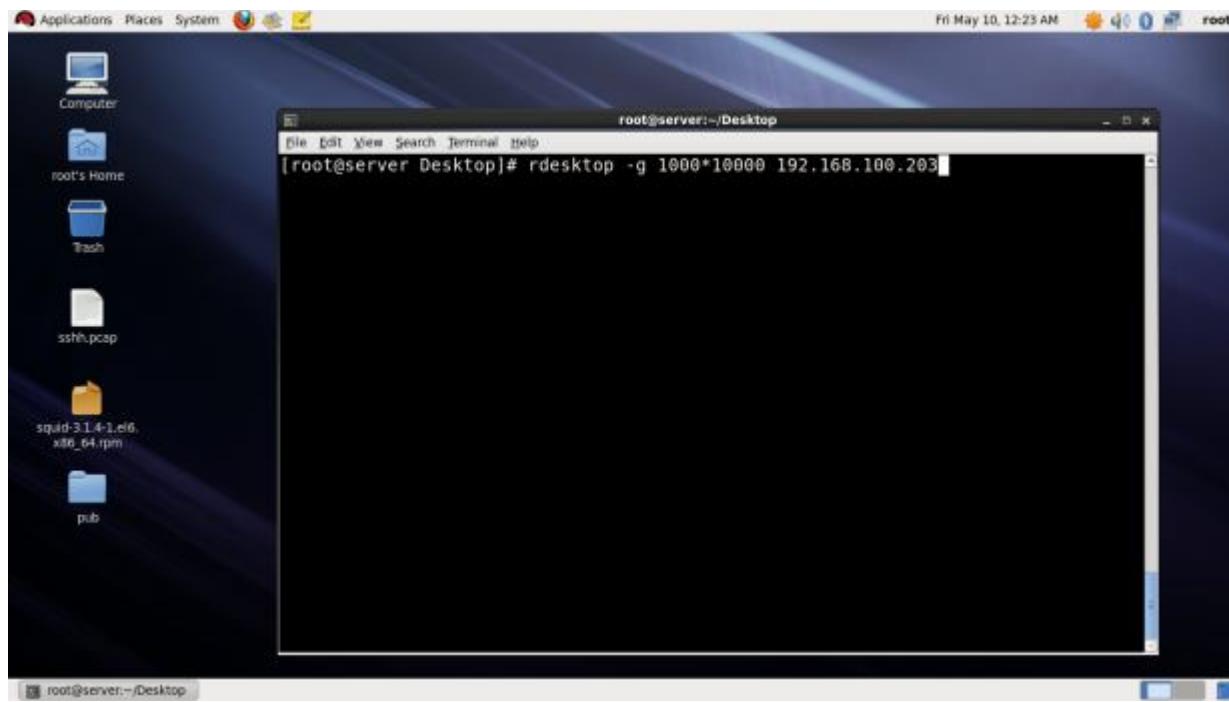
Telnet Command in Linux

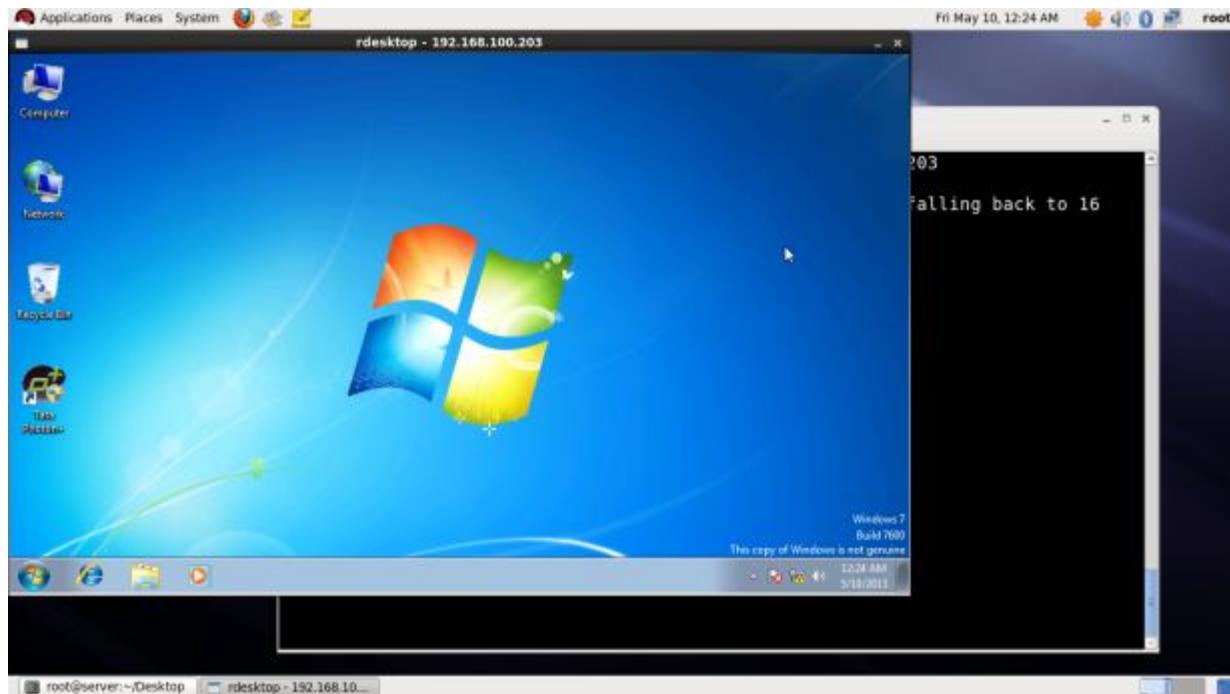
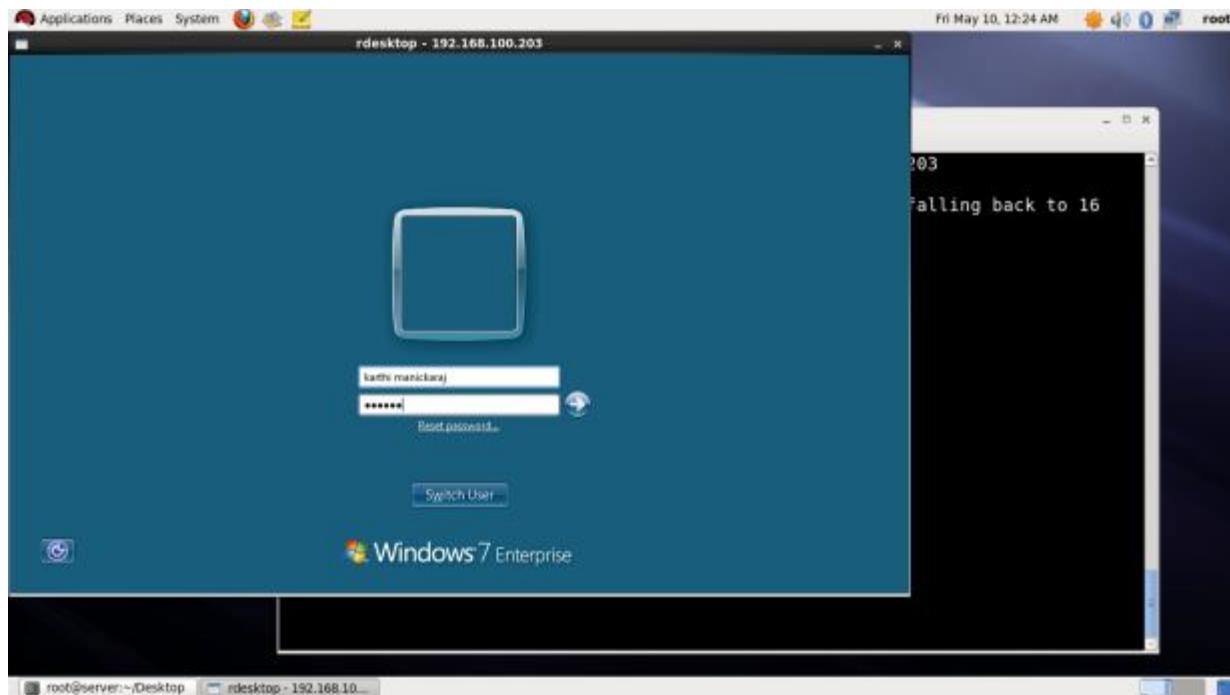
```
[root@client ~]# telnet 192.168.100.250
Trying 192.168.100.250...
Connected to 192.168.100.250.
Escape character is '^]'.
Red Hat Enterprise Linux Server release 6.0 (Santiago)
Kernel 2.6.32-71.el6.x86_64 on an x86_64
login: root
Password:
Last login: Thu May  9 22:02:05 from 192.168.100.207
[root@server ~]#
```

```
C:\Windows\system32\cmd.exe
C:\Users\Karthi Manickaraj>telnet 192.168.100.250
```

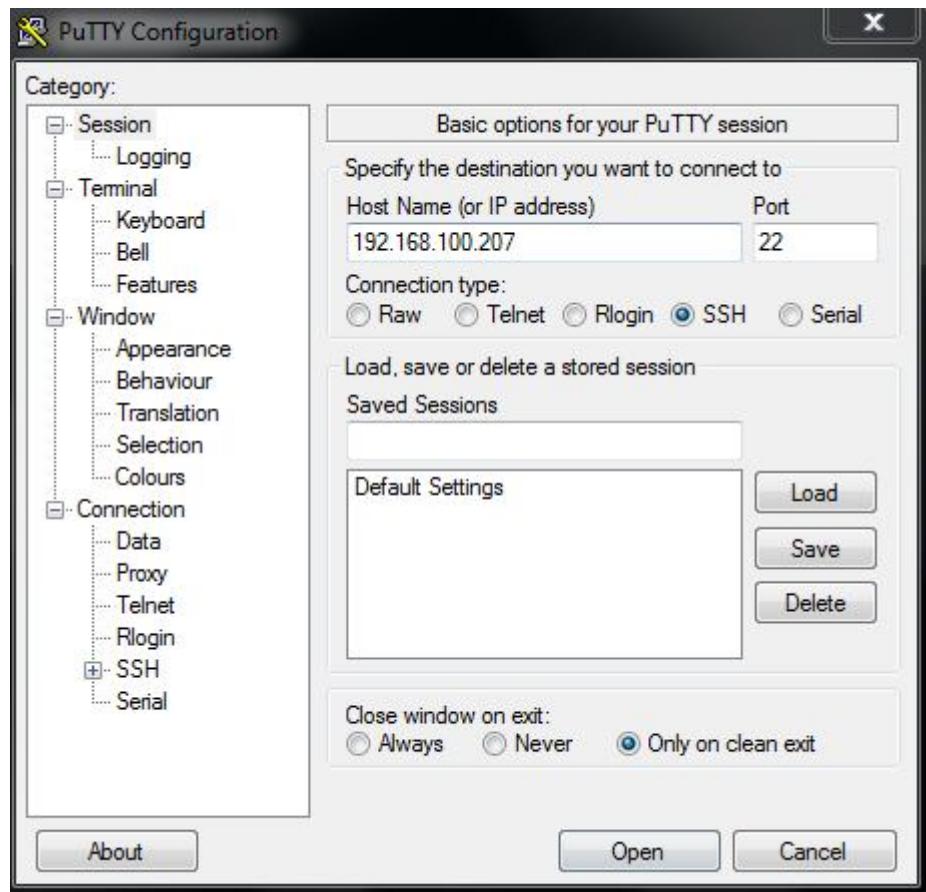
```
C:\ Telnet 192.168.100.250
Red Hat Enterprise Linux Server release 6.0 (Santiago)
Kernel 2.6.32-71.el6.x86_64 on an x86_64
login: root
Password:
Last login: Fri May 10 00:01:57 from 192.168.100.207
[root@server ~]#
```

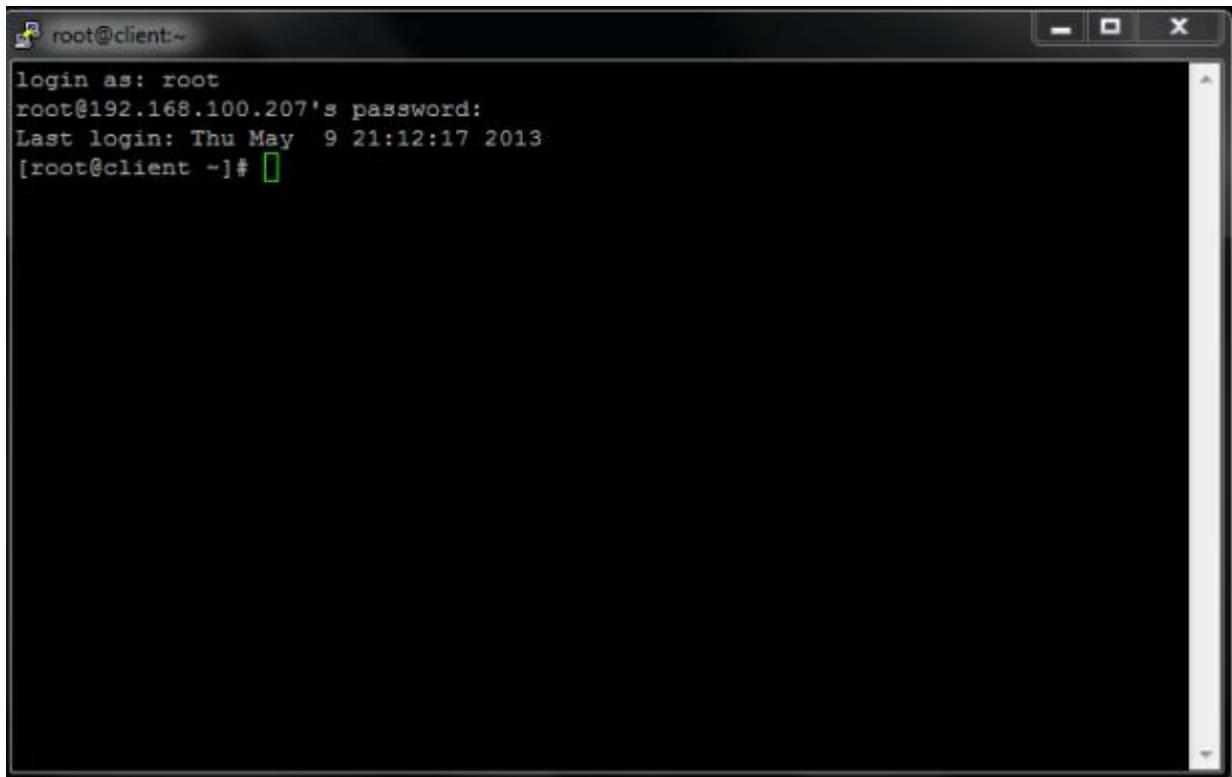
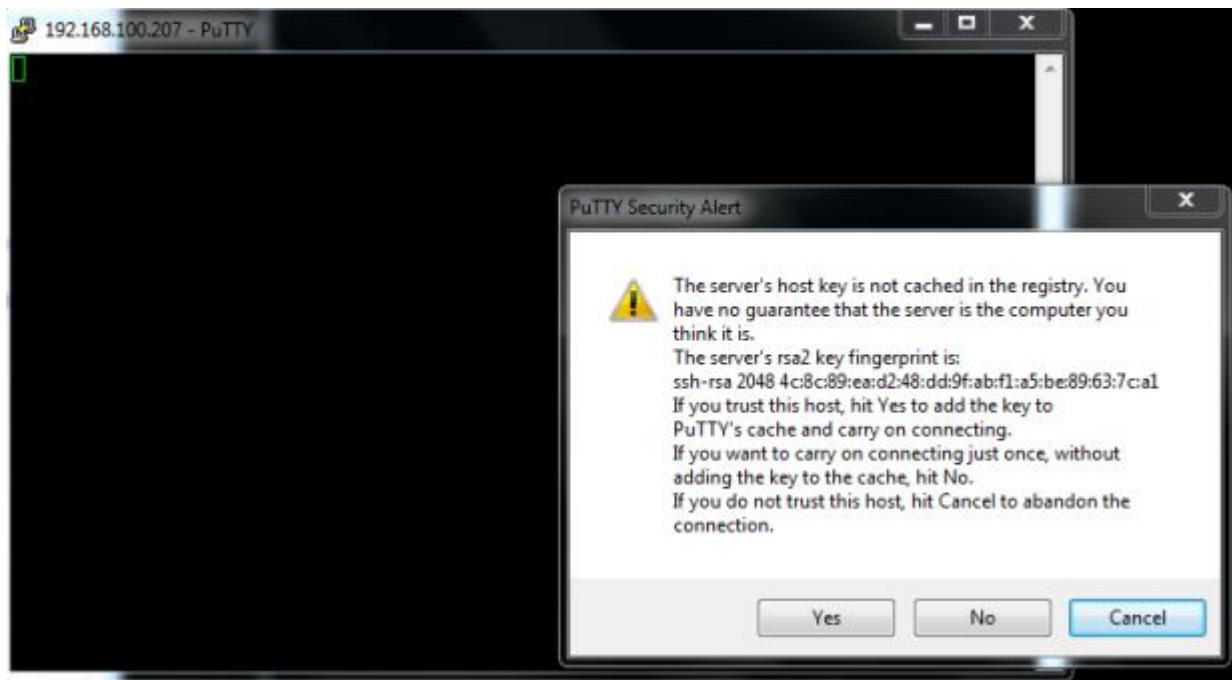
Rdesktop Commands in Linux





Putty in Linux



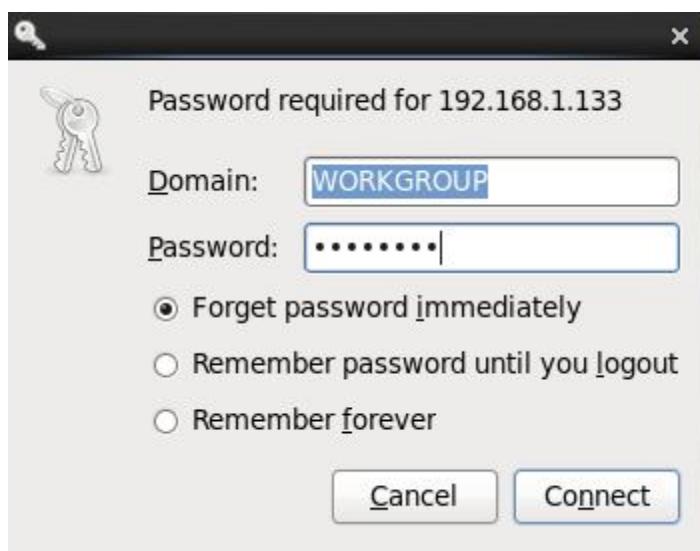


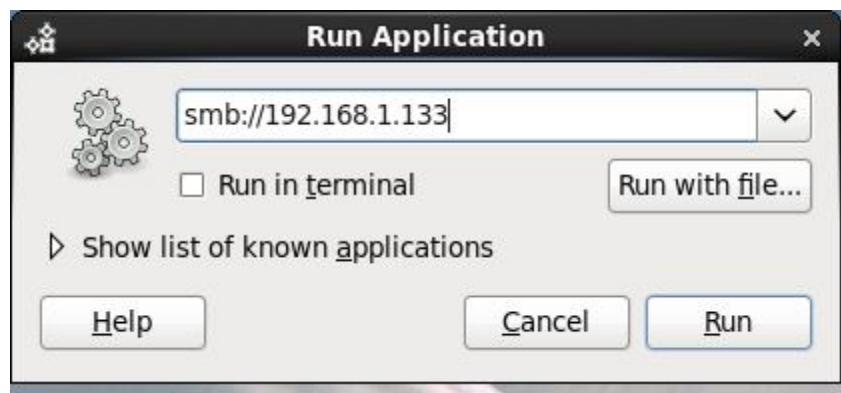
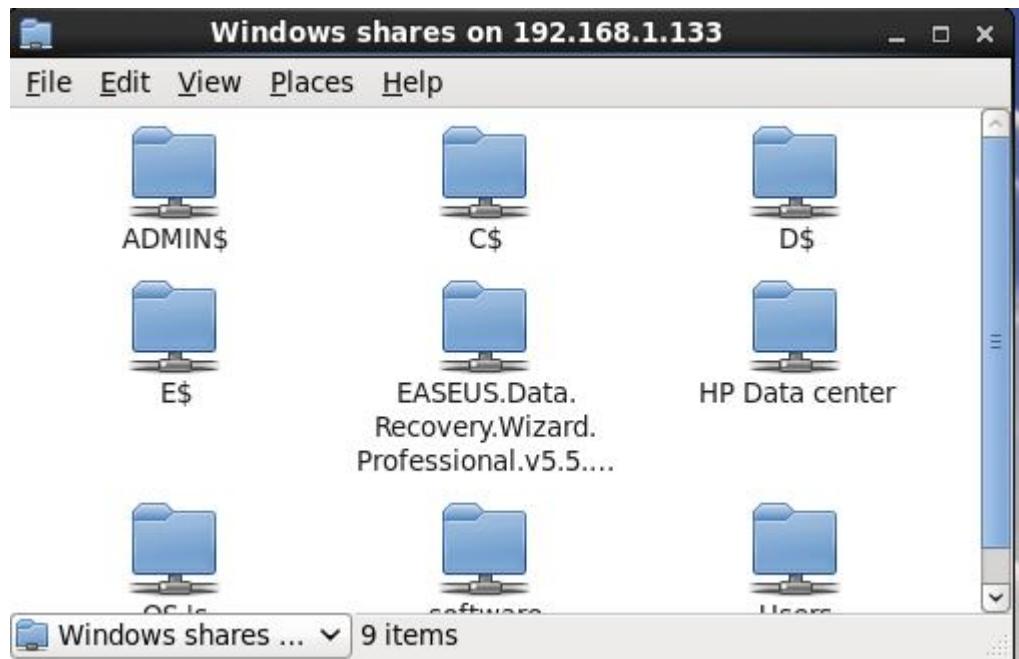
A screenshot of a terminal session window. The title bar shows "root@client:~". The session content is as follows:

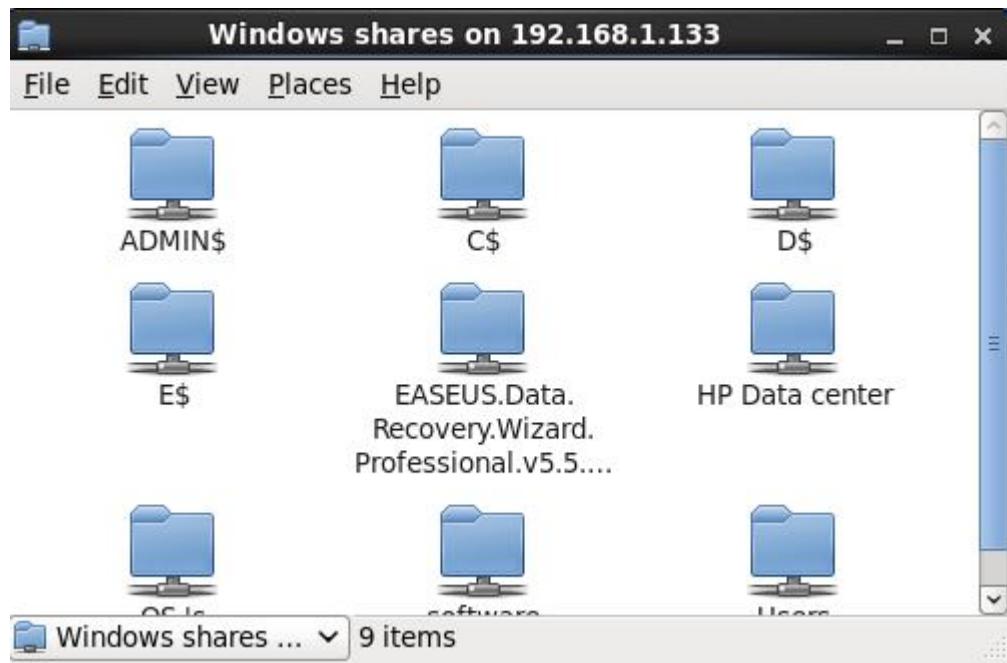
```
root@client:~  
login as: root  
root@192.168.100.207's password:  
Last login: Thu May  9 21:12:17 2013  
[root@client ~]#
```

How to Access Windows Share in Linux GUI

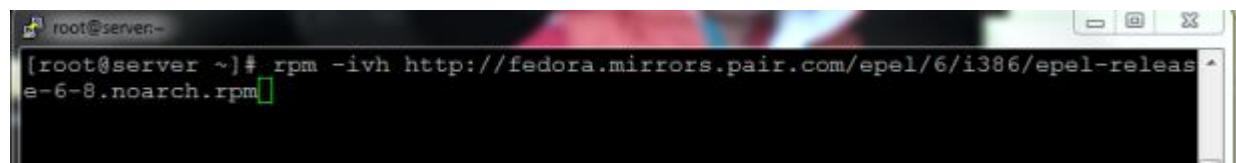




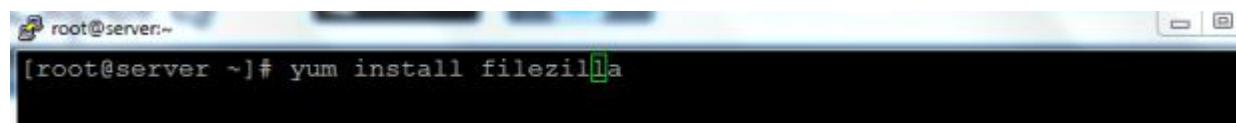




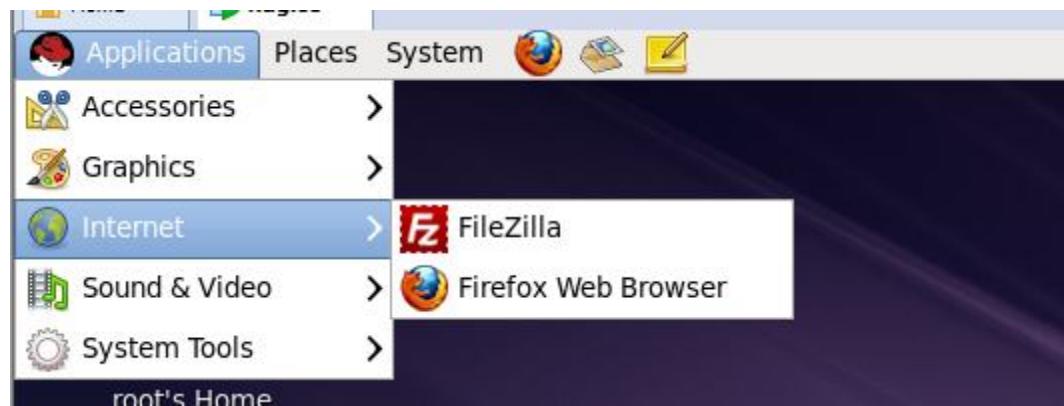
Remote File Transfer using File Zilla

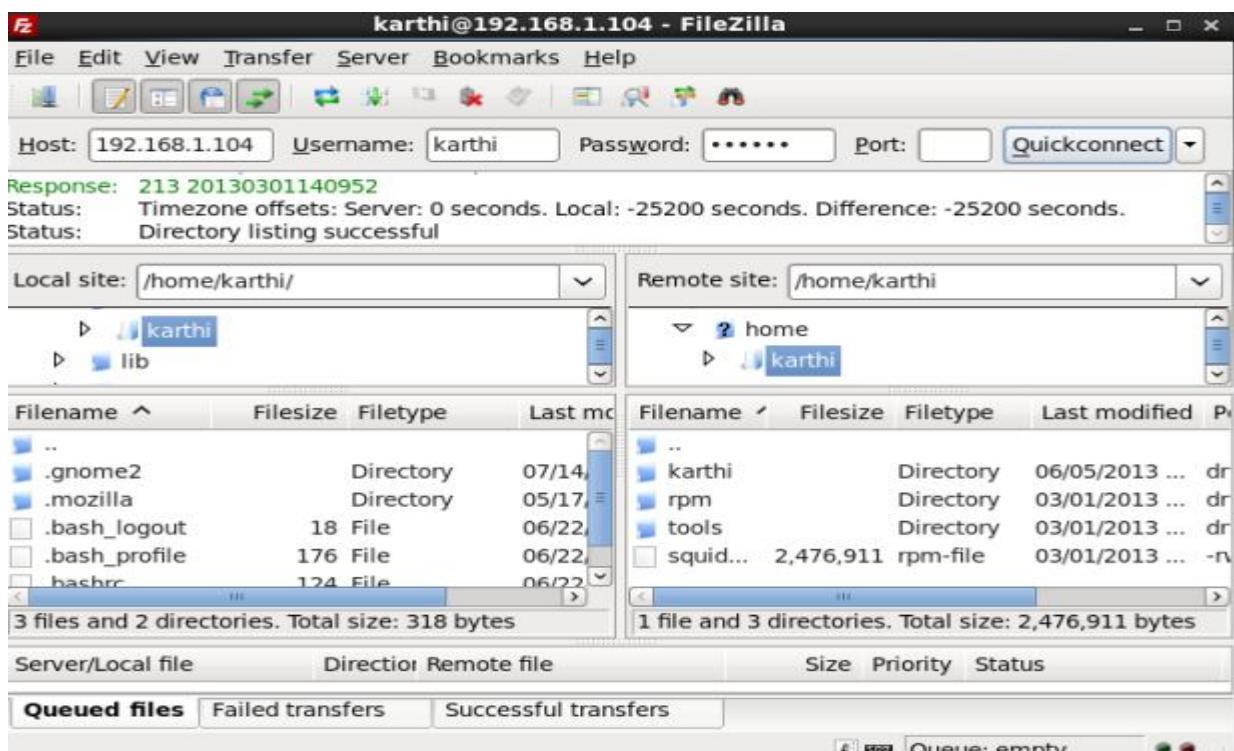
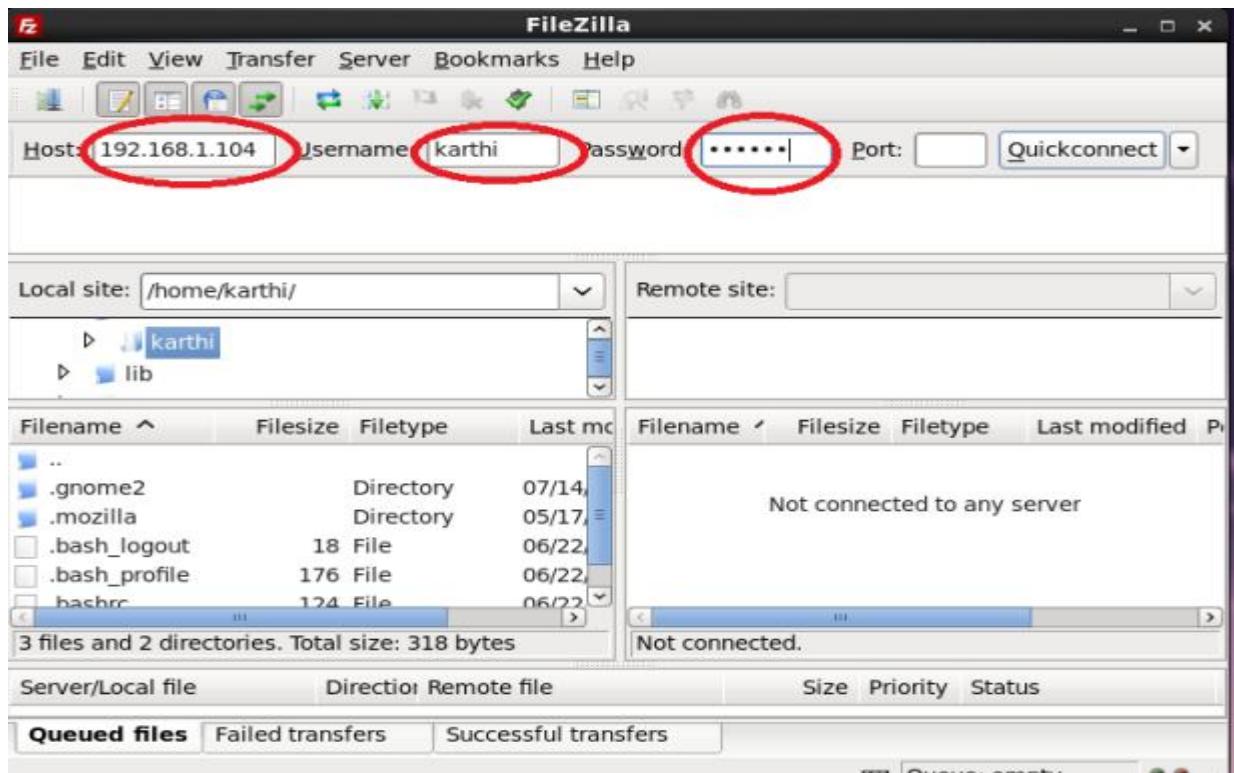


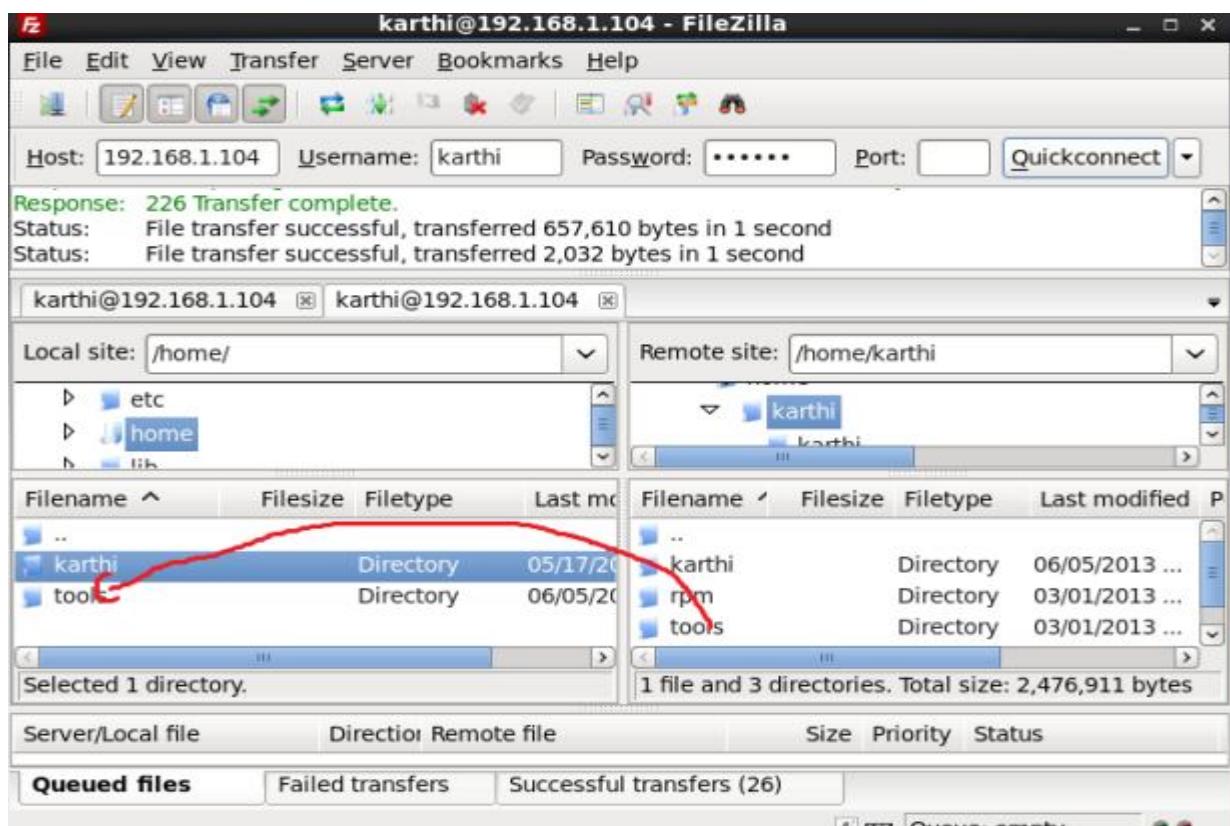
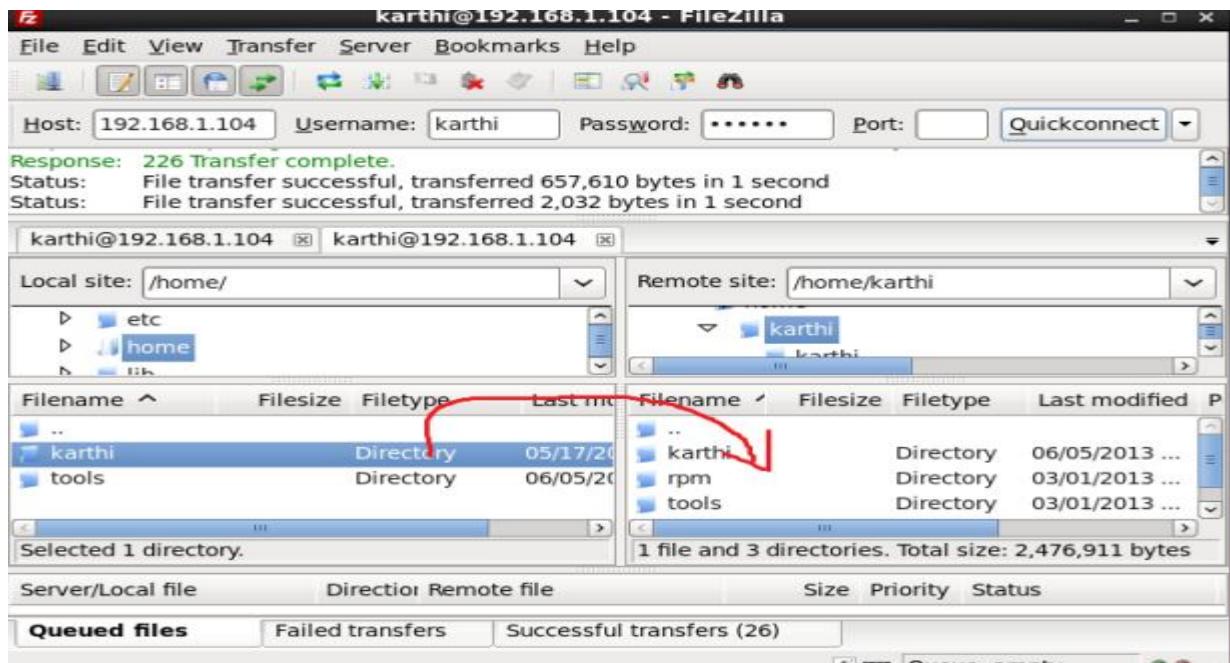
```
root@server:~# rpm -ivh http://fedora.mirrors.pair.com/epel/6/i386/epel-releas  
e-6-8.noarch.rpm
```



```
root@server:~# yum install filezil[1a
```

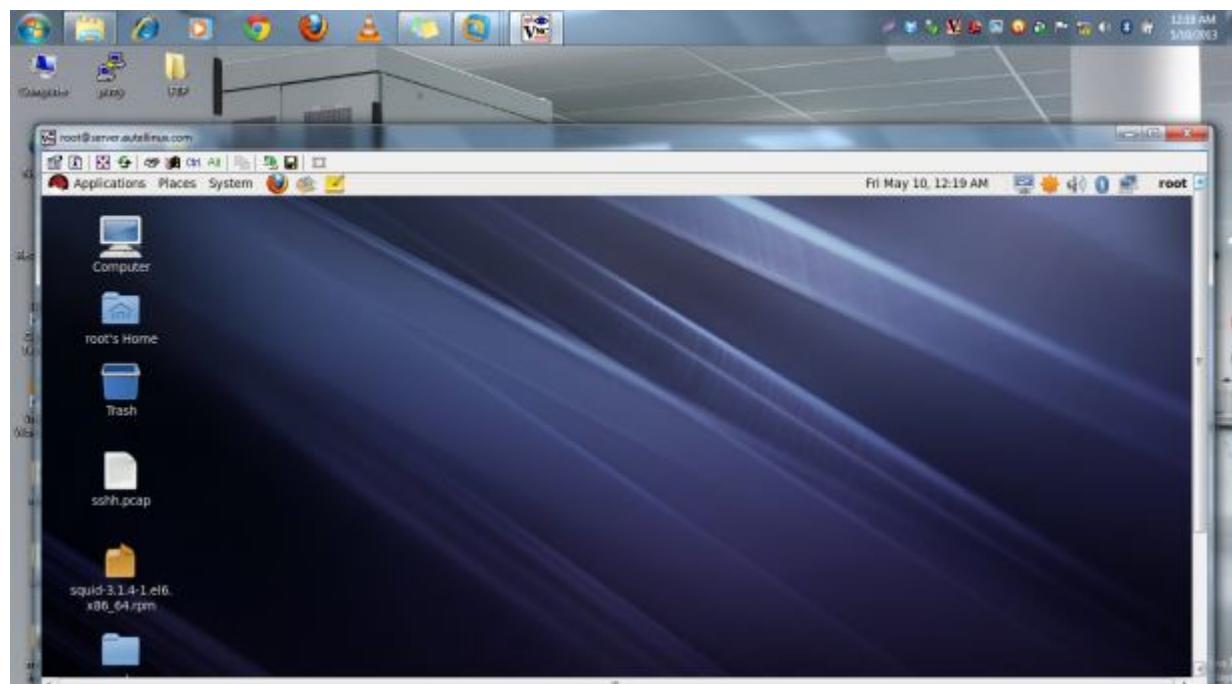
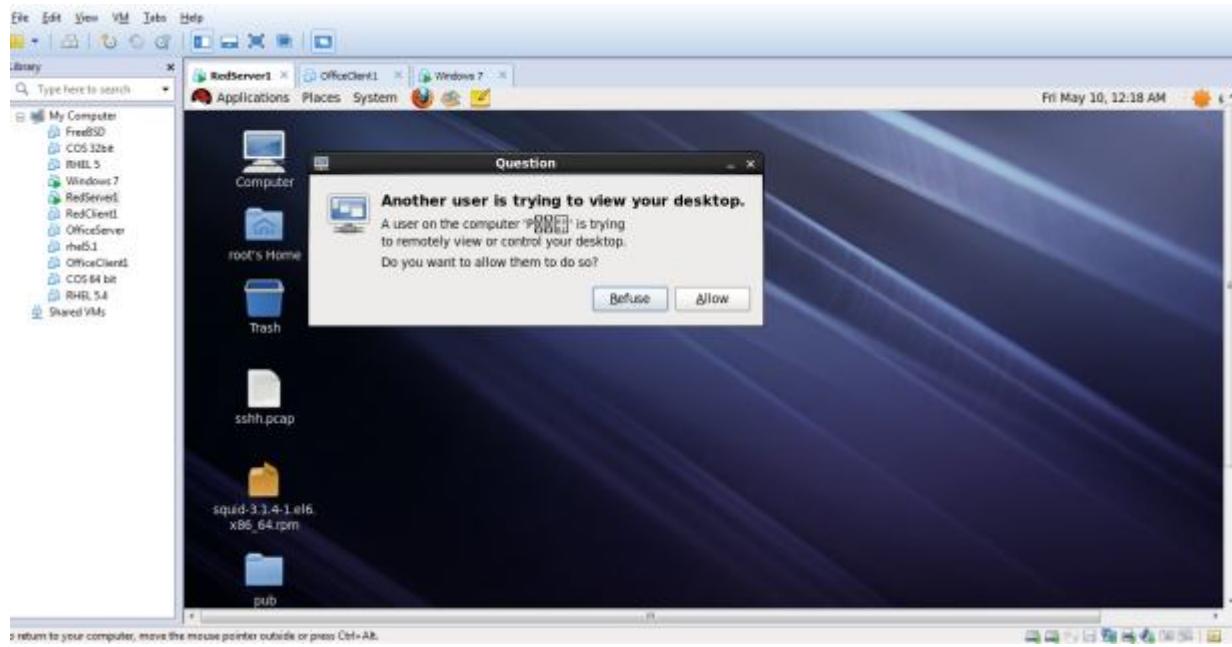




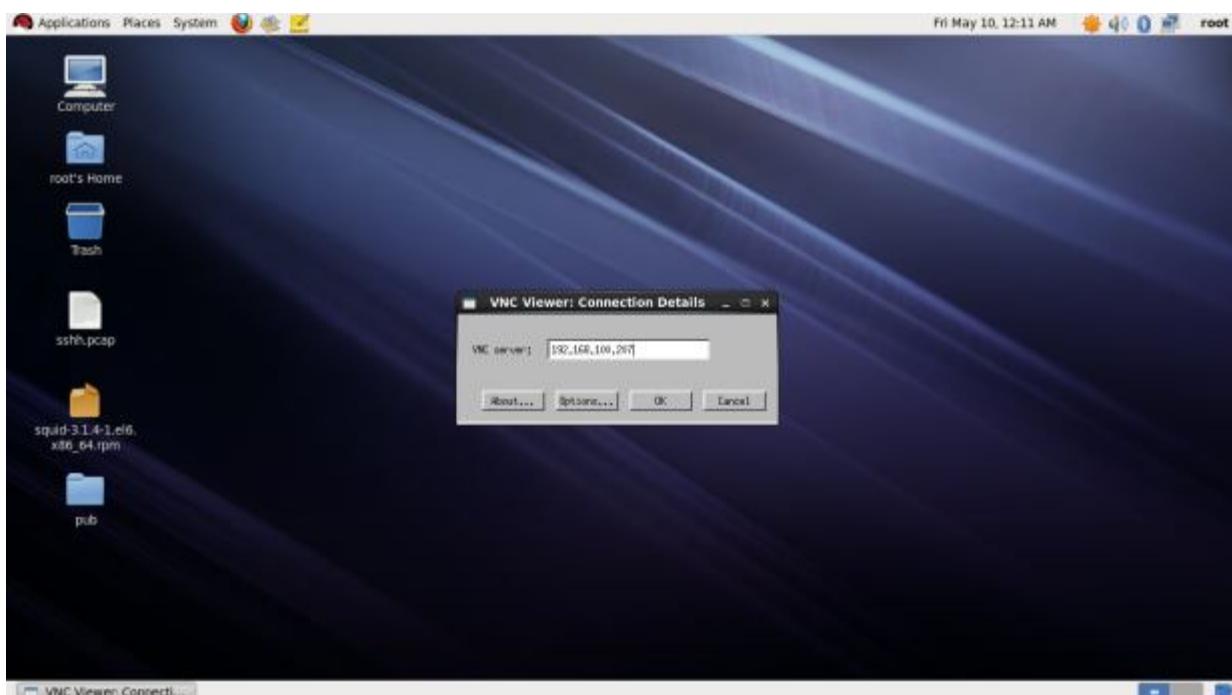
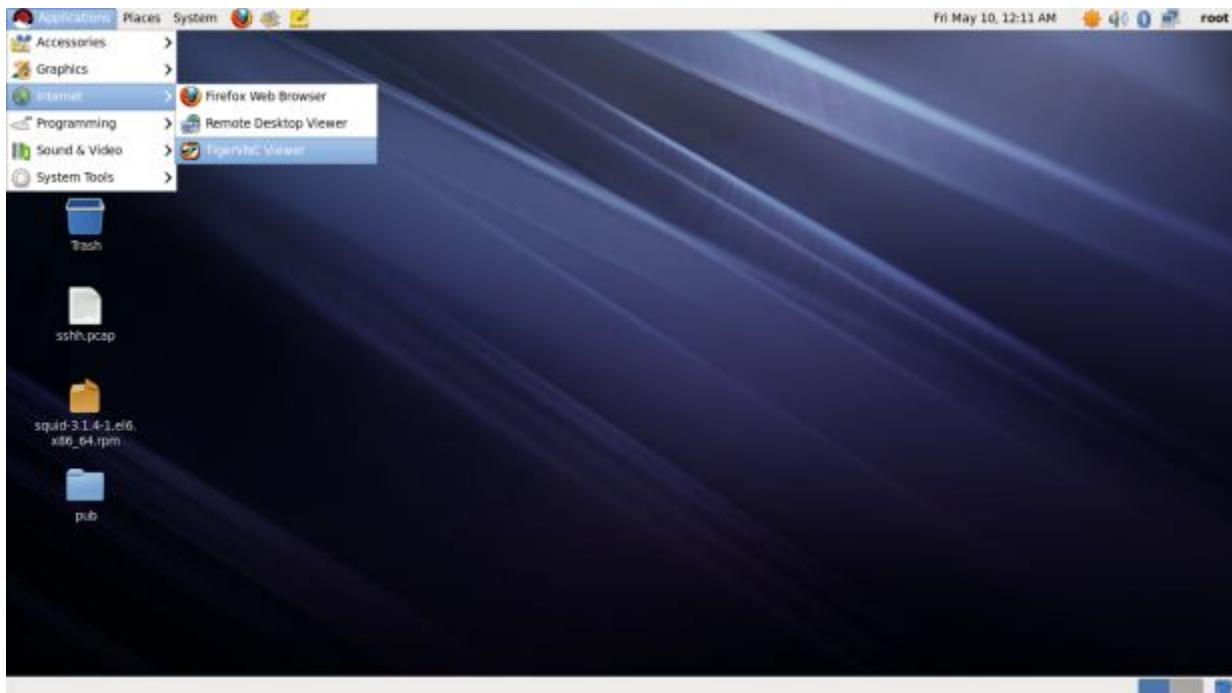


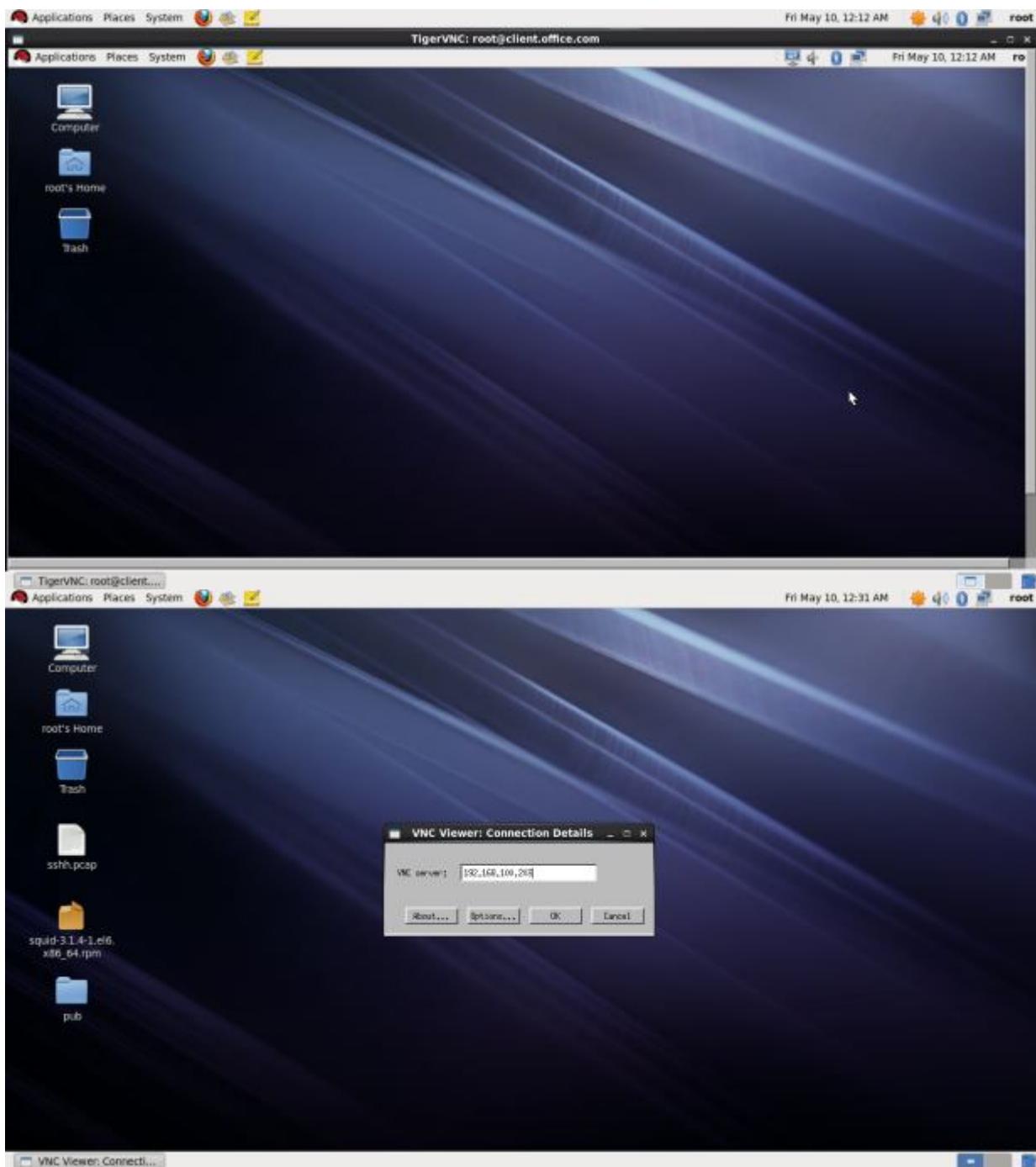
Tightvnc Remote Connection in Linux

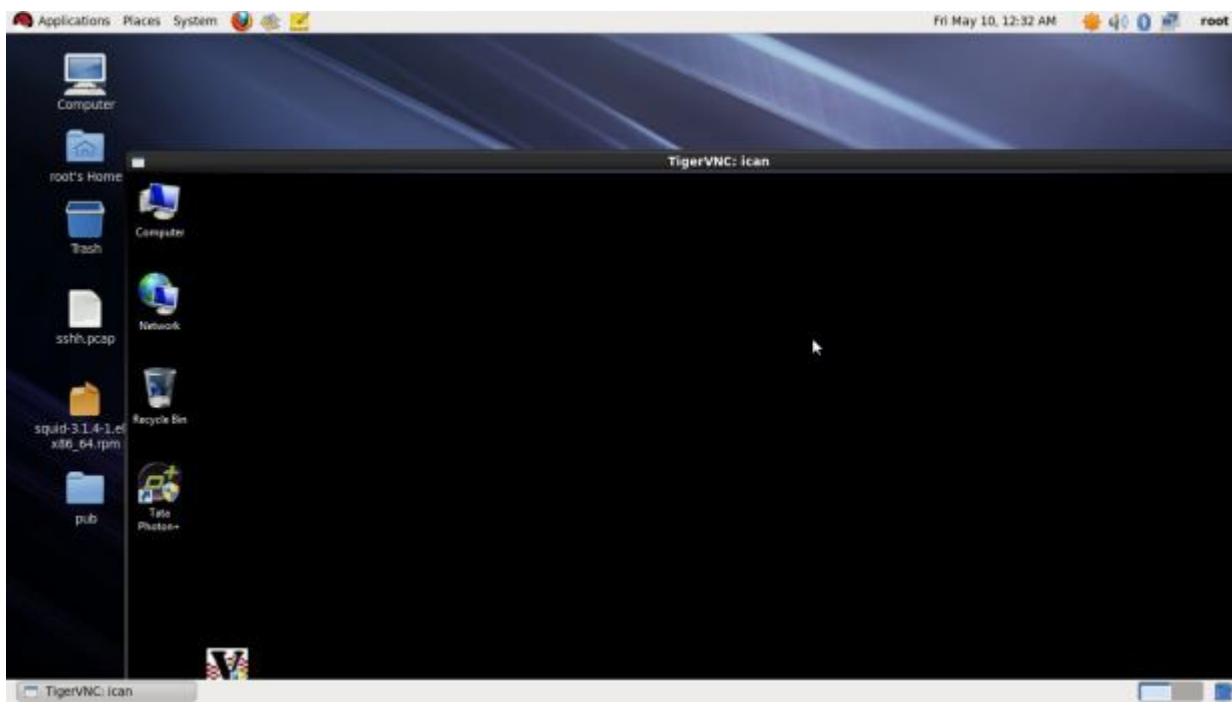
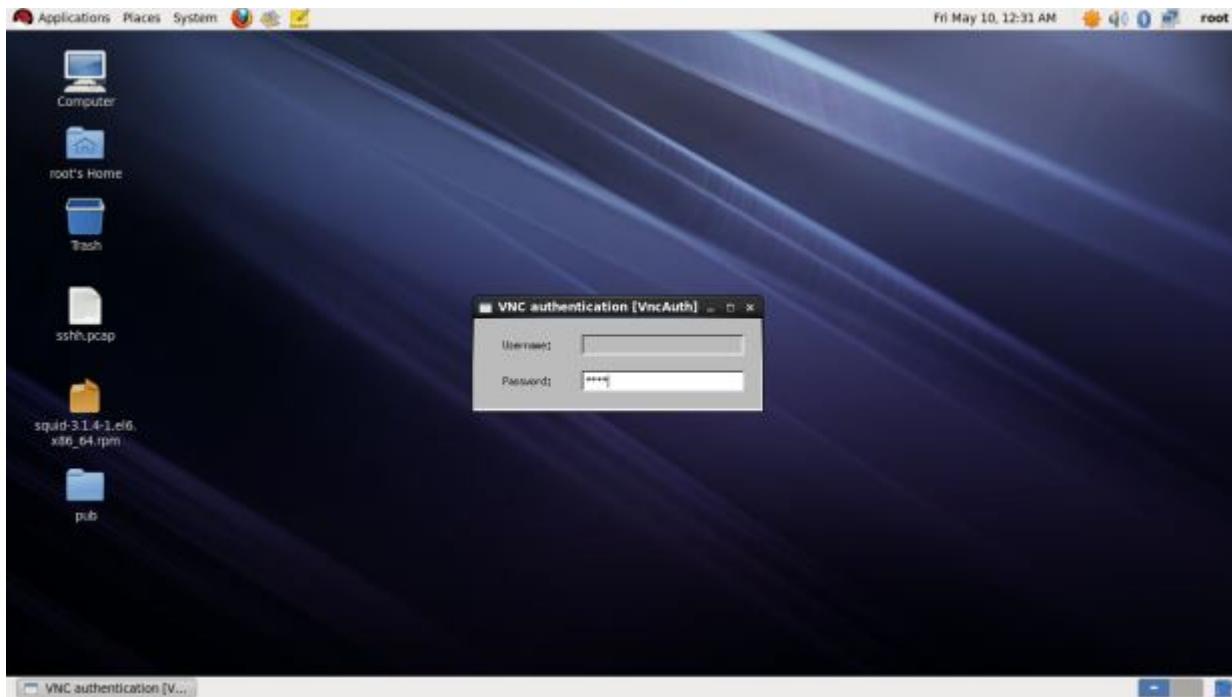




Tigervnc Viewer Remote Connection in Linux







How to Lock Folder in Linux

```
root@client:~ [root@client ~]# mkdir /Au-tel  
[root@client ~]# 
```

```
k@client:~ [k@client ~]$ cd /Au-tel/  
[k@client Au-tel]$ 
```

```
root@client:~ [root@client ~]# chown -R root:root /Au-tel/  
[root@client ~]# 
```

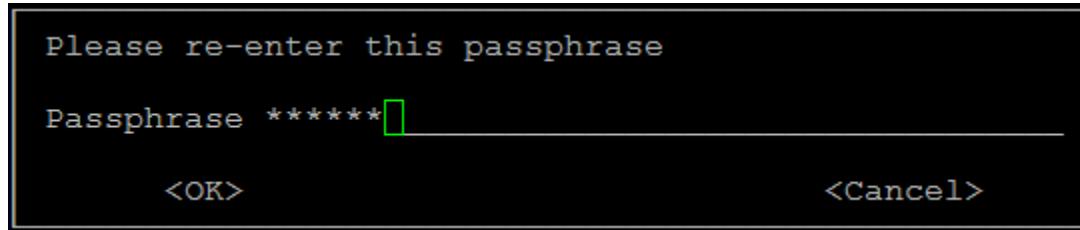
```
root@client:~ [root@client ~]# chmod -R 700 /Au-tel/  
[root@client ~]# 
```

```
k@client:~ [k@client ~]$ cd /Au-tel/  
-bash: cd: /Au-tel/: Permission denied  
[k@client ~]$ 
```

How to Encrypt and Decrypt Files with a Password Using GPG (GNU Privacy Guard) in Linux

```
root@server:~/Desktop
[root@server Desktop]# cat>>ServerPass
!234REd
^C
[root@server Desktop]#
```

```
root@server:~/Desktop
[root@server Desktop]# gpg -c ServerPass
```



```
[root@server:~/Desktop]  
[root@server Desktop]# cat ServerPass.gpg  
Ñäz°>ÙÉ (ØñtáiôâúSUiõõ'õ  
bìÉH; iæUá=[root@server Desktop]#
```

```
[root@server:~/Desktop]  
[root@server Desktop]# gpg ServerPass.gpg
```

```
lqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqk  
x Enter passphrase x  
x x  
x x  
x Passphrase ***** x  
x x  
x <OK> <Cancel> x  
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

```
[root@server:~/Desktop]  
[root@server Desktop]# cat ServerPass  
!234REd  
[root@server Desktop]#
```

Secure File & Folders Using Attribute in Linux

```
root@server:~/Desktop
[root@server Desktop]# touch server
[root@server Desktop]# mkdir autel
[root@server Desktop]# ls
autel    autelclear  server
[root@server Desktop]# 
```

```
root@server:~/Desktop
[root@server Desktop]# chattr +i server
[root@server Desktop]# cat>>server
-bash: server: Permission denied
[root@server Desktop]# rm -f server
rm: cannot remove `server': Operation not permitted
[root@server Desktop]# 
```

```
root@server:~/Desktop
[root@server Desktop]# chattr -i server
[root@server Desktop]# cat>>server
hi
^C
[root@server Desktop]# 
```

```
root@server:~/Desktop
[root@server Desktop]# chattr -R +i autel
[root@server Desktop]# rm -rf autel
rm: cannot remove `autel': Operation not permitted
[root@server Desktop]# cp server autel
cp: cannot create regular file `autel/server': Permission denied
[root@server Desktop]# 
```

```
[root@server:~/Desktop]
[root@server Desktop]# chattr -R -i autel
[root@server Desktop]# cp server autel
[root@server Desktop]# 
```

```
[root@server:~/Desktop]
[root@server Desktop]# chattr +a server
[root@server Desktop]# rm -f server
rm: cannot remove `server': Operation not permitted
[root@server Desktop]# cat>>server
dude
^C
[root@server Desktop]# 
```

```
[root@server:~/Desktop]
[root@server Desktop]# chattr -a server
[root@server Desktop]# rm -f server
[root@server Desktop]# 
```

How to Set Password Usage for User in Linux

```
root@server:~ [root@server ~]# vim /etc/login.defs [root@server ~]#
```

```
PASS_MAX_DAYS    99999
PASS_MIN_DAYS    0
PASS_MIN_LEN      5
PASS_WARN_AGE     7
```

```
PASS_MAX_DAYS    90
PASS_MIN_DAYS    0
PASS_MIN_LEN      5
PASS_WARN_AGE     3
```

```
root@server:~ [root@server ~]# chage -l autel
Last password change : May 13, 2013
Password expires       : never
Password inactive      : never
Account expires        : never
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
[root@server ~]#
```

```
[root@server ~]# useradd Au-Tel
[root@server ~]# chage -l Au-Tel
Last password change : May 16, 2013
Password expires     : Aug 14, 2013
Password inactive    : never
Account expires       : never
Minimum number of days between password change : 0
Maximum number of days between password change : 90
Number of days of warning before password expires : 3
[root@server ~]# 
```

```
[root@server ~]# chage -l Au-Tel
Last password change : May 16, 2013
Password expires     : Aug 14, 2013
Password inactive    : never
Account expires       : never
Minimum number of days between password change : 0
Maximum number of days between password change : 90
Number of days of warning before password expires : 3
[root@server ~]# 
```

```
[root@server ~]# chage -M 15 Au-Tel
[root@server ~]# chage -l Au-Tel
Last password change : May 16, 2013
Password expires     : May 31, 2013
Password inactive    : never
Account expires       : never
Minimum number of days between password change : 0
Maximum number of days between password change : 15
Number of days of warning before password expires : 3
[root@server ~]# 
```

```
root@server:~  
[root@server ~]# chage -I 4 Au-Tel  
[root@server ~]# chage -l Au-Tel  
Last password change : May 16, 2013  
Password expires : May 31, 2013  
Password inactive : Jun 04, 2013  
Account expires : never  
Minimum number of days between password change : 0  
Maximum number of days between password change : 15  
Number of days of warning before password expires : 3  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# chage -W 5 Au-Tel  
[root@server ~]# chage -l Au-Tel  
Last password change : May 16, 2013  
Password expires : May 31, 2013  
Password inactive : Jun 04, 2013  
Account expires : never  
Minimum number of days between password change : 0  
Maximum number of days between password change : 15  
Number of days of warning before password expires : 5  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# chage -E 0 Au-Tel  
[root@server ~]# chage -l Au-Tel  
Last password change : May 16, 2013  
Password expires : May 31, 2013  
Password inactive : Jun 04, 2013  
Account expires : Jan 01, 1970  
Minimum number of days between password change : 0  
Maximum number of days between password change : 15  
Number of days of warning before password expires : 5  
[root@server ~]#
```

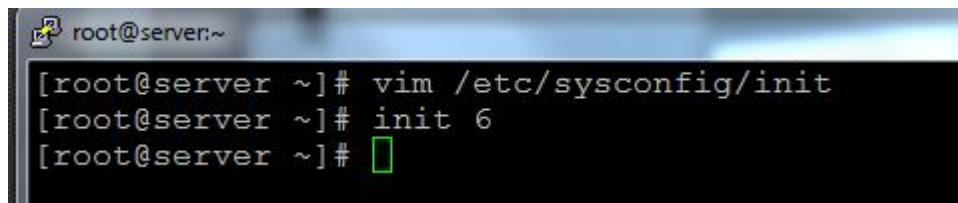
```
[root@server:~]# chage -E "NEVER" Au-Tel
[root@server ~]# chage -l Au-Tel
Last password change : May 16, 2013
Password expires      : May 31, 2013
Password inactive     : Jun 04, 2013
Account expires       : never
Minimum number of days between password change : 0
Maximum number of days between password change : 15
Number of days of warning before password expires : 5
[root@server ~]#
```

Limit Terminal in Linux

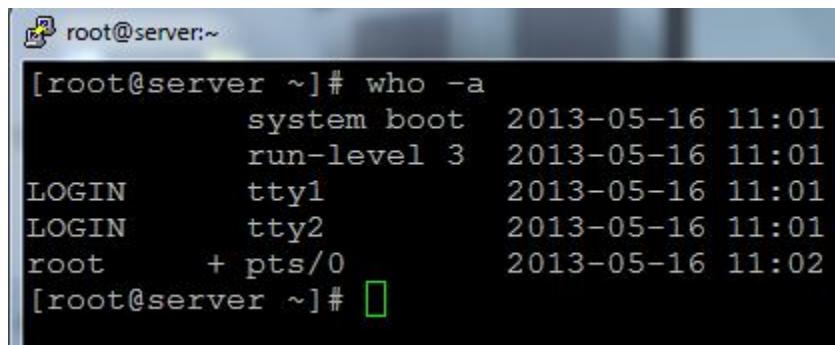
```
[root@server:~]# who -a
          system boot 2013-05-16 10:20
          run-level 3 2013-05-16 10:20
LOGIN      tty1      2013-05-16 10:20
LOGIN      tty2      2013-05-16 10:20
LOGIN      tty3      2013-05-16 10:20
LOGIN      tty4      2013-05-16 10:20
LOGIN      tty5      2013-05-16 10:20
LOGIN      tty6      2013-05-16 10:20
root      + pts/0    2013-05-16 10:28
[root@server ~]#
```

```
[root@server:~]
[root@server ~]# vim /etc/sysconfig/init
[root@server ~]#
```

```
# What ttys should gettys be started on?
ACTIVE_CONSOLES=/dev/tty[1-2]
```

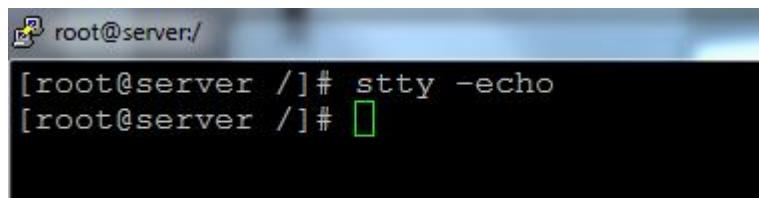


```
[root@server:~]# vim /etc/sysconfig/init
[root@server ~]# init 6
[root@server ~]# 
```

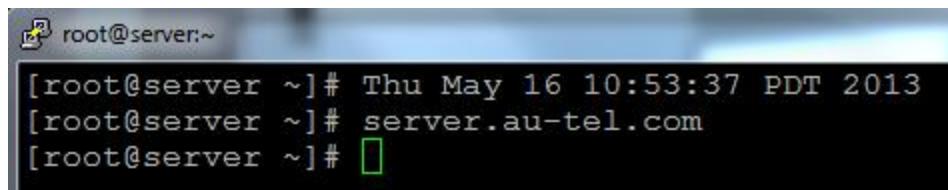


```
[root@server:~]# who -a
      system boot  2013-05-16 11:01
      run-level 3  2013-05-16 11:01
LOGIN    tty1      2013-05-16 11:01
LOGIN    tty2      2013-05-16 11:01
root     + pts/0    2013-05-16 11:02
[root@server ~]# 
```

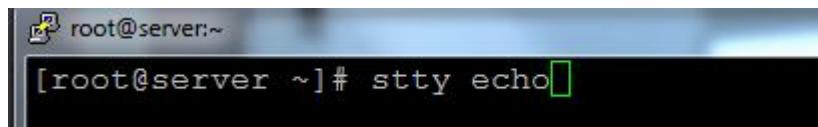
Hide Commands in Linux Terminal



```
[root@server:/]
[root@server/]# stty -echo
[root@server/]# 
```



```
[root@server:~]
[root@server ~]# Thu May 16 10:53:37 PDT 2013
[root@server ~]# server.au-tel.com
[root@server ~]# 
```



```
[root@server:~]
[root@server ~]# stty echo
```

How to Change User & Group Ownership in Linux

```
root@server:~# ll autel.txt
-rw-r--rw- 1 root root 0 May 16 11:46 autel.txt
root@server:~# chown autel autel.txt
root@server:~# ll autel.txt
-rw-r--rw- 1 autel root 0 May 16 11:46 autel.txt
root@server:~# chgrp ADMIN autel.txt
root@server:~# ll autel.txt
-rw-r--rw- 1 autel ADMIN 0 May 16 11:46 autel.txt
root@server:~# 
```

```
root@server:~# ll -d autel
dr--r--r-- 2 root root 4096 May 16 11:46 autel
root@server:~# chown autel autel
root@server:~# ll -d autel
dr--r--r-- 2 autel root 4096 May 16 11:46 autel
root@server:~# chgrp ADMIN autel
root@server:~# ll -d autel
dr--r--r-- 2 autel ADMIN 4096 May 16 11:46 autel
root@server:~# 
```

How To File Permission in Linux

```
root@server:~# touch autel.txt
root@server:~# mkdir autel
root@server:~# 
```

```
root@server:~ [root@server ~]# ll autel.txt  
-rw-r--r-- 1 root root 0 May 16 11:46 autel.txt  
[root@server ~]# ll -d autel  
drwxr-xr-x 2 root root 4096 May 16 11:46 autel  
[root@server ~]# 
```

```
root@server:~ [root@server ~]# chmod u+x,g+w autel.txt  
[root@server ~]# ll autel.txt  
-rwxrw-r-- 1 root root 0 May 16 11:46 autel.txt  
[root@server ~]# 
```

```
root@server:~ [root@server ~]# ll autel.txt  
-rwxrw-r-- 1 root root 0 May 16 11:46 autel.txt  
[root@server ~]# chmod ugo=rw autel.txt  
[root@server ~]# ll autel.txt  
-rw-rw-rw- 1 root root 0 May 16 11:46 autel.txt  
[root@server ~]# 
```

```
root@server:~ [root@server ~]# ll autel.txt  
-rw-rw-rw- 1 root root 0 May 16 11:46 autel.txt  
[root@server ~]# chmod g-w autel.txt  
[root@server ~]# ll autel.txt  
-rw-r--rw- 1 root root 0 May 16 11:46 autel.txt  
[root@server ~]# 
```

```
[root@server:~]# ll -d autel  
drwxr-xr-x 2 root root 4096 May 16 11:46 autel  
[root@server ~]# chmod 777 autel  
[root@server ~]# ll -d autel  
drwxrwxrwx 2 root root 4096 May 16 11:46 autel  
[root@server ~]# [ ]
```

```
[root@server:~]# ll -d autel  
drwxrwxrwx 2 root root 4096 May 16 11:46 autel  
[root@server ~]# chmod 765 autel  
[root@server ~]# ll -d autel  
drwxrw-r-x 2 root root 4096 May 16 11:46 autel  
[root@server ~]# [ ]
```

```
[root@server:~]# ll -d autel  
drwxrw-r-x 2 root root 4096 May 16 11:46 autel  
[root@server ~]# chmod 444 autel  
[root@server ~]# ll -d autel  
dr--r--r-- 2 root root 4096 May 16 11:46 autel  
[root@server ~]# [ ]
```

How to Give Root Privilege to Normal User in Linux

```
[autel@server:~]$ service sshd restart  
rm: cannot remove '/var/run/sshd.pid': Permission denied [FAILED]  
Starting sshd: /etc/ssh/sshd_config: Permission denied [FAILED]  
[autel@server ~]$ [ ]
```

```
[autel@server ~]$ init 6  
init: Need to be root  
[autel@server ~]$ 
```

```
[root@server:~]  
[root@server ~]# vim /etc/sudoers 
```

```
##  
## Allow root to run any commands anywhere  
root    ALL=(ALL)      ALL  
autel   ALL=(ALL)      ALL  
## Allows members of the 'sys' group to run  

```

```
## Allows members of the users group to shutdown this system  
:wq! 
```

```
[autel@server:~]  
[autel@server ~]$ sudo service sshd restart  
  
We trust you have received the usual lecture from the local System  
Administrator. It usually boils down to these three things:  
  
    #1) Respect the privacy of others.  
    #2) Think before you type.  
    #3) With great power comes great responsibility.  
  
[sudo] password for autel: 
```

```
[autel@server:~]
[autel@server ~]$ sudo service sshd restart
Stopping sshd: [ OK ]
Starting sshd: [ OK ]
[autel@server ~]$
```

Grub Password in Linux

```
[root@server:~]
[root@server ~]# vim /etc/grub.conf
[root@server ~]#
```

```
default=0
timeout=5
splashimage=(hd0,0)/grub/splash.xpm.gz
hiddenmenu
title Red Hat Enterprise Linux (2.6.32-71.el6.x86_64)
    root (hd0,0)
    kernel /vmlinuz-2.6.32-71.el6.x86_64 ro root=UUID=29e038f1-96bb-4921-931
8-101270682dd9 rd_NO_LUKS rd_NO_LVM rd_NO_MD rd_NO_DM LANG=en_US.UTF-8 SYSFONT=latarcyrheb-sun16 KEYBOARDTYPE=pc KEYTABLE=us crashkernel=auto rhgb quiet nousb
    initrd /initramfs-2.6.32-71.el6.x86_64.img
~
```

```
default=0
timeout=5
splashimage=(hd0,0)/grub/splash.xpm.gz
hiddenmenu
password autel
title Red Hat Enterprise Linux (2.6.32-71.el6.x86_64)
password autel
    root (hd0,0)
    kernel /vmlinuz-2.6.32-71.el6.x86_64 ro root=U
```

```
[root@server:~]
[root@server ~]# vim /etc/grub.conf
[root@server ~]# init 6
```

Press any key to enter the menu

Booting Au-Tel Linux Admin (2.6.32-71.el6.x86_64) in 20 seconds... █

GNU GRUB version 0.97 (637K lower / 1587072K upper memory)

Au-Tel Linux Admin (2.6.32-71.el6.x86_64)

Password: _

How to Format FAT File System

```
root@server:/mnt
[root@server mnt]# mkfs.vfat /dev/sdc1
```

How to View Domain Name in Linux

```
root@client:~
[root@client ~]# hostname -d
au-tel.com
[root@client ~]#
```

How to View Router IP in Linux

```
root@client:~
[root@client ~]# route -n
Kernel IP routing table
Destination      Gateway          Genmask        Flags Metric Ref
192.168.1.0      0.0.0.0         255.255.255.0   U      0      0
169.254.0.0      0.0.0.0         255.255.0.0    U      1002   0
0.0.0.0          192.168.1.1    0.0.0.0       UG     0      0
[root@client ~]#
```

```
root@client:~
[root@client ~]# netstat -r
Kernel IP routing table
Destination      Gateway          Genmask        Flags  MSS Window
192.168.1.0      *               255.255.255.0  U      0 0
link-local        *               255.255.0.0   U      0 0
default          192.168.1.1    0.0.0.0       UG     0 0
[root@client ~]#
```

How to View Server IP in Linux

```
root@client:~  
[root@client ~]# cat /etc/resolv.conf | grep name  
nameserver 192.168.1.1  
[root@client ~]#
```

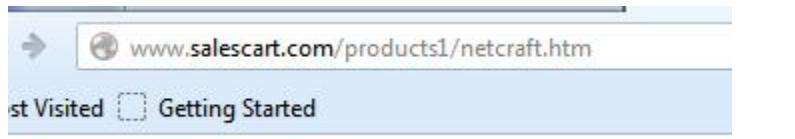
How to get a continuous update of memory usage info in Linux

```
root@client:~/Desktop  
[root@client Desktop]# free -kts 3  
total used free shared buffers cached  
Mem: 1443444 532668 910776 0 48244 298840  
-/+ buffers/cache: 185584 1257860  
Swap: 2916344 0 2916344  
Total: 4359788 532668 3827120  
  
total used free shared buffers cached  
Mem: 1443444 532684 910760 0 48244 298840  
-/+ buffers/cache: 185600 1257844  
Swap: 2916344 0 2916344  
Total: 4359788 532684 3827104  
  
^C
```

```
root@client:~/Desktop  
[root@client Desktop]# watch -n 3 free -k  
[root@client Desktop]#
```

How do I know if a website is hosted on Windows or Linux?

GOTO this Link — > <http://www.salescart.com/products1/netcraft.htm>



Check your Server Type

Service providers or ISP's typically host on one of two primary platforms: Linux and Windows. Most service providers can provide either operating system for your hosting. Therefore, if you are Linux platform, you probably can simply contact your ISP and asked to be placed on a Windows-based server instead.

Instructions: Click on the link below and enter your domain name when prompted into the box labeled **Whats that site running?**. The type of platform you are hosting on will be displayed. Then choose the correct SalesCart Product for the particular server platform shown.

Enter your website address to check:

[Click here if the button above doesn't work](#)

OS, Web Server and Hosting History for www.icc.com

http://www.icc.com was running Microsoft-IIS on Windows Server 2008 when last queried at 28-May-2013 12:18:16 GMT - [refresh now](#) [Site Report](#)

[FAQ](#)

OS	Server	Last changed	IP address	Netblock Owner
Windows Server 2008	Microsoft-IIS/7.5	28-May-2013	108.175.152.176	Arvixe
Windows Server 2008	Microsoft-IIS/7.5	29-Nov-2012	108.175.152.176	Arvixe
Windows Server 2003	Microsoft-IIS/5.0	9-Aug-2006	64.78.9.143	Intermedia.net, Inc.
Windows Server 2003	Microsoft-IIS/5.0	8-May-2004	64.78.9.143	Intermedia.net, Inc.
Windows 2000	Microsoft-IIS/5.0	24-Jan-2004	64.78.44.174	Intermedia.net, Inc.
Windows Server 2003	Microsoft-IIS/5.0	26-Jul-2003	209.35.183.210	Interland
NT4/Windows 98	WebSitePro/2.5.8	19-Jul-2002	207.168.54.244	Prime DNA
NT4/Windows 98	WebSitePro/2.5.8	11-Jan-2001	208.179.86.57	Phoenix Data - Ontario

Check your Server Type

Service providers or ISP's typically host on one of two primary platforms: Linux and Windows. Most service providers can provide either operating system for your hosting. Therefore, if you are Linux platform, you probably can simply contact your ISP and asked to be placed on a Windows-based server instead.

Instructions: Click on the link below and enter your domain name when prompted into the box labeled **Whats that site running?**. The type of platform you are hosting on will be displayed. Then choose the correct SalesCart Product for the particular server platform shown.

Enter your website address to check:

[Click here if the button above doesn't work](#)

OS, Web Server and Hosting History for www.redhat.com				
http://www.redhat.com was running Apache-Coyote on Linux when last queried at 26-May-2013 23:10:05 GMT - refresh now Site Report				
Try out the Netcraft Toolbar!				
OS	Server	Last changed	IP address	Netblock Owner
Linux	Apache-Coyote/1.1	15-May-2013	23.74.119.214	Akamai Technologies, Inc.
Linux	Apache-Coyote/1.1	11-May-2013	23.74.119.214	Akamai Technologies, Inc.
unknown	Apache-Coyote/1.1	10-May-2013	2.19.231.214	Akamai Technologies
Linux	Apache-Coyote/1.1	17-Apr-2013	23.74.119.214	Akamai Technologies, Inc.
unknown	Apache-Coyote/1.1	16-Apr-2013	2.19.231.214	Akamai Technologies
Linux	Apache-Coyote/1.1	15-Apr-2013	2.16.231.214	Akamai Technologies
Linux	Apache-Coyote/1.1	13-Apr-2013	2.16.231.214	Akamai Technologies
unknown	Apache-Coyote/1.1	12-Apr-2013	2.16.231.214	Akamai Technologies
Linux	Apache-Coyote/1.1	10-Apr-2013	2.16.231.214	Akamai Technologies
unknown	Apache-Coyote/1.1	9-Apr-2013	2.19.231.214	Akamai Technologies

No software is currently available for www.redhat.com

How to Get User Information Using Finger Command in Linux

```
root@server:~/Desktop
[root@server Desktop]# finger
Login      Name          Tty      Idle  Login Time   Office    Office Phone
autel      Au-Tel Linux Admin  pts/1      May 16 12:58 (192.168.10.2)
root       root          pts/0      May 16 11:40 (192.168.10.2)
[root@server Desktop]#
```

```
root@server:~/Desktop
[root@server Desktop]# finger autel
Login: autel                                     Name: Au-Tel Linux Admin
Directory: /home/autel                            Shell: /bin/bash
On since Thu May 16 12:58 (PDT) on pts/1 from 192.168.10.2
  1 minute 22 seconds idle
Mail last read Wed May 15 12:41 2013 (PDT)
No Plan.
[root@server Desktop]#
```

```
[root@server Desktop]# chfn autel
Changing finger information for autel.
Name [Au-Tel Linux Admin]: Au-Tel Linux Admin
Office []: Au-Tel
Office Phone []: 7204474247
Home Phone []: 8870588070

Finger information changed.
[root@server Desktop]#
```

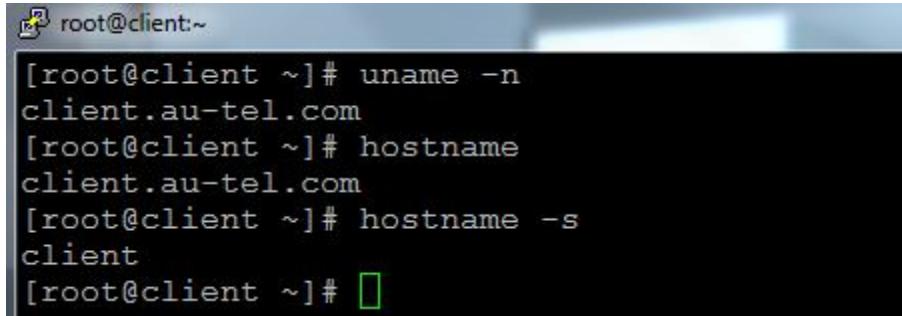
```
[root@server Desktop]# finger autel
Login: autel                                Name: Au-Tel Linux Admin
Directory: /home/autel                         Shell: /bin/bash
Office: Au-Tel, 720-447-4247                   Home Phone: 887-058-8070
On since Thu May 16 12:58 (PDT) on pts/1 from 192.168.10.2
    3 minutes 5 seconds idle
Mail last read Wed May 15 12:41 2013 (PDT)
No Plan.
[root@server Desktop]#
```

Broadcast Message in Linux Terminal

```
[root@server ~]# wall Hi Monitring Team Today Every Submit the Report
Broadcast message from root@server.au-tel.com (pts/0) (Thu May 16 11:33:10 20Hi
Monitring Team Today Every Submit the Report
[root@server ~]#
```

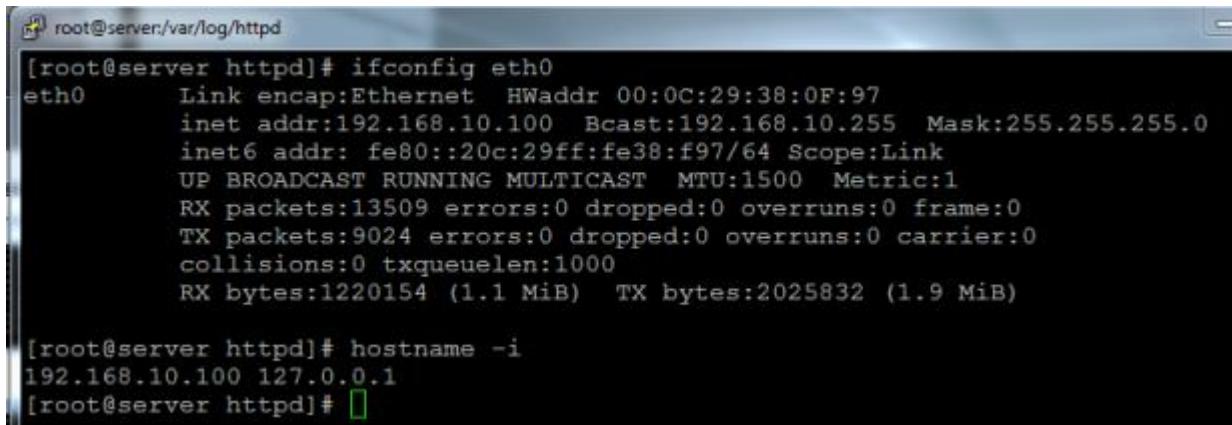
```
[autel@server ~]$
[autel@server ~]$ Broadcast message from root@server.au-tel.com (pts/0) (Thu May 16 11:33:10 20Hi
Monitring Team Today Every Submit the Report
$
```

How to View Host Name in Linux



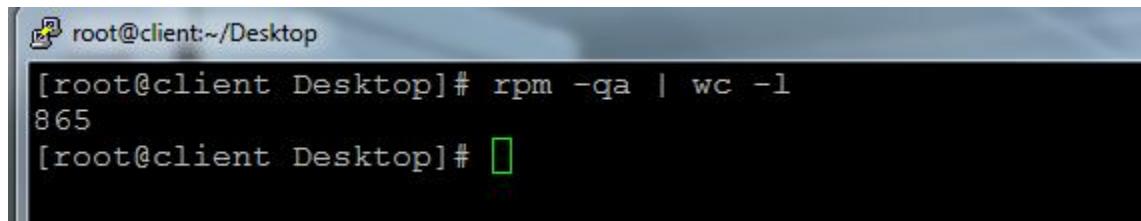
```
root@client:~ [root@client ~]# uname -n client.au-tel.com [root@client ~]# hostname client.au-tel.com [root@client ~]# hostname -s client [root@client ~]# 
```

How to View IP Address in Linux



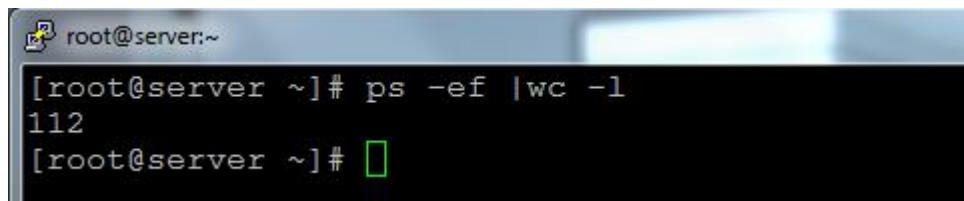
```
root@server:/var/log/httpd [root@server httpd]# ifconfig eth0 eth0      Link encap:Ethernet HWaddr 00:0C:29:38:0F:97 inet addr:192.168.10.100 Bcast:192.168.10.255 Mask:255.255.255.0 inet6 addr: fe80::20c:29ff:fe38:f97/64 Scope:Link UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1 RX packets:13509 errors:0 dropped:0 overruns:0 frame:0 TX packets:9024 errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:1000 RX bytes:1220154 (1.1 MiB) TX bytes:2025832 (1.9 MiB) [root@server httpd]# hostname -i 192.168.10.100 127.0.0.1 [root@server httpd]# 
```

How to Check Total Number of Packages Installed in Linux



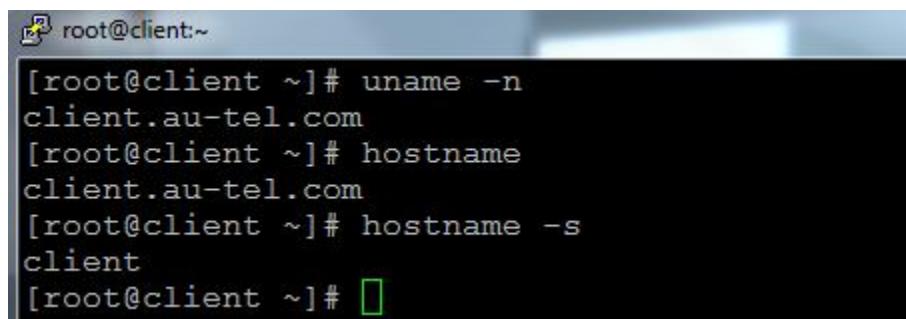
```
root@client:~/Desktop
[root@client Desktop]# rpm -qa | wc -l
865
[root@client Desktop]#
```

How to Check Total Number of Process Running in Linux



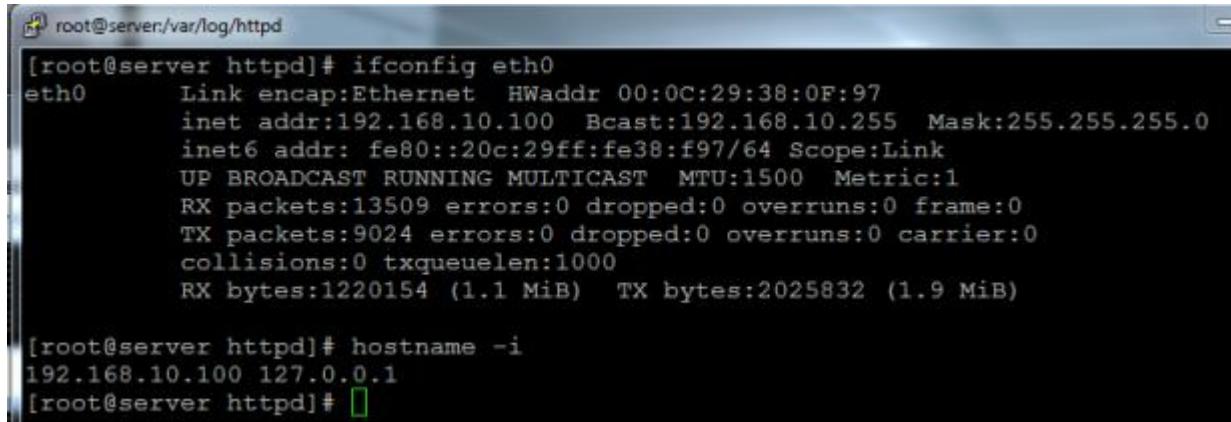
```
root@server:~
[root@server ~]# ps -ef | wc -l
112
[root@server ~]#
```

How to View Host Name in Linux



```
root@client:~
[root@client ~]# uname -n
client.au-tel.com
[root@client ~]# hostname
client.au-tel.com
[root@client ~]# hostname -s
client
[root@client ~]#
```

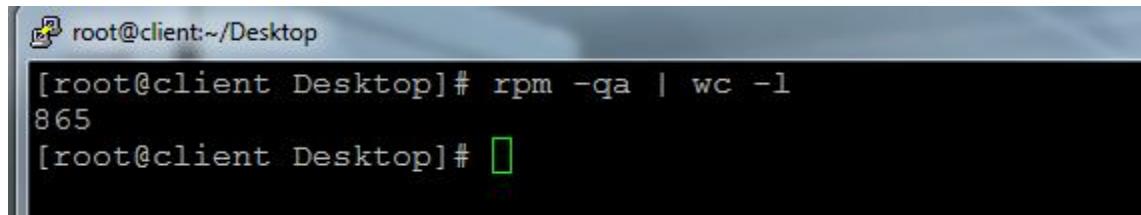
How to View IP Address in Linux



```
[root@server httpd]# ifconfig eth0
eth0      Link encap:Ethernet HWaddr 00:0C:29:38:0F:97
          inet addr:192.168.10.100 Bcast:192.168.10.255 Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:fe38:f97/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
          RX packets:13509 errors:0 dropped:0 overruns:0 frame:0
          TX packets:9024 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1220154 (1.1 MiB) TX bytes:2025832 (1.9 MiB)

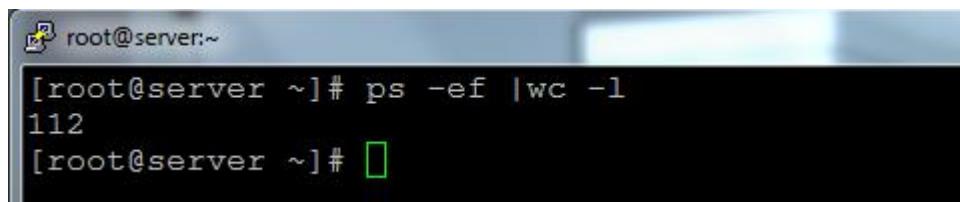
[root@server httpd]# hostname -i
192.168.10.100 127.0.0.1
[root@server httpd]#
```

How to Check Total Number of Packages Installed in Linux



```
[root@client ~]# rpm -qa | wc -l
865
[root@client ~]#
```

How to Check Total Number of Process Running in Linux



```
[root@server ~]# ps -ef | wc -l
112
[root@server ~]#
```

How to Find Logged User Information in Linux

```
[root@ldapsamba ~]# who
root      ttym          2013-05-13 12:49 (:0)
root      pts/0          2013-05-13 17:06 (192.168.1.122)
[root@ldapsamba ~]# who -a
        system boot 2013-05-13 12:46
        run-level 5 2013-05-13 12:46
LOGIN    tty2          2013-05-13 12:47          2392 id=2
LOGIN    tty3          2013-05-13 12:47          2394 id=3
LOGIN    tty4          2013-05-13 12:47          2396 id=4
LOGIN    tty5          2013-05-13 12:47          2398 id=5
LOGIN    tty6          2013-05-13 12:47          2400 id=6
root     + ttym          2013-05-13 12:49 old          2564 (:0)
root     + pts/0          2013-05-13 17:06 .          7135 (192.168.1.122)
[root@ldapsamba ~]# whoami
root
[root@ldapsamba ~]# 
```

When I Installed Linux OS in Linux

```
root@ldapsamba:~
[root@ldapsamba ~]# last | grep wtmp
wtmp begins Sat Feb 23 14:05:08 2013
[root@ldapsamba ~]# 
```

How To Find System Boot Time in Linux

```
root@ldapsamba:~
[root@ldapsamba ~]# who -b
        system boot 2013-05-04 16:55
[root@ldapsamba ~]# 
```

How to Find CPU 32/64 bits in Linux

```
root@ldapsamba:~  
[root@ldapsamba ~]# uname -p  
x86_64  
[root@ldapsamba ~]# arch  
x86_64  
[root@ldapsamba ~]# uname -m  
x86_64  
[root@ldapsamba ~]# 
```

How to Find Processor Name in Linux

```
ldapsamba:~  
[ldapsamba ~]# dmidecode -t processor | grep Intel  
Manufacturer: Intel  
Version: Intel(R) Core(TM) i3 CPU 540 @ 3.07GHz  
[ldapsamba ~]# 
```

How to Find Linux OS Distribution and Version in Linux

```
root@ldapsamba:~  
[root@ldapsamba ~]# lsb_release -a  
LSB Version: :core-4.0-amd64:core-4.0-noarch:gnoarch:printing-4.0-amd64:printing-4.0-noarch  
Distributor ID: CentOS  
Description: CentOS release 6.3 (Final)  
Release: 6.3  
Codename: Final  
[root@ldapsamba ~]# 
```

How to Find Kernel Version in Linux

```
root@ldapsamba:~# uname -r  
2.6.32-279.el6.x86_64  
[root@ldapsamba ~]#
```

How to Find Memory size in Linux

```
root@ldapsamba:~# dmidecode -t 17 | grep Size  
      Size: No Module Installed  
      Size: 4096 MB  
      Size: No Module Installed  
      Size: No Module Installed  
[root@ldapsamba ~]# dmidecode -t 17 | grep MB  
SMBIOS 2.6 present.  
      Size: 4096 MB  
[root@ldapsamba ~]#
```

How to Check/Repair (fsck) filesystem in Linux after crash or power-outage

```
root@server:~ [root@server ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/sda2        18G  2.3G   15G  15% /
tmpfs           571M    0  571M   0% /dev/shm
/dev/sda1       291M   30M  246M  11% /boot
/dev/sdb1        2.0G  35M  1.9G   2% /autell1
[root@server ~]# 
```

```
root@server:~ [root@server ~]# umount /autell1/
[root@server ~]# 
```

```
root@server:~ [root@server ~]# fsck -y /dev/sdb1
fsck from util-linux-ng 2.17.2
e2fsck 1.41.12 (17-May-2010)
/dev/sdb1: clean, 11/131072 files, 17196/524112 blocks
[root@server ~]# 
```

```
root@server:~ [root@server ~]# mount /autell1/
[root@server ~]# 
```

File System Issue Troubleshooting in Linux

How you are going to Survive in a File system Failure ?

At any moment a system admin may come across file system failures due to issues with [data structures \(or objects\)](#) such as inode, directories, [superblock](#) etc. This can be caused by any reason:

- Buggy device driver or utilities (especially third party utilities)
- Mistakes by System Admin
- Kernel bugs

Due to Filesystem Failure:

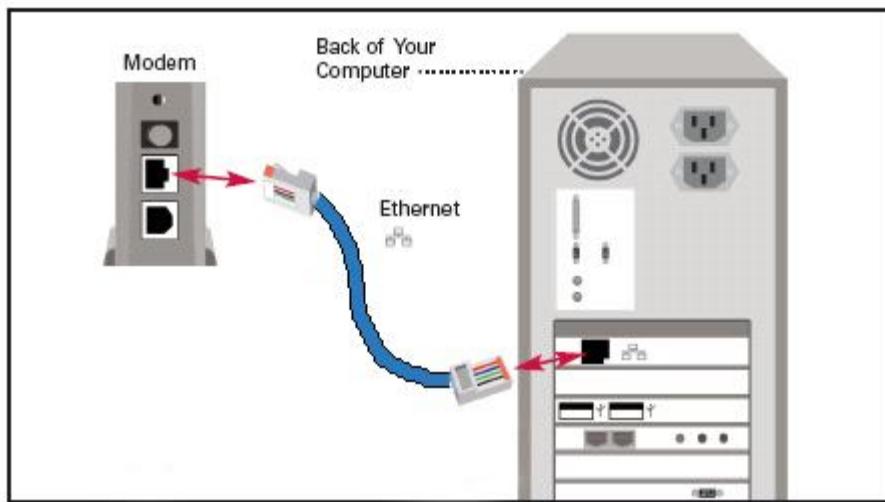
- File system will refuse to mount
- Entire system get hangs
- Even if file system mount operation result into success, users may notice strange behavior when mounted such as system reboot, gibberish characters in directory list

Check File system Failure



```
root@server:~ [root@server ~]# e2fsck -f /dev/sda2
```

How To Troubleshoot network Problem in Linux



LAN/Ethernet/NIC Card is Detect or Not



```
[root@server ~]# ifconfig lo
lo      Link encap:Local Loopback
        inet addr:127.0.0.1 Mask:255.0.0.0
        inet6 addr: ::1/128 Scope:Host
              UP LOOPBACK RUNNING MTU:16436 Metric:1
              RX packets:4 errors:0 dropped:0 overruns:0 frame:0
              TX packets:4 errors:0 dropped:0 overruns:0 carrier:0
              collisions:0 txqueuelen:0
              RX bytes:348 (348.0 b) TX bytes:348 (348.0 b)

[root@server ~]# 
```

```
[root@server ~]# ping -c 2 127.0.0.1
PING 127.0.0.1 (127.0.0.1) 56(84) bytes of data.
64 bytes from 127.0.0.1: icmp_seq=1 ttl=64 time=0.049 ms
64 bytes from 127.0.0.1: icmp_seq=2 ttl=64 time=0.063 ms

--- 127.0.0.1 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 999ms
rtt min/avg/max/mdev = 0.049/0.056/0.063/0.007 ms
[root@server ~]# 
```

Ethernet Cable is Detect or Not

```
root@server:~ [root@server ~]# mii-tool  
eth0: negotiated 100baseTx-FD, link ok  
[root@server ~]#
```

```
root@server:~ [root@server ~]# ifconfig eth0  
eth0      Link encap:Ethernet HWaddr 00:0C:29:EB:F2:7F  
          inet addr:192.168.50.100 Bcast:255.255.255.255 Mask:192.0.0.0  
          inet6 addr: fe80::20c:29ff:feeb:f27f/64 Scope:Link  
            UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1  
            RX packets:2216 errors:0 dropped:0 overruns:0 frame:0  
            TX packets:840 errors:0 dropped:0 overruns:0 carrier:0  
            collisions:0 txqueuelen:1000  
            RX bytes:178554 (174.3 KiB) TX bytes:103578 (101.1 KiB)  
[root@server ~]#
```

Ethernet Diver is Installed or Not

```
root@server:~ [root@server ~]# ethtool -i eth0  
driver: e1000  
version: 7.3.21-k6-NAPI  
firmware-version: N/A  
bus-info: 0000:02:01.0  
[root@server ~]#
```

```
root@server:~ [root@server ~]# lspci | grep Ethernet  
02:01.0 Ethernet controller: Intel Corporation 82545EM Gigabit Ethernet Controller (Copper) (rev 01)  
[root@server ~]#
```

Ping With Your Server and nearby Server

```
root@server:~# ping -c 2 192.168.50.102
PING 192.168.50.102 (192.168.50.102) 56(84) bytes of data.
64 bytes from 192.168.50.102: icmp_seq=1 ttl=128 time=0.217 ms
64 bytes from 192.168.50.102: icmp_seq=2 ttl=128 time=0.398 ms

--- 192.168.50.102 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1000ms
rtt min/avg/max/mdev = 0.217/0.307/0.398/0.092 ms
[root@server ~]#
```

```
root@server:~# ping -c 2 192.168.50.100
PING 192.168.50.100 (192.168.50.100) 56(84) bytes of data.
64 bytes from 192.168.50.100: icmp_seq=1 ttl=64 time=0.038 ms
64 bytes from 192.168.50.100: icmp_seq=2 ttl=64 time=0.054 ms

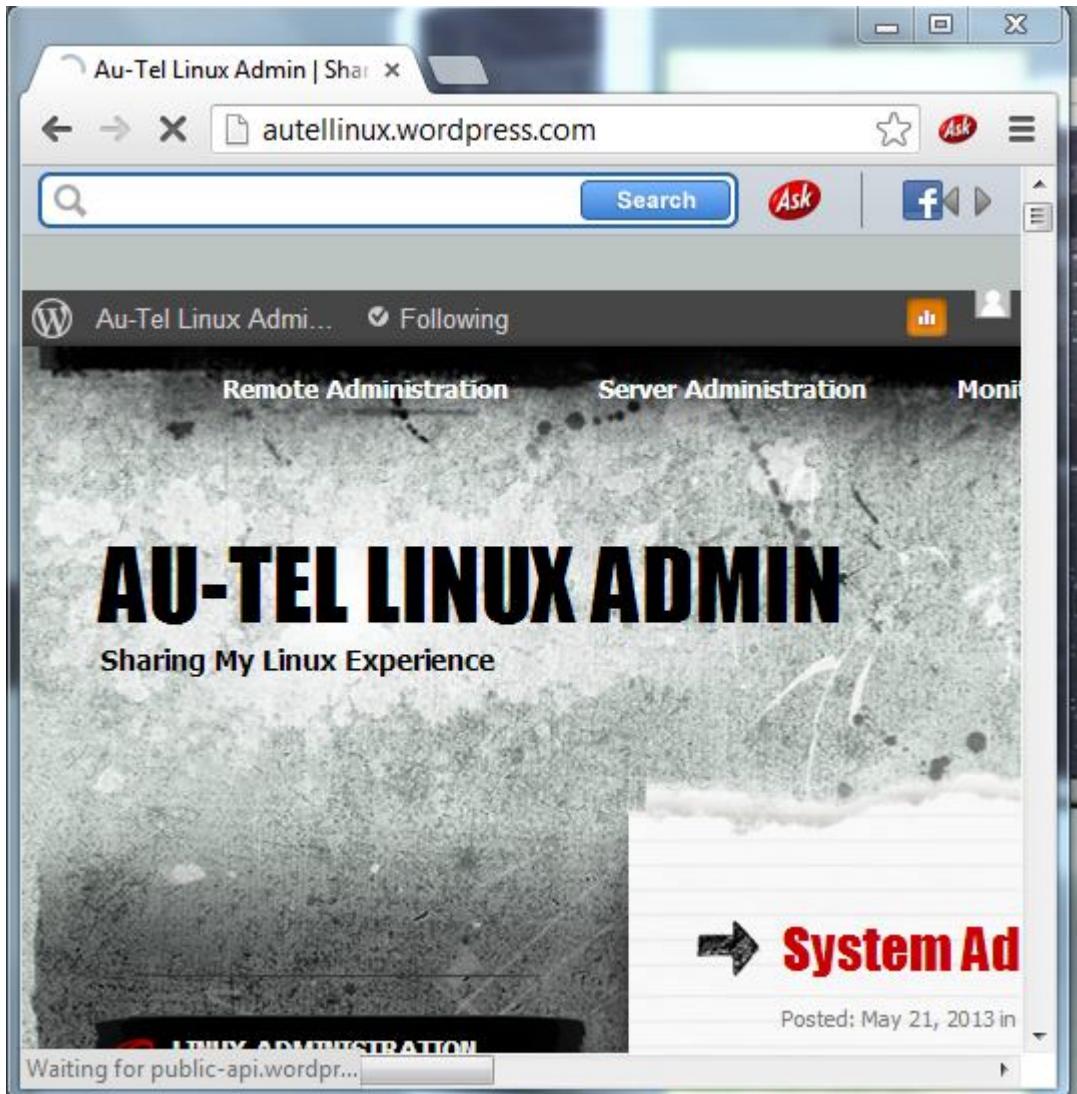
--- 192.168.50.100 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 999ms
rtt min/avg/max/mdev = 0.038/0.046/0.054/0.008 ms
[root@server ~]#
```

If Down Means Restart the Service

```
root@server:/var/log/httpd#
[root@server httpd]# setup
[root@server httpd]# service network restart
Shutting down interface eth0: Device state: 3 (disconnected)
[ OK ]
Shutting down loopback interface: [ OK ]
Bringing up loopback interface: [ OK ]
Bringing up interface eth0: Active connection state: activated
Active connection path: /org/freedesktop/NetworkManager/ActiveConnection/1
[ OK ]
[root@server httpd]# chkconfig network on
[root@server httpd]#
```

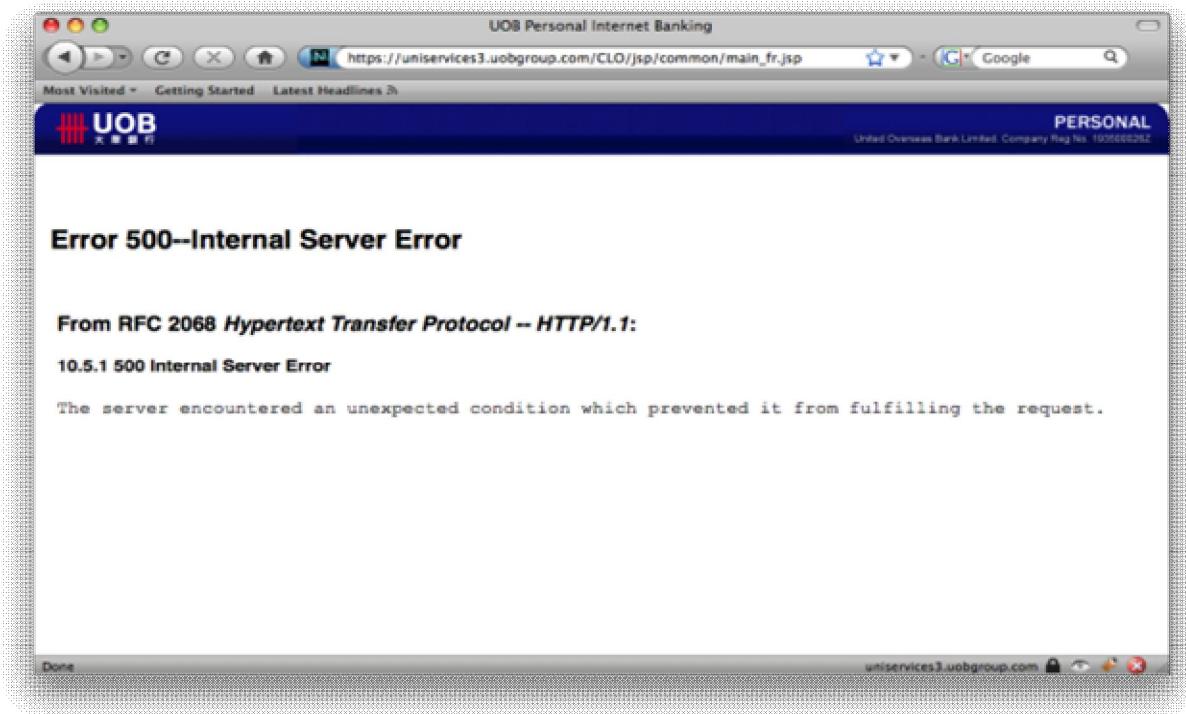
What To Do When Your Website Goes Down in Linux

1. Check That It Has Actually Gone Down



2. Figure out What Has Gone Down

- A programming error on the website,



A DNS problem, or an expired domain,

```
root@server:~# nslookup autellinux.wordpress.com
Server:      192.168.1.1
Address:     192.168.1.1#53

Non-authoritative answer:
autellinux.wordpress.com      canonical name = lb.wordpress.com.
Name:      lb.wordpress.com
Address:   72.233.69.6
Name:      lb.wordpress.com
Address:   76.74.254.120
Name:      lb.wordpress.com
Address:   76.74.254.123
Name:      lb.wordpress.com
Address:   66.155.9.238
Name:      lb.wordpress.com
Address:   66.155.11.238
Name:      lb.wordpress.com
Address:   72.233.2.58

[root@server ~]# 
```

A networking problem,

```
[root@server ~]# ping -c 5 autellinux.wordpress.com
PING lb.wordpress.com (76.74.254.120) 56(84) bytes of data.
64 bytes from . (76.74.254.120): icmp_seq=1 ttl=53 time=257 ms
64 bytes from . (76.74.254.120): icmp_seq=2 ttl=53 time=257 ms
64 bytes from . (76.74.254.120): icmp_seq=3 ttl=53 time=257 ms
64 bytes from . (76.74.254.120): icmp_seq=4 ttl=53 time=256 ms
64 bytes from . (76.74.254.120): icmp_seq=5 ttl=53 time=257 ms

--- lb.wordpress.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4265ms
rtt min/avg/max/mdev = 256.766/257.202/257.662/0.624 ms
[root@server ~]#
```

```
[root@server ~]#
[root@server ~]# ping autellinu
ping: unknown host autellinu
[root@server ~]#
```

Something on the server has crashed,

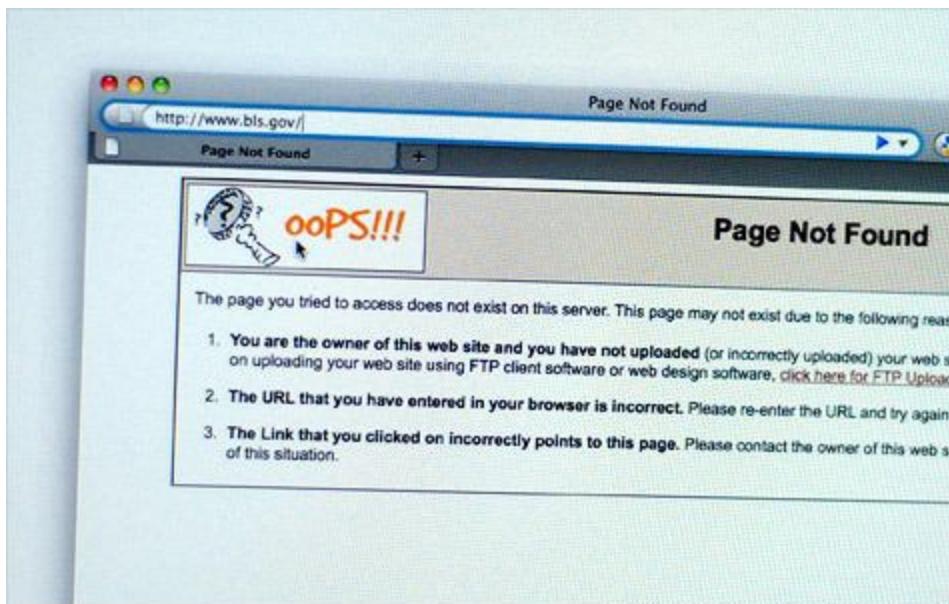


PHOTO: JOHN R. COUGHLIN/CNNMONEY

3. How Bad Is It? Trace Server route

```
[root@server ~]# traceroute autellinux.wordpress.com
traceroute to autellinux.wordpress.com (208.87.35.103), 30 hops max, 60 byte packets
 1  192.168.1.1 (192.168.1.1)  2.271 ms  2.087 ms  1.973 ms
 2  106.51.128.1 (106.51.128.1)  6.362 ms  7.146 ms  7.978 ms
 3  83.20-broadband.acttv.in (202.83.20.10)  7.591 ms  8.547 ms  8.369 ms
 4  115.112.9.17.STATIC-Bangalore.vsnl.net.in (115.112.9.17)  8.254 ms  115.112.9.
.21.STATIC-Bangalore.vsnl.net.in (115.112.9.21)  70.589 ms  121.241.196.197.stat
c-bangalore.vsnl.net.in (121.241.196.197)  70.503 ms
 5  172.31.19.245 (172.31.19.245)  70.472 ms  70.245 ms  70.209 ms
```

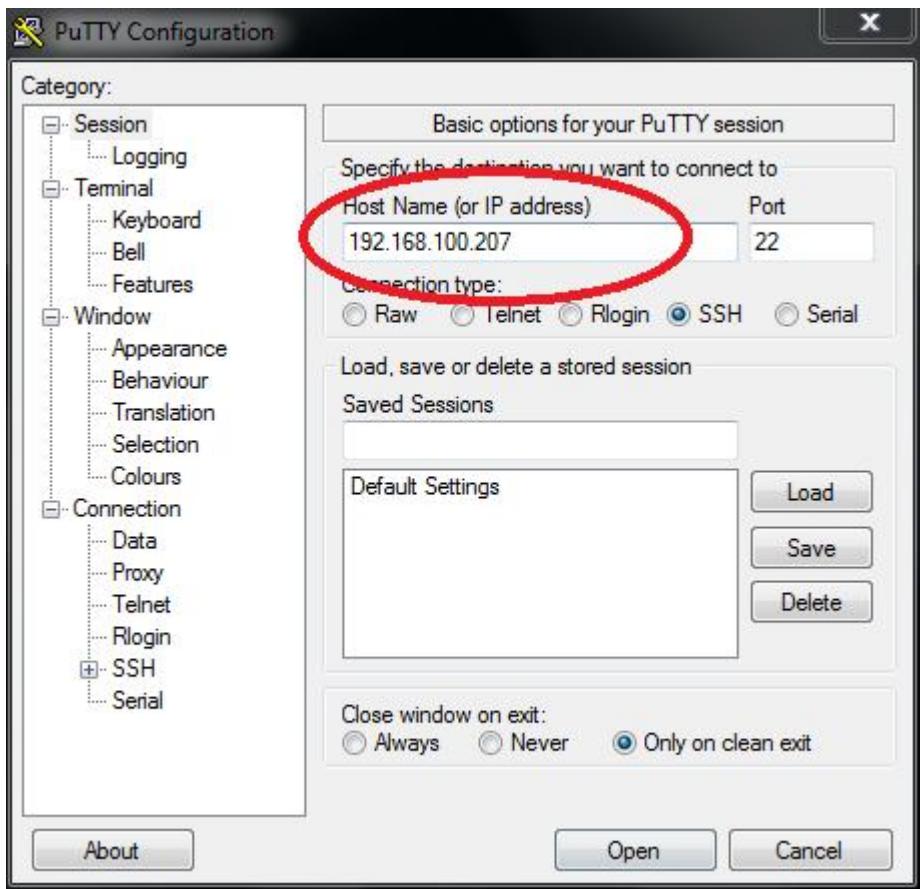
```
[root@server ~]# ping 66.155.11.238
PING 66.155.11.238 (66.155.11.238) 56(84) bytes of data.
64 bytes from 66.155.11.238: icmp_seq=1 ttl=46 time=262 ms
64 bytes from 66.155.11.238: icmp_seq=2 ttl=46 time=262 ms
64 bytes from 66.155.11.238: icmp_seq=3 ttl=46 time=262 ms
64 bytes from 66.155.11.238: icmp_seq=4 ttl=46 time=262 ms
^C
--- 66.155.11.238 ping statistics ---
5 packets transmitted, 4 received, 20% packet loss, time 4119ms
rtt min/avg/max/mdev = 262.411/262.537/262.880/0.549 ms
[root@server ~]#
```

4. Check Your Web Server Software

```
[root@server ~]# httpd -t
Syntax OK
[root@server ~]#
```

```
root@server:~  
[root@server ~]# httpd -S  
VirtualHost configuration:  
Syntax OK  
[root@server ~]#
```

5. Logging Into Your Server [up/Down]



root@client:~
login as: root
root@192.168.100.207's password:
Last login: Thu May 9 21:12:17 2013
[root@client ~]#

6. Has It Run Out Of Space?

root@server:~
[root@server ~]# df -h
Filesystem Size Used Avail Use% Mounted on
/dev/sda2 17G 8.4G 7.4G 54% /
tmpfs 756M 0 756M 0% /dev/shm
/dev/sda1 291M 30M 246M 11% /boot
[root@server ~]#

7. Has It Run Out Of Memory?

```
[root@server ~]# free -m
              total        used        free      shared      buffers      cached
Mem:       1511         814         697          0          82         536
-/+ buffers/cache:       195       1315
Swap:      3039          0       3039
[root@server ~]#
```

8. Has Something Crashed?

```
[root@server ~]# ps -ef | grep httpd
root      23291      1  0 19:17 ?        00:00:00 /usr/sbin/httpd
apache    23294  23291  0 19:17 ?        00:00:00 /usr/sbin/httpd
apache    23295  23291  0 19:17 ?        00:00:00 /usr/sbin/httpd
apache    23296  23291  0 19:17 ?        00:00:00 /usr/sbin/httpd
apache    23297  23291  0 19:17 ?        00:00:00 /usr/sbin/httpd
apache    23298  23291  0 19:17 ?        00:00:00 /usr/sbin/httpd
apache    23299  23291  0 19:17 ?        00:00:00 /usr/sbin/httpd
apache    23300  23291  0 19:17 ?        00:00:00 /usr/sbin/httpd
apache    23301  23291  0 19:17 ?        00:00:00 /usr/sbin/httpd
root      23326  2657  0 19:27 pts/0    00:00:00 grep httpd
[root@server ~]#
```

9. If server loads high or crashed means restart the service

```
[root@server ~]# /etc/init.d/httpd restart
Stopping httpd: [OK]
Starting httpd: [OK]
[root@server ~]#
```

How to Troubleshoot File System UNEXPECTED INCONSISTENCY Error in Linux

```
Welcome to Red Hat Enterprise Linux Server
Starting udev: [ OK ]
Setting hostname karthi.autel.com: [ OK ]
Setting up Logical Volume Management: No volume groups found [ OK ]
Checking filesystems
/dev/sda2: clean, 91220/1034288 files, 604397/4133632 blocks
/dev/sda1: Superblock last mount time (Thu Jun 13 09:28:48 2013,
now = Sat Apr 13 11:10:15 2013) is in the future.

/dev/sda1: UNEXPECTED INCONSISTENCY: RUN fsck MANUALLY.
        (i.e. without -a or -p options) [FAILED]

*** An error occurred during the file system check.
*** Dropping you to a shell; the system will reboot
*** when you leave the shell.
Give root password for maintenance
(or type Control-D to continue): _
```

```
(Repair filesystem) 1 # fsck -y /dev/sda1
fsck from util-linux-ng 2.17.2
e2fsck 1.41.12 (17-May-2010)
Superblock last mount time (Thu Jun 13 09:28:48 2013,
now = Sat Apr 13 11:11:05 2013) is in the future.
Fix? yes

/dev/sda1 contains a file system with errors, check forced.
Pass 1: Checking inodes, blocks, and sizes
Pass 2: Checking directory structure
Pass 3: Checking directory connectivity
Pass 4: Checking reference counts
Pass 5: Checking group summary information

/dev/sda1: ***** FILE SYSTEM WAS MODIFIED *****
/dev/sda1: 38/76912 files (0.0% non-contiguous), 40088/307200 blocks
(Remove filesystem) 2 # _
```

```
/dev/sda1: ***** FILE SYSTEM WAS MODIFIED *****
/dev/sda1: 38/76912 files (0.0% non-contiguous), 40088/307200 blocks
(Remove filesystem) 2 # init 6_
```

How to Troubleshoot Unable to Root Login Problems

1. Is Password is Correct

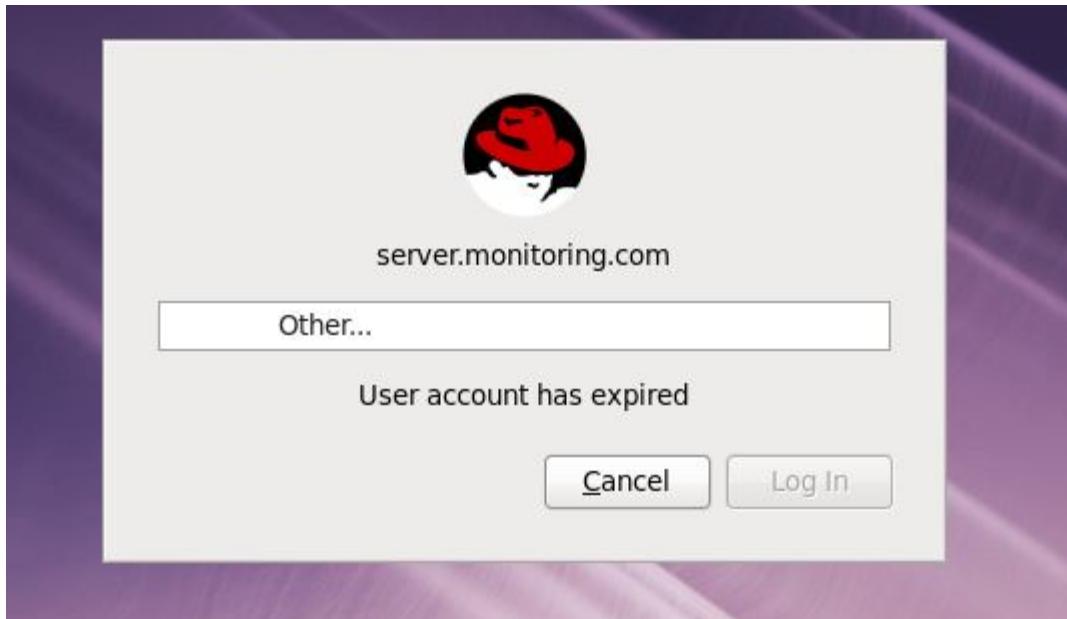


Login into Single User Mode

```
Telling INIT to go to single user mode.  
init: rc main process (864) killed by TERM signal  
[root@server ~]# _
```

```
root@server:~  
[root@server ~]# passwd root  
Changing password for user root.  
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.  
[root@server ~]# █
```

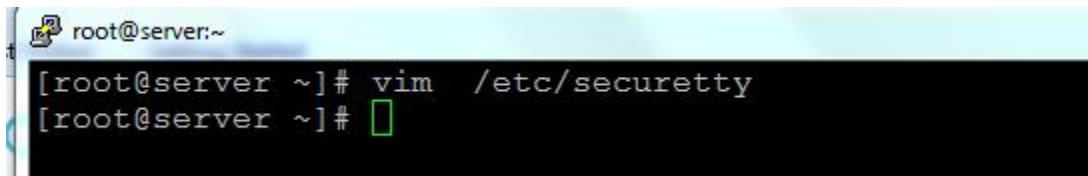
2. ls Account is Expired



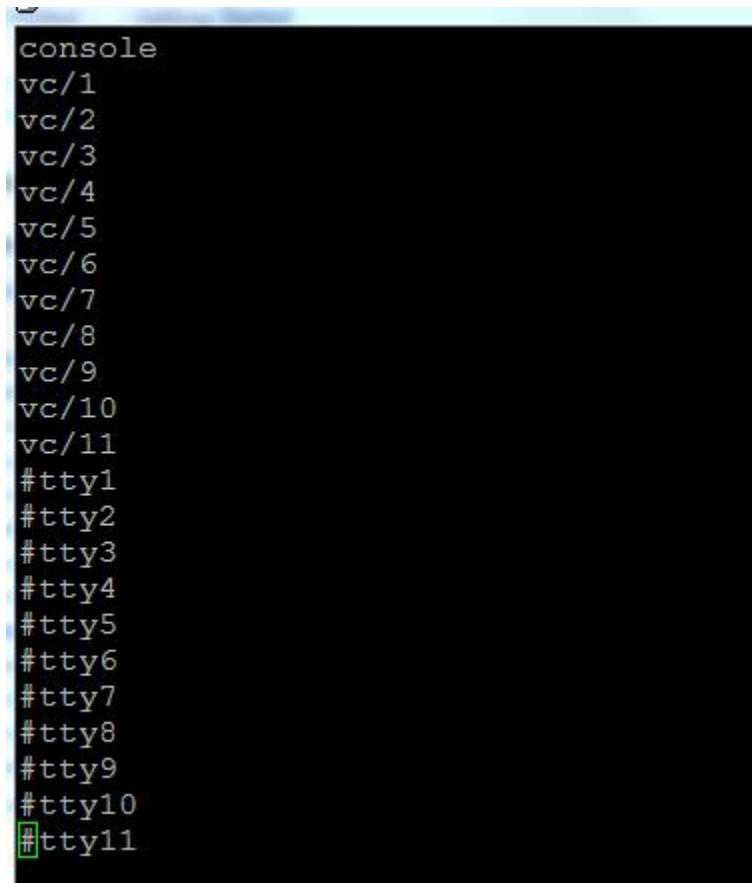
```
root@server:~ [root@server ~]# chage -l root
Last password change : Jun 12, 2013
Password expires       : never
Password inactive      : never
Account expires        : Jan 01, 1970
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
[root@server ~]#
```

```
root@server:~ [root@server ~]# chage -E "NEVER" root
[root@server ~]#
```

3. Is Terminal is Blocked



```
root@server:~  
[root@server ~]# vim /etc/securetty  
[root@server ~]# █
```

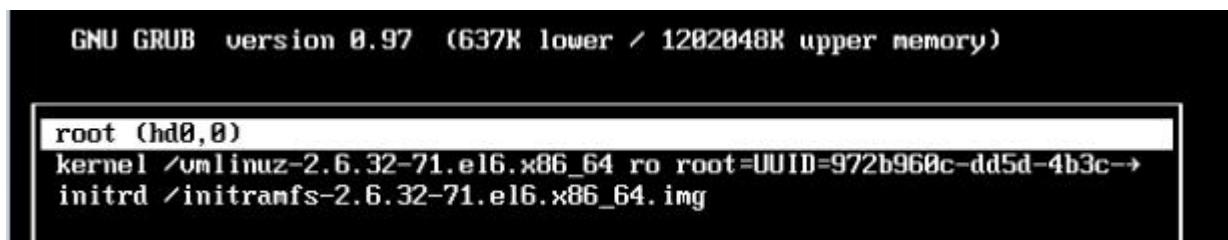
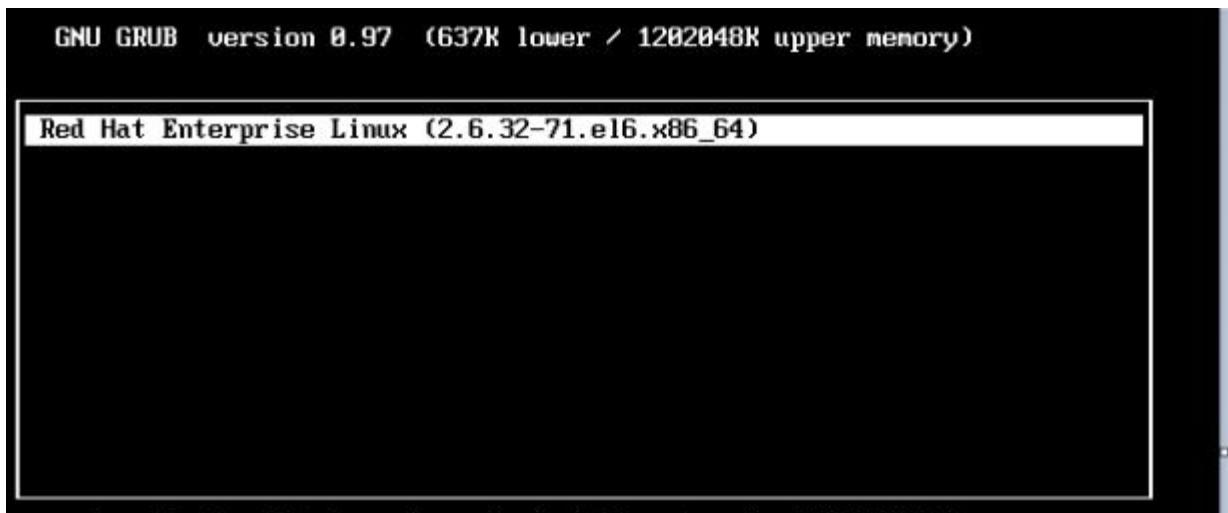
A screenshot of a terminal window titled "root@server:~". The user has run the command "vim /etc/securetty". The vim editor is open, showing the contents of the file. The cursor is located at the end of the file, indicated by a green █ character.

```
console  
vc/1  
vc/2  
vc/3  
vc/4  
vc/5  
vc/6  
vc/7  
vc/8  
vc/9  
vc/10  
vc/11  
#tty1  
#tty2  
#tty3  
#tty4  
#tty5  
#tty6  
#tty7  
#tty8  
#tty9  
#tty10  
#tty11
```

A screenshot of a terminal window showing a list of terminal devices. The output includes "console", followed by "vc/1" through "vc/11", and then "#tty1" through "#tty11". The list ends with a green █ character at the bottom.

```
root@server:~  
console  
vc/1  
vc/2  
vc/3  
vc/4  
vc/5  
vc/6  
vc/7  
vc/8  
vc/9  
vc/10  
vc/11  
tty1  
tty2  
tty3  
tty4  
tty5  
tty6  
tty7  
tty8  
tty9  
tty10  
tty11  
"/etc/securetty" 23L, 122C
```

How to Troubleshoot Continuous Reboot Problem in Linux



```
[1 Minimal BASH-like line editing is supported. For the first word, TAB lists possible command completions. Anywhere else TAB lists the possible completions of a device/filename. ESC at any time cancels. ENTER at any time accepts your changes.]
```

```
<LE=us crashkernel=auto rhgb quiet 1>
```

```
Telling INIT to go to single user mode.  
init: rc main process (864) killed by TERM signal  
[root@server ~]# _
```

```
[root@server:~]# cat /etc/inittab | grep id  
# Individual runlevels are started by /etc/init/rc.conf  
id:6:initdefault:  
[root@server ~]#
```

```
[root@server:~]# vim /etc/inittab  
[root@server ~]#
```

```
#  
id:5:initdefault:  
f "/etc/inittab" 26t 884C
```

How to Auto Reboot Linux box after a kernel panic Error in Linux

1. What is kernel panic?

When the kernel can't load properly or "freaks out" and fails to boot properly or crashes(see edit credit at the bottom).

2. Why it occurs?

Hosed updates, failing hardware, unsupported hardware, failed or missing drive or partition (see edit credit at the bottom)

3. How can I understand kernel panic occurred?

Watch boot prompts(turn off quiet kernel parameter) **OR** your machine fails to boot

4. What effect it has on system?

Failure to boot or system crash

5. Does it only occur in Linux?

No, all unix-like operating systems can have kernel panics. It's the equivalent of a [Windows Blue Screen of Death](#)

6. How can I prevent it?

It normally doesn't happen. Test updates and troubleshoot the problem. Use stable instead of development branches.

If you want the server to get rebooted automatically after kernel hit by a pain error message, try adding panic=N to /etc/sysctl.conf file.

It specify kernel behavior on panic. By default, the kernel will not reboot after a panic, but this option will cause a kernel reboot after N seconds. For example following boot parameter will force to reboot Linux after 10 seconds.

```
root@server:~ [root@server ~]# sysctl -a |grep "kernel.panic ="  
kernel.panic = 0  
[root@server ~]#
```

```
root@server:~ [root@server ~]# cat /proc/sys/kernel/panic  
0  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# echo "10" > /proc/sys/kernel/panic
```

```
root@server:~  
[root@server ~]# cat /proc/sys/kernel/panic  
10  
[root@server ~]#
```

How to Configure Remote Syslog Server in Linux rhel6

```
root@server:~  
[root@server ~]# yum install rsyslog -y
```

```
root@server:~  
[root@server ~]# vim /etc/rsyslog.conf
```

```
$ModLoad imuxsock.so          # provides support for local system logging (e.g. via  
$      user command)  
$ModLoad imklog.so            # provides kernel logging support (previously done by  
$      klogd)  
$ModLoad immark.so           # provides --MARK-- message capability  
  
# Provides UDP syslog reception  
$ModLoad imudp.so  
$UDPServerAddress 0.0.0.0  
$UDPServerRun 514  
  
# Provides TCP syslog reception  
$ModLoad imtcp.so  
$InputTCPServerRun 514
```

```
root@server:~  
[root@server ~]# /etc/init.d/rsyslog restart  
Shutting down system logger: [ OK ]  
Starting system logger: [ OK ]  
[root@server ~]#
```

```
root@karthi:~  
[root@karthi ~]# yum install rsyslog -y
```

```
[root@karthi:~]# vim /etc/rsyslog.conf
```

```
$ModLoad imuxsock.so      # provides support for local system logging (e.g. via log command)
$ModLoad imklog.so         # provides kernel logging support (previously done by klogd)
$ModLoad immark.so        # provides --MARK-- message capability
```

```
# Use default timestamp format
$ActionFileDefaultTemplate RSYSLOG_TraditionalFileFormat
```

```
# down, messages are spooled to disk and sent when it is up again.
$workDirectory /var/log/rsyslog # where to place spool files
$actionQueueFileName fwdRule1 # unique name prefix for spool files
$actionQueueMaxDiskSpace 1g   # log space limit (use as much as possible)
$actionQueueSaveOnShutdown on # save messages to disk on shutdown
$actionQueueType LinkedList # run asynchronously
$actionResumeRetryCount -1   # infinite retries if host is down
# remote host ip: name/ip:port, e.g. 192.168.0.1:514, port optional
*.* @192.168.1.141:514
```

```
[root@karthi:~]# /etc/init.d/rsyslog restart
Shutting down system logger: [OK]
Starting system logger: [OK]
[root@karthi ~]#
```

```
[root@server:~]# tailf /var/log/messages
Jun 13 11:06:04 karthi kernel: imklog 4.6.2, log source = /proc/kmsg started.
Jun 13 11:06:04 karthi rsyslogd: [origin software="rsyslogd" swVersion="4.6.2" x
-pid="23432" x-info="http://www.rsyslog.com"] (re)start
Jun 13 11:06:45 server kernel: Kernel logging (proc) stopped.
Jun 13 11:06:45 server rsyslogd: [origin software="rsyslogd" swVersion="4.6.2" x
-pid="3663" x-info="http://www.rsyslog.com"] exiting on signal 15.
Jun 13 11:06:45 server kernel: imklog 4.6.2, log source = /proc/kmsg started.
Jun 13 11:06:45 server rsyslogd: [origin software="rsyslogd" swVersion="4.6.2" x
-pid="3711" x-info="http://www.rsyslog.com"] (re)start
Jun 13 11:10:38 karthi kernel: Kernel logging (proc) stopped.
Jun 13 11:10:38 karthi rsyslogd: [origin software="rsyslogd" swVersion="4.6.2" x
-pid="23432" x-info="http://www.rsyslog.com"] exiting on signal 15.
Jun 13 11:10:38 karthi kernel: imklog 4.6.2, log source = /proc/kmsg started.
Jun 13 11:10:38 karthi rsyslogd: [origin software="rsyslogd" swVersion="4.6.2" x
-pid="23453" x-info="http://www.rsyslog.com"] (re)start
```

How to Configure VNC Server in Linux

```
root@server:~ [root@server ~]# yum -y install vnc-server tigervnc-server
```

```
autel@server:~ [root@server ~]# su - autel  
[autel@server ~]$ vncpasswd  
Password:  
Verify:  
[autel@server ~]$
```

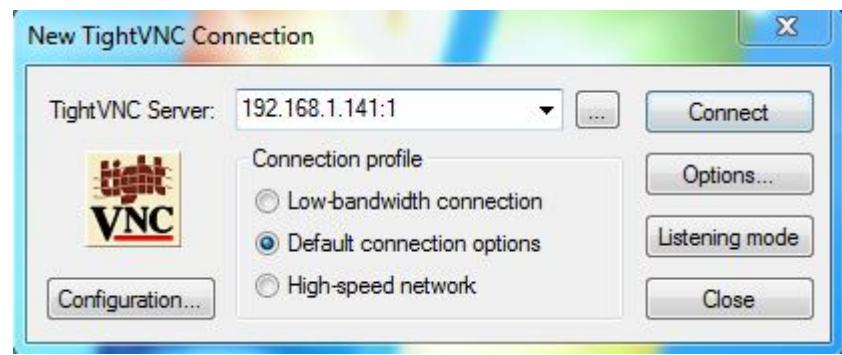
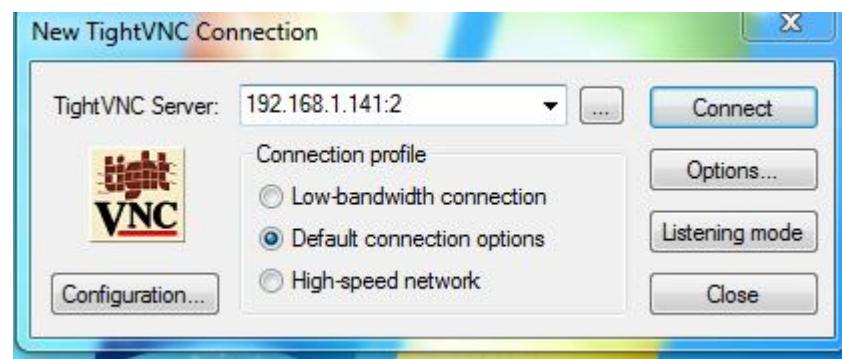
```
autel@server:~ [autel@server ~]$ ls .vnc/  
passwd  
[autel@server ~]$ cat .vnc/passwd  
u,LL·ê[autel@server ~]$
```

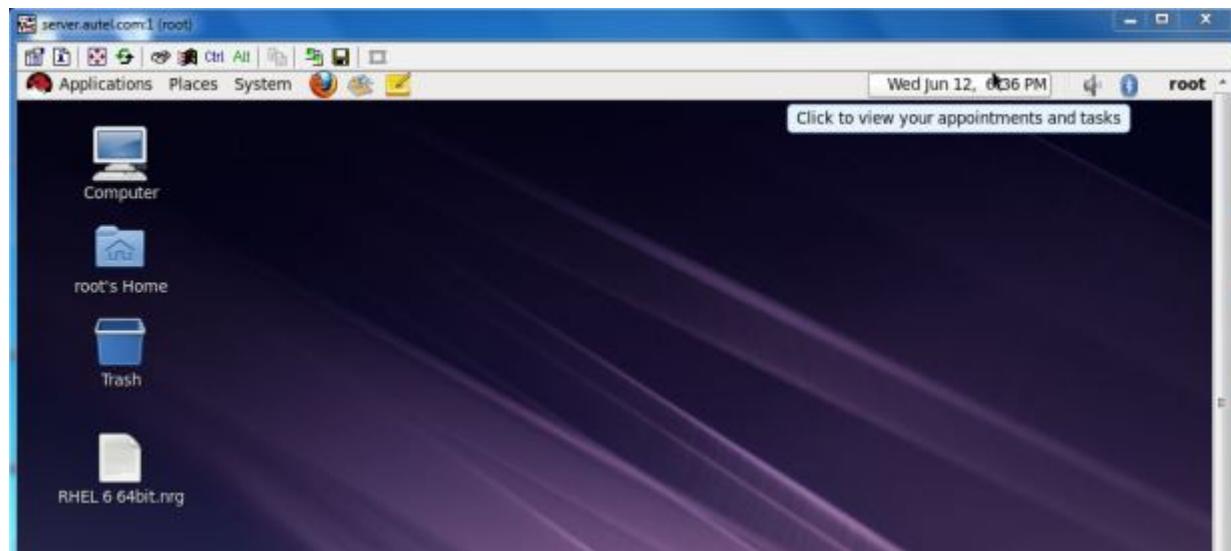
```
root@server:~ [root@server ~]# vim /etc/sysconfig/vncservers
```

```
# Use "-localhost" to prevent remote VNC clients connecting except  
# doing so through a secure tunnel. See the "-via" option in the  
# 'man vncviewer' manual page.  
  
VNCSEVERES="2:autel"  
VNCSEVERARGS[2]="-geometry 800x600 -nolisten tcp -localhost"  
~  
~
```

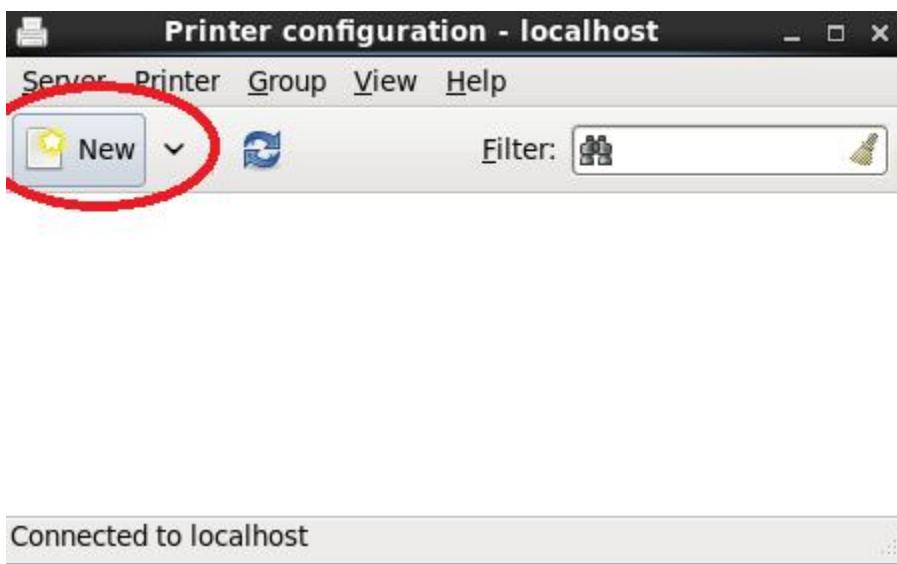
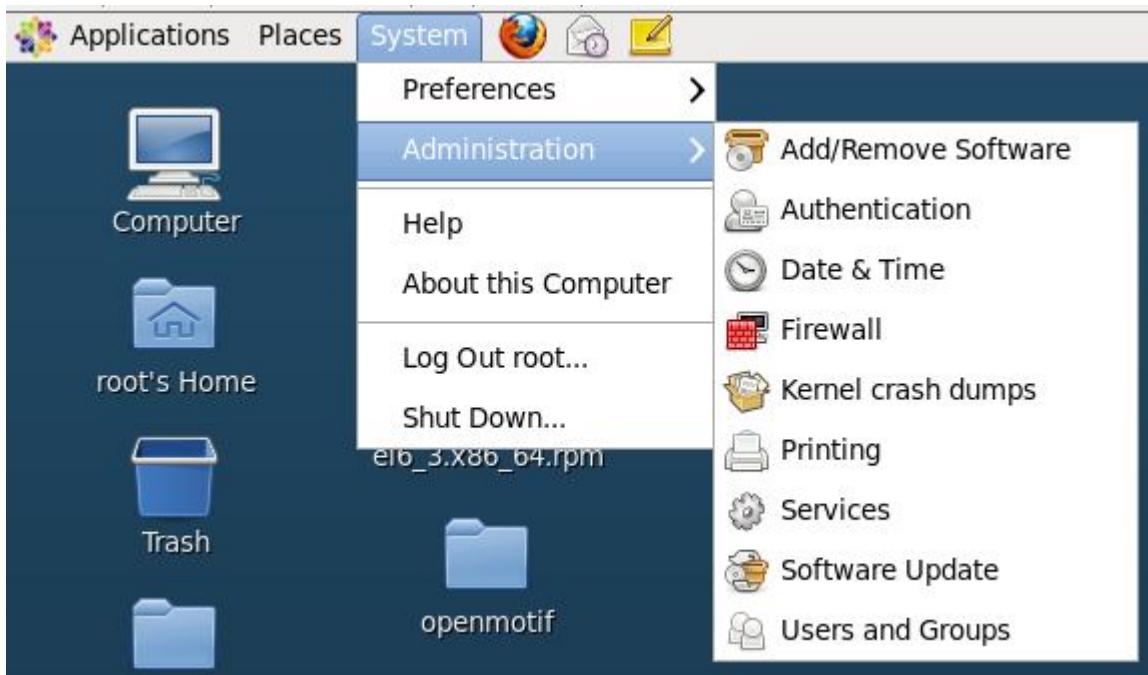
```
root@server:~  
[root@server ~]# vncserver  
  
You will require a password to access your desktops.  
  
Password:  
Verify:  
  
New 'server.autel.com:1 (root)' desktop is server.autel.com:1  
  
Creating default startup script /root/.vnc/xstartup  
Starting applications specified in /root/.vnc/xstartup  
Log file is /root/.vnc/server.autel.com:1.log  
  
[root@server ~]#
```

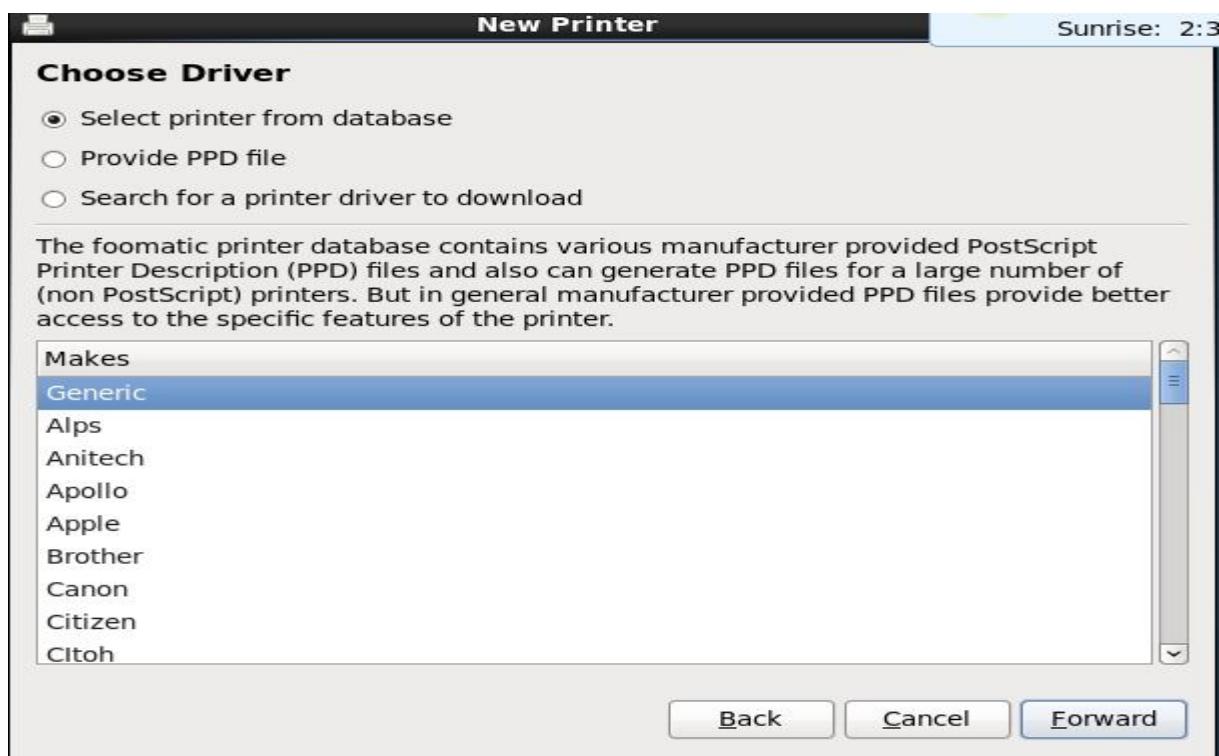
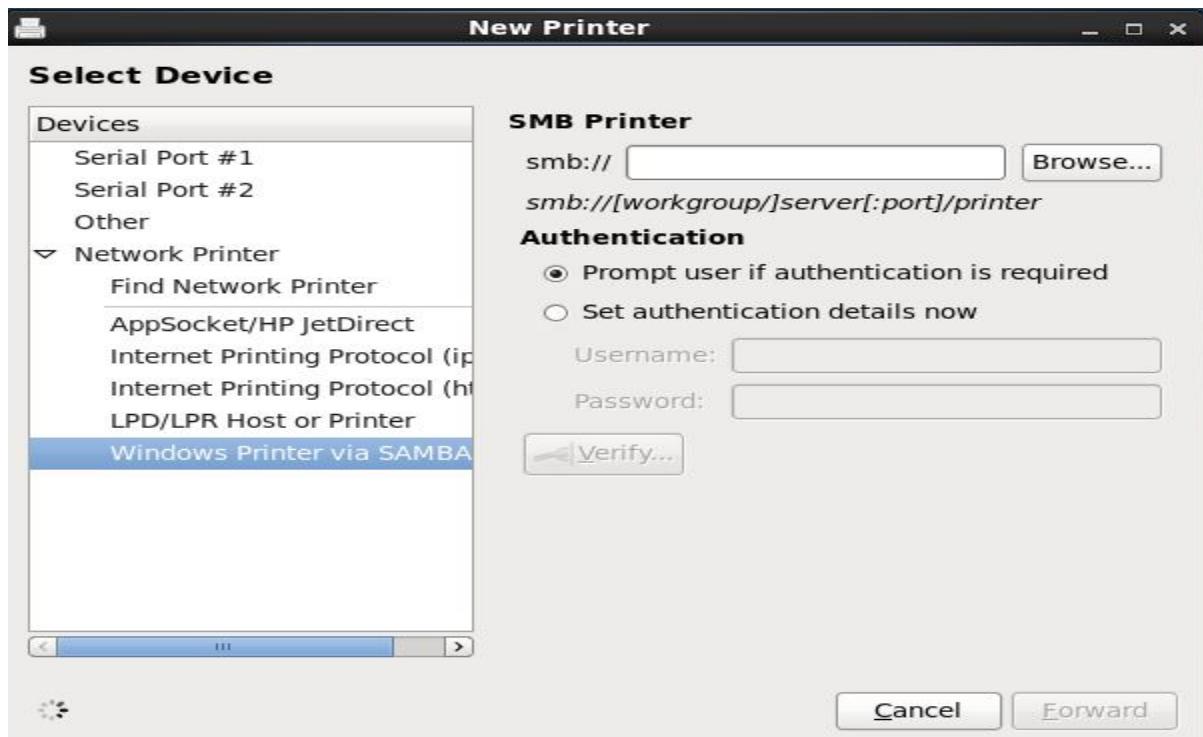
```
root@server:~  
[root@server ~]# chkconfig vncserver on  
[root@server ~]#
```

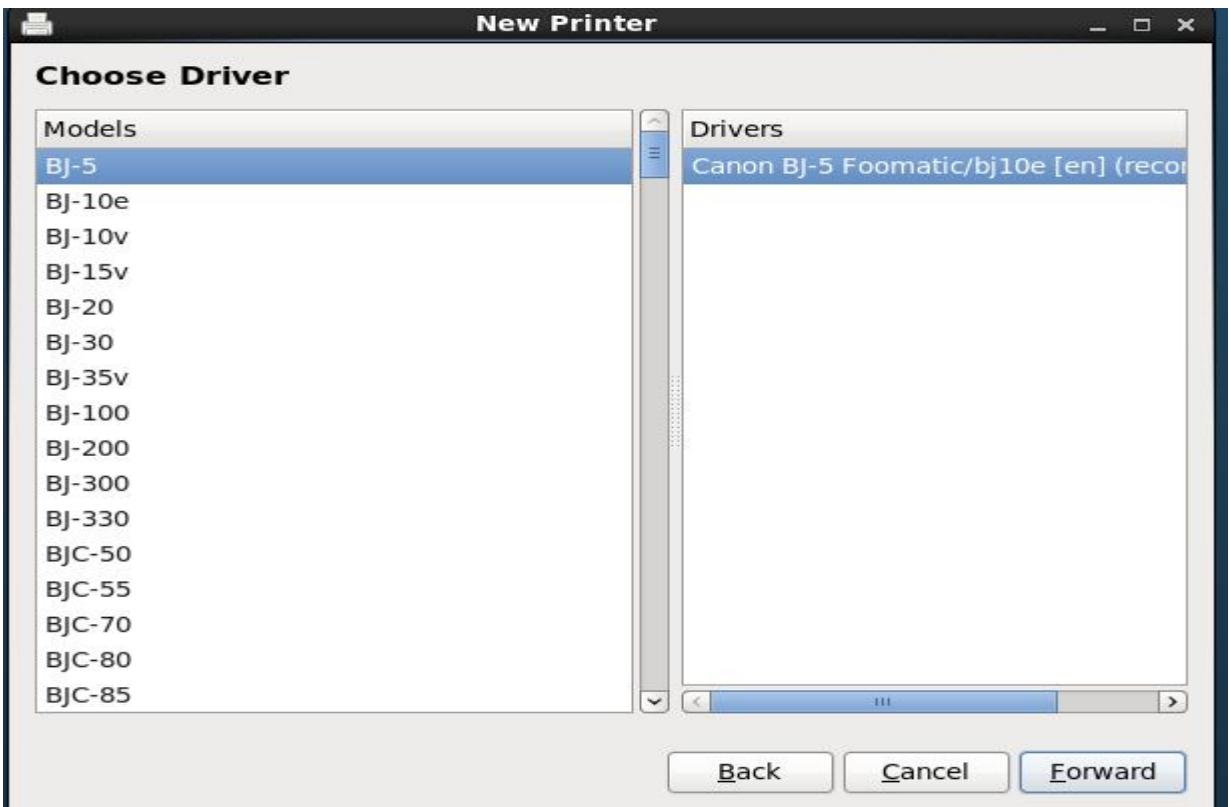




How to Configure Samba Printer in Linux







New Printer

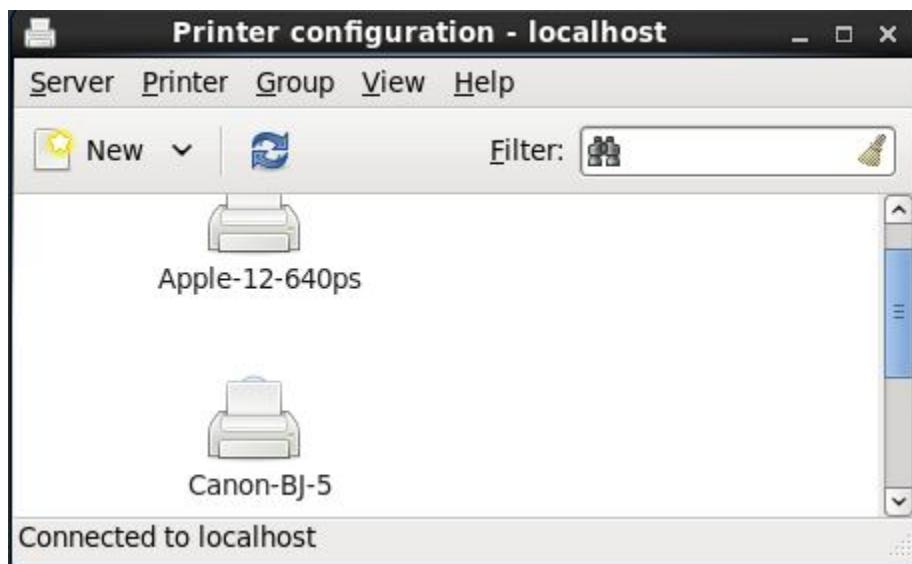
Describe Printer

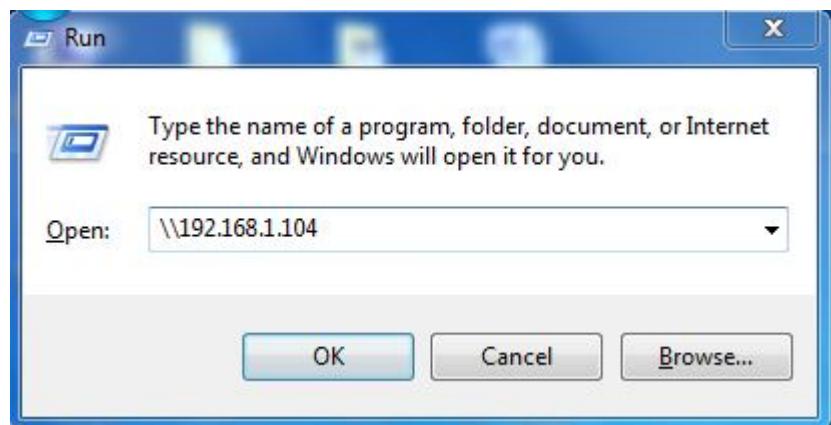
Printer Name
Short name for this printer such as "laserjet"

Description (optional)
Human-readable description such as "HP LaserJet with Duplexer"

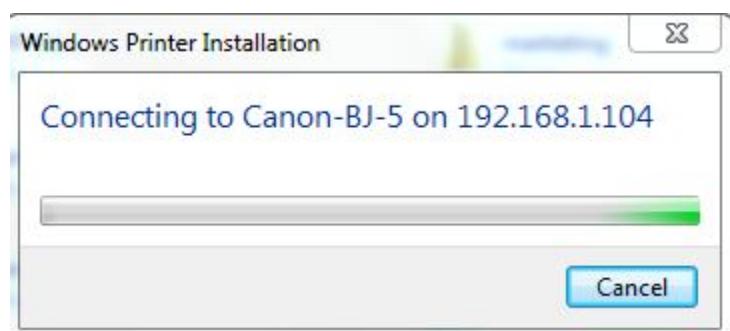
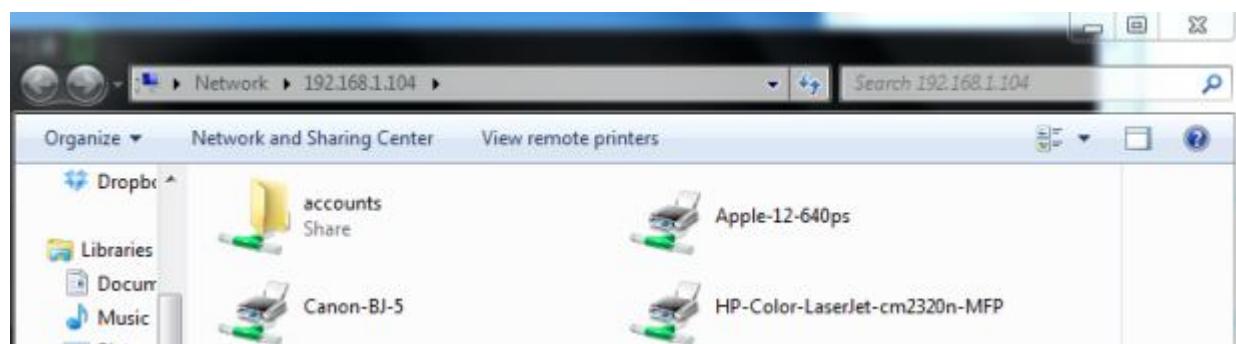
Location (optional)
Human-readable location such as "Lab 1"

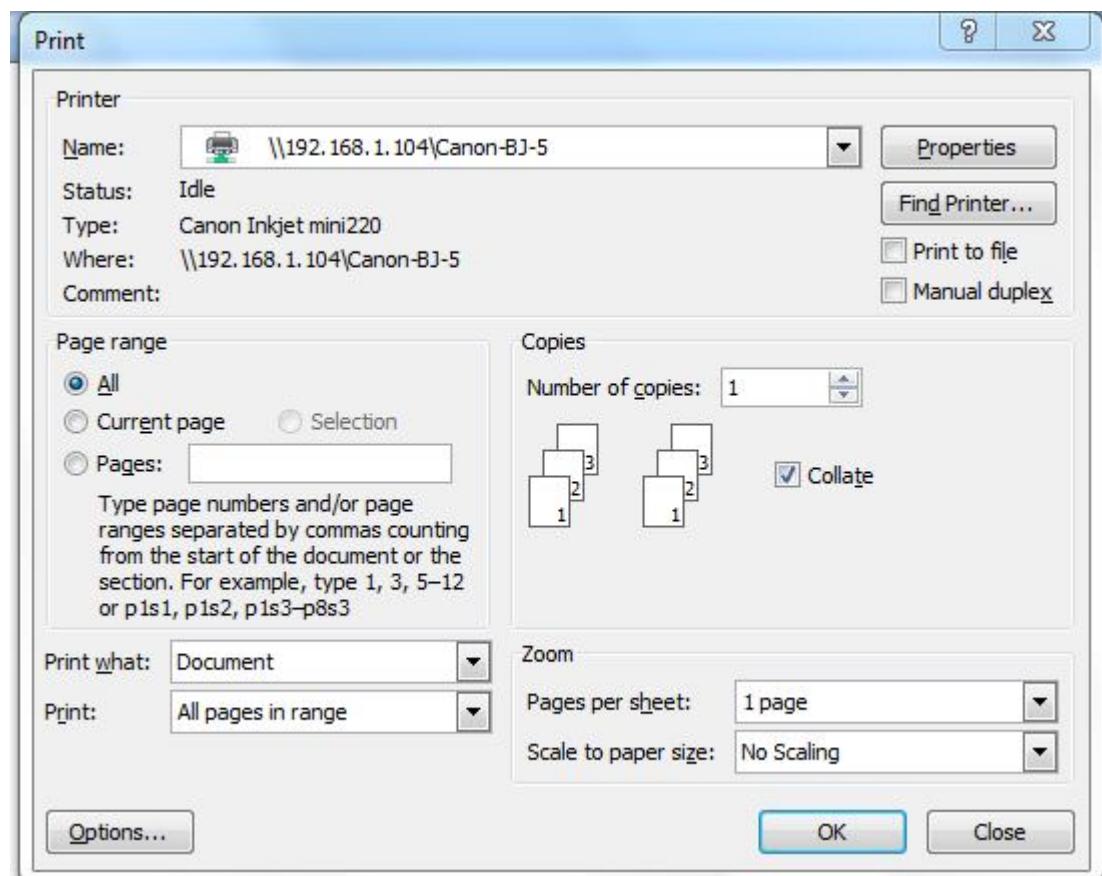
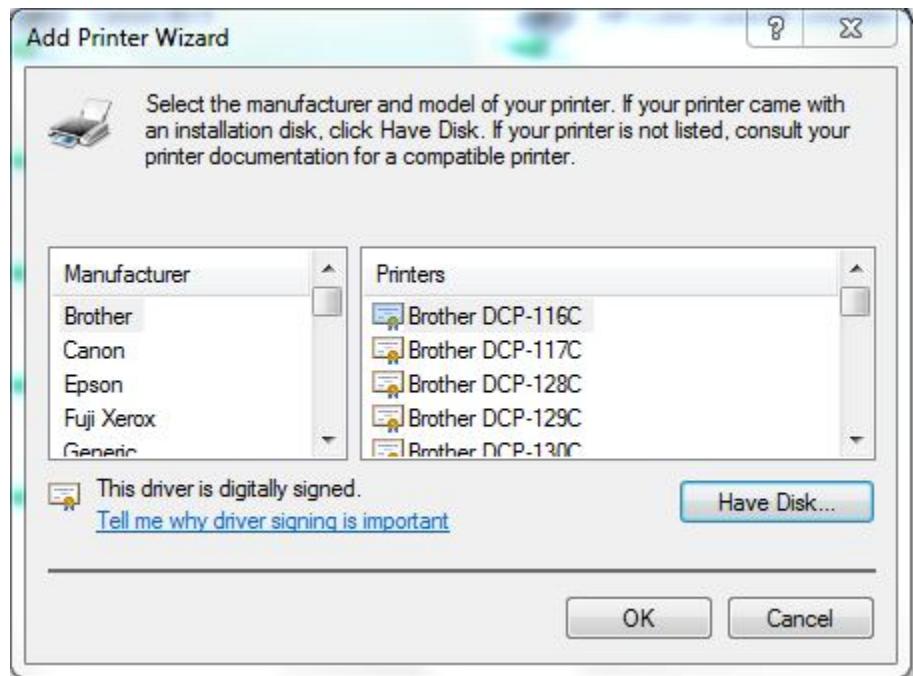
Back **Cancel** **Apply**





```
[root@server ~]# service cups restart
Stopping cups: [ OK ]
Starting cups: [ OK ]
[root@server ~]#
```





How to Configure Squid Server in Linux

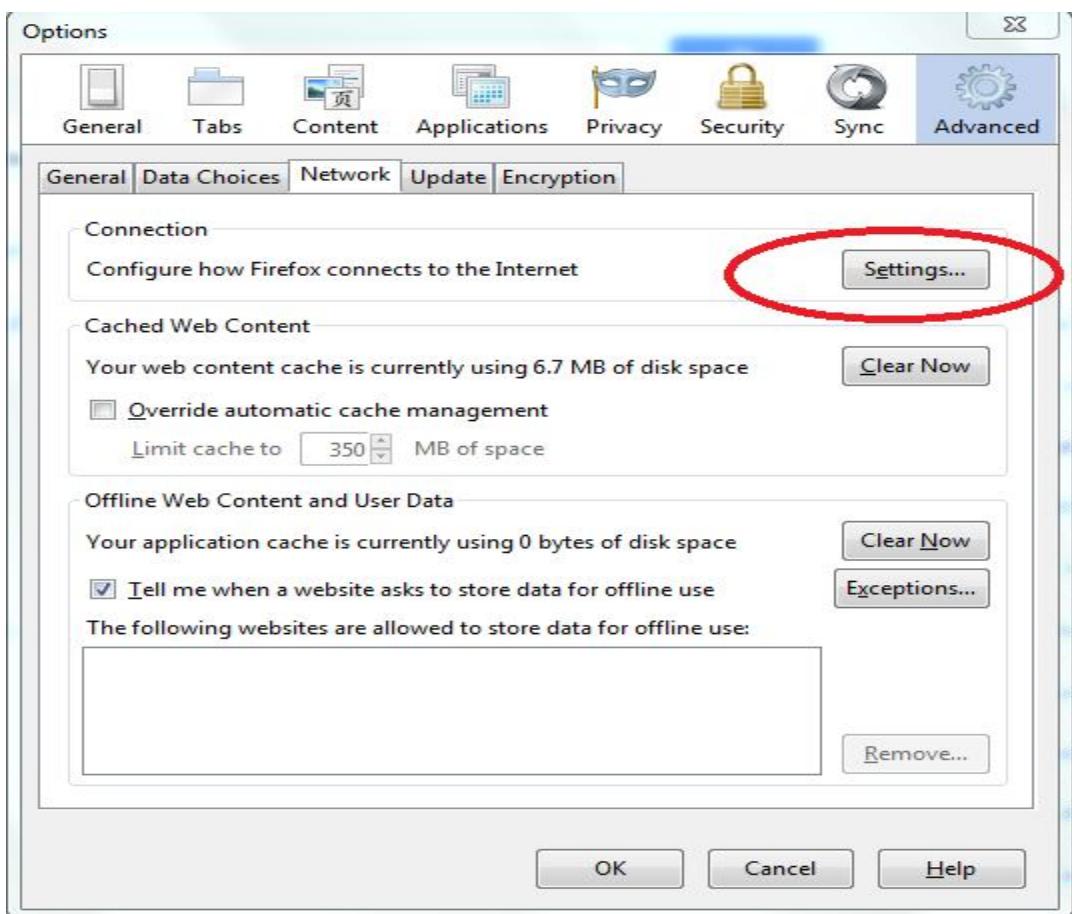
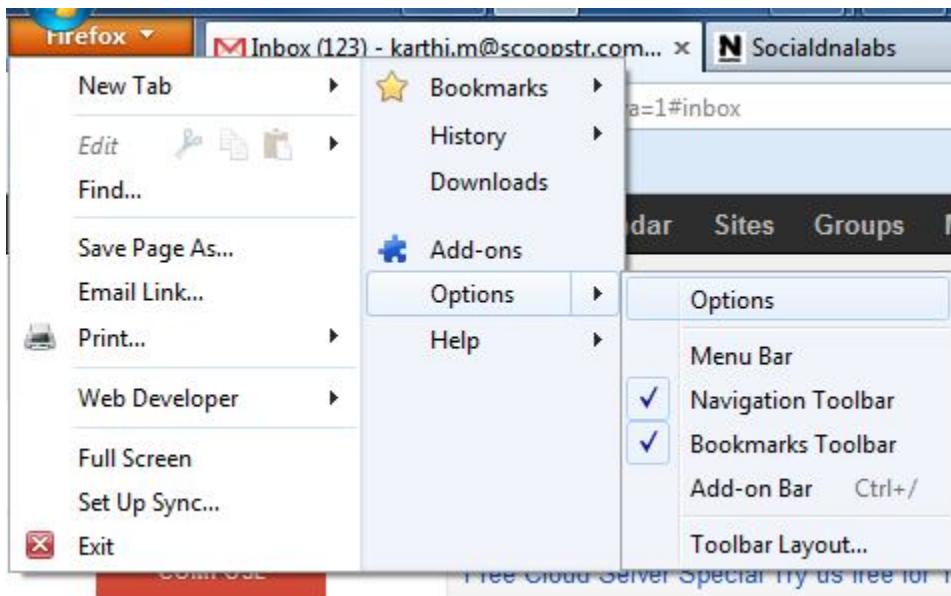
```
root@server:~ [root@server ~]# yum install squid
```

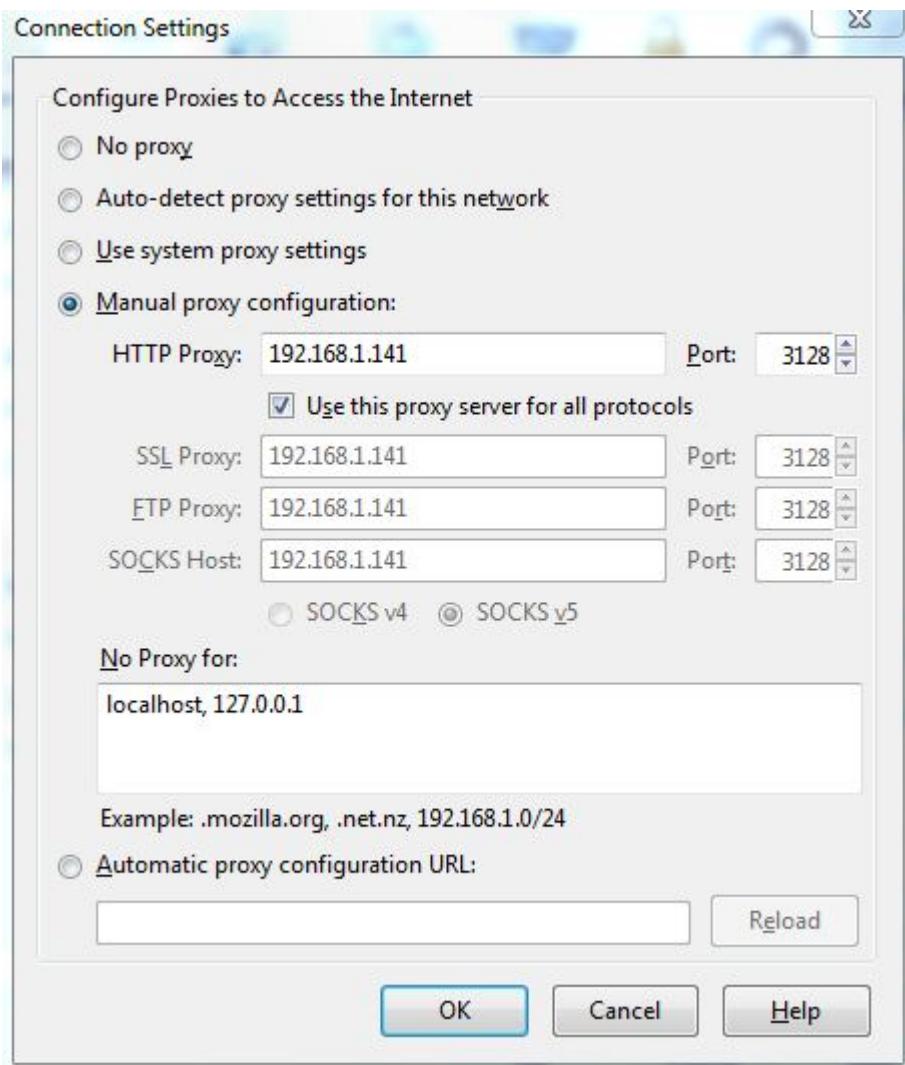
```
root@server:~ [root@server ~]# service squid restart  
Stopping squid: [FAILED]  
Starting squid: . [ OK ]  
[root@server ~]# chkconfig squid on  
[root@server ~]#
```

```
root@server:~ [root@server ~]# vim /etc/squid/squid.conf
```

```
acl Safe_ports port 777 # multiling http  
acl CONNECT method CONNECT  
acl autel src 192.168.1.0/24
```

```
# Recommended minimum Access Permission configuration:  
http_access allow autel
```





```
acl autel src 192.168.1.0/24
acl badweb dstdomain www.facebook.com
#
# Recommended minimum Access Permission config
http_access deny badweb
http_access allow autel
```



ERROR

The requested URL could not be retrieved

The following error was encountered while trying to retrieve the URL: <http://www.facebook.com/l.php?>

Access Denied.

Access control configuration prevents your request from being allowed at this time. Please contact your service provider if you feel this is incorrect.

Your cache administrator is [root](#).

```
[root@server ~]# cat /etc/deny
\.exe$  
facebook  
cricket  
)  
v [root@server ~]# █
```

```
acl autel src 192.168.1.0/24
acl wordbydeny url_regex "/etc/deny"
#
# Recommended minimum Access Permission configuration
http_access deny wordbydeny
http_access allow autel
```



ERROR

The requested URL could not be retrieved

The following error was encountered while trying to retrieve the URL: http://download.teamviewer.com/download/TeamViewer_Setup_en.exe

Access Denied.

Access control configuration prevents your request from being allowed at this time. Please contact your service provider if you feel this is incorrect.

Your cache administrator is [root](#).

Generated Wed, 12 Jun 2013 23:19:58 GMT by server.autel.com (squid/3.1.4)

```
root@server ~]# tail -5 /var/log/squid/access.log
1371081683.505    994 192.168.1.133 TCP_MISS/200 1123 GET http://polldaddy.com/r
atings/rate.php? - DIRECT/192.0.65.242 application/javascript
1371081683.506    993 192.168.1.133 TCP_MISS/200 424 GET http://stats.wordpress.
com/g.gif? - DIRECT/216.151.210.122 image/gif
1371081683.534   2765 192.168.1.133 TCP_MISS/200 90187 GET http://autellinux.fil
es.wordpress.com/2013/06/screenshot_42.png? - DIRECT/76.74.248.254 image/png
1371081684.061    505 192.168.1.133 TCP_MISS/200 425 GET http://pixel.quantserve
.com/pixel/p-ab3gTb8xb3dLg.gif - DIRECT/203.190.124.16 image/gif
1371081685.407   1313 192.168.1.133 TCP_MISS/200 399 GET http://botd2.wordpress.
com/botd.gif? - DIRECT/72.233.69.6 image/gif
[root@server ~]#
```

MySQL Server Configuration in Linux

```
root@server:~ [root@server ~]# yum install mysql mysql-server -y
```

```
root@server:~ [root@server ~]# service mysqld restart
Stopping mysqld: [ OK ]
Initializing MySQL database: Installing MySQL system tables...
OK
Filling help tables...
OK

To start mysqld at boot time you have to copy
support-files/mysql.server to the right place for your system

PLEASE REMEMBER TO SET A PASSWORD FOR THE MySQL root USER !
To do so, start the server, then issue the following commands:

/usr/bin/mysqladmin -u root password 'new-password'
/usr/bin/mysqladmin -u root -h server.au-tel.com password 'new-password'

Alternatively you can run:
/usr/bin/mysql_secure_installation

which will also give you the option of removing the test
databases and anonymous user created by default. This is
strongly recommended for production servers.

See the manual for more instructions.

You can start the MySQL daemon with:
cd /usr ; /usr/bin/mysqld_safe &

You can test the MySQL daemon with mysql-test-run.pl
cd /usr/mysql-test ; perl mysql-test-run.pl

Please report any problems with the /usr/bin/mysqlbug script!
```

```
root@server:~ [root@server ~]# chkconfig mysqld on
[root@server ~]#
```

```
root@server:~  
[root@server ~]# mysqladmin -u root password 'sd1123'  
[root@server ~]#
```

```
root@server:~  
[root@server ~]# mysql -u root -p  
Enter password:  
Welcome to the MySQL monitor. Commands end with ; or \g.  
Your MySQL connection id is 3  
Server version: 5.1.47 Source distribution  
  
Copyright (c) 2000, 2010, Oracle and/or its affiliates. All rights reserved.  
This software comes with ABSOLUTELY NO WARRANTY. This is free software,  
and you are welcome to modify and redistribute it under the GPL v2 license  
  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement  
mysql>
```

```
mysql> select user,host from mysql.user;  
+-----+-----+  
| user | host |  
+-----+-----+  
| root | 127.0.0.1 |  
|      | localhost |  
| root | localhost |  
|      | server.au-tel.com |  
| root | server.au-tel.com |  
+-----+-----+  
5 rows in set (0.00 sec)
```

```
mysql> show databases;
+-----+
| Database      |
+-----+
| information_schema |
| mysql          |
| test           |
+-----+
3 rows in set (0.00 sec)
```

```
mysql> exit
Bye
[root@server ~]#
```

SSH Server Configuration in Linux

```
[root@server:~]# yum install openssh* -y
```

```
[root@server:~]# vim /etc/ssh/sshd_config
```

```
[root@server:~]# service sshd restart
Stopping sshd: [ OK ]
Starting sshd: [ OK ]
[root@server ~]#
```

```
[root@server:~]# chkconfig sshd on
[root@server ~]#
```

```
[root@server Desktop]# ssh 192.168.100.201
root@192.168.100.201's password:
```

```
[root@server Desktop]# ssh 192.168.100.201
root@192.168.100.201's password:
Last login: Thu May  9 22:28:48 2013 from 192.168.100.208
[root@client ~]#
```

```
[root@server Desktop]# ssh client.autellinux.com
```

```
[root@server Desktop]# ssh karthi@client.autellinux.com
```

```
[root@server Desktop]# ssh root@192.168.100.201
```

```
[root@server Desktop]# ssh 192.168.100.201 'df -h'  
root@192.168.100.201's password:  
Filesystem      Size  Used Avail Use% Mounted on  
/dev/sda2        17G   2.6G   13G  17% /  
tmpfs           812M     0   812M   0% /dev/shm  
/dev/sda1       291M   30M   246M  11% /boot  
[root@server Desktop]#
```

DNS Server Configuration in Linux rhel6

```
root@server:~ [root@server ~]# cat /etc/sysconfig/network  
NETWORKING=yes  
HOSTNAME=server.au-tel.com  
[root@server ~]# 
```

```
root@server:~ [root@server ~]# cat /etc/resolv.conf  
# Generated by NetworkManager  
search au-tel.com  
nameserver 192.168.10.100  
[root@server ~]# 
```

```
root@server:~ [root@server ~]# yum install bind* -y
```

```
root@server:~ [root@server ~]# vim /etc/named.conf
```

```
options {
    listen-on port 53 { 192.168.10.100; };
    #      listen-on-v6 port 53 { ::1; };
    directory      "/var/named";
    dump-file      "/var/named/data/cache_dump.db";
    statistics-file "/var/named/data/named_stats.txt";
    memstatistics-file "/var/named/data/named_mem_stats.txt";
    allow-query     { any; };
    recursion yes;
```

[root@server:~]# vim /etc/named.rfc1912.zones

```
zone "autel.com" IN {
    type master;
    file "for.zone";
    allow-update { none; };
};
```

```
zone "10.168.192.in-addr.arpa" IN {
    type master;
    file "rev.zone";
    allow-update { none; };
};
```

[root@server:~]# cd /var/named/
[root@server named]# cp named.localhost for.zone
[root@server named]# cp named.loopback rev.zone
[root@server named]# ls
chroot dynamic named.ca named.localhost rev.zone
data for.zone named.empty named.loopback slaves
[root@server named]#

```
root@server:/var/named
[root@server named]# vim for.zone
```

```
$TTL 1D
@ IN SOA server.au-tel.com. root.server.au-tel.com. (
          0 ; serial
          1D ; refresh
          1H ; retry
          1W ; expire
          3H ) ; minimum
      IN NS server.au-tel.com.
server IN A 192.168.10.100
client IN A 192.168.10.7
~
```

```
root@server:/var/named
[root@server named]# vim rev.zone
```

```
$TTL 1D
@ IN SOA server.au-tel.com. root.server.au-tel.com. (
          0 ; serial
          1D ; refresh
          1H ; retry
          1W ; expire
          3H ) ; minimum
100    IN NS server.au-tel.com.
100    IN PTR server.au-tel.com.
7      IN PTR client.au-tel.com.
~
```

```
[root@server ~]# cd /var/named  
[root@server named]# chgrp named for.zone  
[root@server named]# chgrp named rev.zone  
[root@server named]#
```

```
[root@server ~]# cd /var/named  
[root@server named]# service named restart  
Stopping named: [ OK ]  
Starting named: [ OK ]  
[root@server named]# chkconfig named on  
[root@server named]#
```

```
[root@server ~]# cd /var/named  
[root@server named]# dig server.au-tel.com  
  
; <>> DiG 9.7.0-P2-RedHat-9.7.0-5.P2.el6 <>> server.au-tel.com  
;; global options: +cmd  
;; Got answer:  
;; ->>HEADER<- opcode: QUERY, status: SERVFAIL, id: 59079  
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 0, ADDITIONAL: 0  
  
;; QUESTION SECTION:  
;server.au-tel.com. IN A  
  
;; Query time: 174 msec  
;; SERVER: 192.168.10.100#53(192.168.10.100)  
;; WHEN: Wed May 15 13:00:13 2013  
;; MSG SIZE rcvd: 35  
  
[root@server named]#
```

```
root@server:/var/named [root@server named]# dig -x 192.168.10.100  
;; <>> DiG 9.7.0-P2-RedHat-9.7.0-5.P2.el6 <>> -x 192.168.10.100  
;; global options: +cmd  
;; Got answer:  
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 36845  
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 1, ADDITIONAL: 0  
  
;; QUESTION SECTION:  
;100.10.168.192.in-addr.arpa. IN PTR  
  
;; ANSWER SECTION:  
100.10.168.192.in-addr.arpa. 86400 IN PTR server.au-tel.com.  
  
;; AUTHORITY SECTION:  
10.168.192.in-addr.arpa. 86400 IN NS server.au-tel.com.  
  
;; Query time: 0 msec  
;; SERVER: 192.168.10.100#53(192.168.10.100)  
;; WHEN: Wed May 15 13:01:57 2013  
;; MSG SIZE rcvd: 90  
[root@server named]#
```

```
C:\Users\Karthi Manickaraj>nslookup server.au-tel.com  
Server: server.au-tel.com  
Address: 192.168.10.100
```

Mail Server Configuration in Linux rhel6

```
[root@server:~]# yum install postfix* -y
```

```
[root@server:~]# vim /etc/postfix/main.cf
```

```
inet_interfaces = all
inet_interfaces = $myhostname
inet_interfaces = $myhostname, localhost
inet_interfaces = localhost
```

```
[root@server:~]# service postfix restart
Shutting down postfix: [OK]
Starting postfix: [OK]
[root@server:~]# chkconfig postfix on
```

```
[root@server:~]# mail -v autel
Subject: Hi Au-Tel Demo
Hi Admin how r u
.
EOT
Mail Delivery Status Report will be mailed to <root>.
```

```
[autel@server ~]$ mail
Heirloom Mail version 12.4 7/29/08. Type ? for help.
"/var/spool/mail/autel": 1 message 1 unread
>U 1 root                               Wed May 15 12:32 19/607 "Hi Au-Tel Demo"
& [ ]
```

```
[autel@server ~]$ mail -v root
Subject: Hi Admin
I am fine Can check my server ....
.
EOT
Mail Delivery Status Report will be mailed to <autel>.
You have mail in /var/spool/mail/autel
[autel@server ~]$ [ ]
```

```
[root@server ~]# mail
Heirloom Mail version 12.4 7/29/08. Type ? for help.
"/var/spool/mail/root": 3 messages 1 new
 1 Cron Daemon      Wed May 15 09:32 26/1022 "Cron <root@server> /bin/rm -f /"
 2 Mail Delivery System Wed May 15 12:32 66/2130 "Mail Delivery Status Report"
>N 3 Au-Tel Linux Admin   Wed May 15 12:33 18/625 "Hi Admin"
& [ ]
```

```
[root@server ~]# mail
Heirloom Mail version 12.4 7/29/08. Type ? for help.
"/var/spool/mail/root": 3 messages
> 1 Cron Daemon      Wed May 15 09:32 26/1022 "Cron <root@server> /bin/rm -f /"
  2 Mail Delivery System Wed May 15 12:32 66/2130 "Mail Delivery Status Report"
  3 Au-Tel Linux Admin   Wed May 15 12:33 19/636 "Hi Admin"
& 3
Message 3:
From: autel@server.au-tel.com Wed May 15 12:33:52 2013
Return-Path: <autel@server.au-tel.com>
X-Original-To: root
Delivered-To: root@server.au-tel.com
Date: Wed, 15 May 2013 12:33:52 -0700
To: root@server.au-tel.com
Subject: Hi Admin
User-Agent: Heirloom mailx 12.4 7/29/08
Content-Type: text/plain; charset=us-ascii
From: autel@server.au-tel.com (Au-Tel Linux Admin)
Status: RO

I am fine Can check my server ....
& [ ]
```

```
From root@server.au-tel.com Wed May 15 12:32:04 2013
Return-Path: <root@server.au-tel.com>
X-Original-To: autel
Delivered-To: autel@server.au-tel.com
Received: by server.au-tel.com (Postfix, from userid 0)
          id AEB36C2B12; Wed, 15 May 2013 12:32:04 -0700 (PDT)
Date: Wed, 15 May 2013 12:32:04 -0700
To: autel@server.au-tel.com
Subject: Hi Au-Tel Demo
User-Agent: Heirloom mailx 12.4 7/29/08
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
Message-Id: <20130515193204.AEB36C2B12@server.au-tel.com>
From: root@server.au-tel.com (root)
Status: RO

Hi Admin how r u
```

```
[root@server:~]
[root@server ~]# vim /var/spool/mail/autel
[root@server ~]# vim /var/spool/mail/root
[root@server ~]# █
```

ISCSI Server Configuration in Linux rhel6

```
root@server:~ [root@server ~]# lvs
  LV   VG Attr  LSize Origin Snap%  Move Log Copy%  Convert
  demo autel -wi-a- 4.00g
[root@server ~]#
```

```
root@server:~ [root@server ~]# yum install scsi-target* -y
```

```
root@server:~ [root@server ~]# vim /etc/tgt/targets.conf
```



```
#iSNSServerIP 192.168.1.11.222
#iSNSServerPort 3205
#iSNSSAccessControl On
#iSNS On

# Continue if tgtadm exits with non-zero code (equivalent to --ignore-errors command line option)
#ignore-errors yes

# Sample target with one LUN only. Defaults to all
<target server.autel.com>
    backing-store /dev/autel/demo
</target>
```

```
root@server:~  
[root@server ~]# vim /etc/tgt/targets.conf  
[root@server ~]# service tgtd restart  
Stopping SCSI target daemon: not running [FAILED]  
Starting SCSI target daemon: [ OK ]  
[root@server ~]# chkconfig tgtd on  
[root@server ~]#
```

```
root@client:~/Desktop  
[root@client Desktop]# yum install iscsi-init* -y
```

```
root@client:~/Desktop  
[root@client Desktop]# iscsidadm -m discovery -t st -p 192.168.10.100  
Starting iscsid: [ OK ]  
192.168.10.100:3260,1 server.autel.com  
[root@client Desktop]#
```

```
root@client:~/Desktop  
[root@client Desktop]# vim /etc/iscsi/initiatorname.iscsi
```

```
root@client:~/Desktop  
[InitiatorName=server.autel.com  
~
```

```
root@client:~/Desktop
[root@client Desktop]# iscsiadadm -m node -T server.autel.com -p 192.168.10.100 -l
Logging in to [iface: default, target: server.autel.com, portal: 192.168.10.100,
3260]
Login to [iface: default, target: server.autel.com, portal: 192.168.10.100,3260]
successful.
[root@client Desktop]# 
```

```
root@client:~/Desktop
[root@client Desktop]# service iscsid restart
Not stopping iscsid: iscsi sessions still active [WARNING]
Starting iscsid:
[root@client Desktop]# service iscsi restart
Stopping iscsi: [ OK ]
Starting iscsi: [ OK ]
[root@client Desktop]# chkconfig iscsid on
[root@client Desktop]# chkconfig iscsi on
[root@client Desktop]# 
```

```
root@client:~/Desktop
[root@client Desktop]# tailf /var/log/messages | grep sdb
May 15 12:12:08 client kernel: sd 4:0:0:1: [sdb] 8388608 512-byte logical blocks
: (4.29 GB/4.00 GiB)
May 15 12:12:08 client kernel: sd 4:0:0:1: [sdb] Write Protect is off
May 15 12:12:08 client kernel: sd 4:0:0:1: [sdb] Write cache: enabled, read cach
e: enabled, doesn't support DPO or FUA
May 15 12:12:08 client kernel: sdb: unknown partition table
May 15 12:12:08 client kernel: sd 4:0:0:1: [sdb] Attached SCSI disk

```

```
[root@client 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 0xdfcecb8.
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 (1-1017, default 1):
Using default value 1
Last cylinder, +cylinders or +size(K,M,G) (1-1017, default 1017): +2G
```

```
Command (m for help): p

Disk /dev/sdb: 4294 MB, 4294967296 bytes
133 heads, 62 sectors/track, 1017 cylinders
Units = cylinders of 8246 * 512 = 4221952 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0xdfcecb8

      Device Boot      Start        End      Blocks   Id  System
  /dev/sdb1            1       510     2102699   83  Linux
```

```
[root@client Desktop]# partprobe
Warning: WARNING: the kernel failed to re-read the partition table on /dev/sda (Device or resource busy). As a result, it may not reflect all of your changes until after reboot.
[root@client Desktop]# 
```

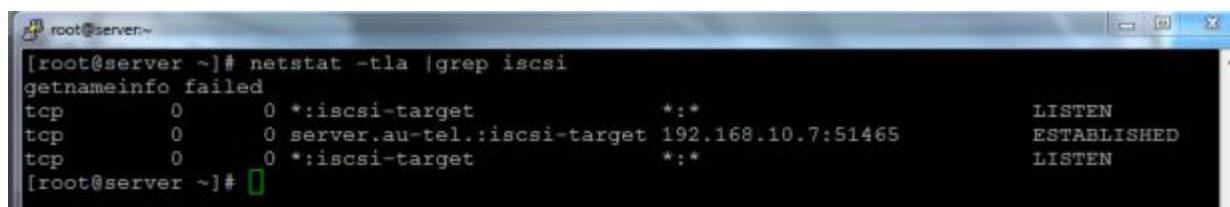
```
[root@client ~]# mkfs.ext4 /dev/sdb1
mke2fs 1.41.12 (17-May-2010)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
131648 inodes, 525674 blocks
26283 blocks (5.00%) reserved for the super user
```

```
[root@client ~]# mkdir /autelshare
[root@client ~]#
```

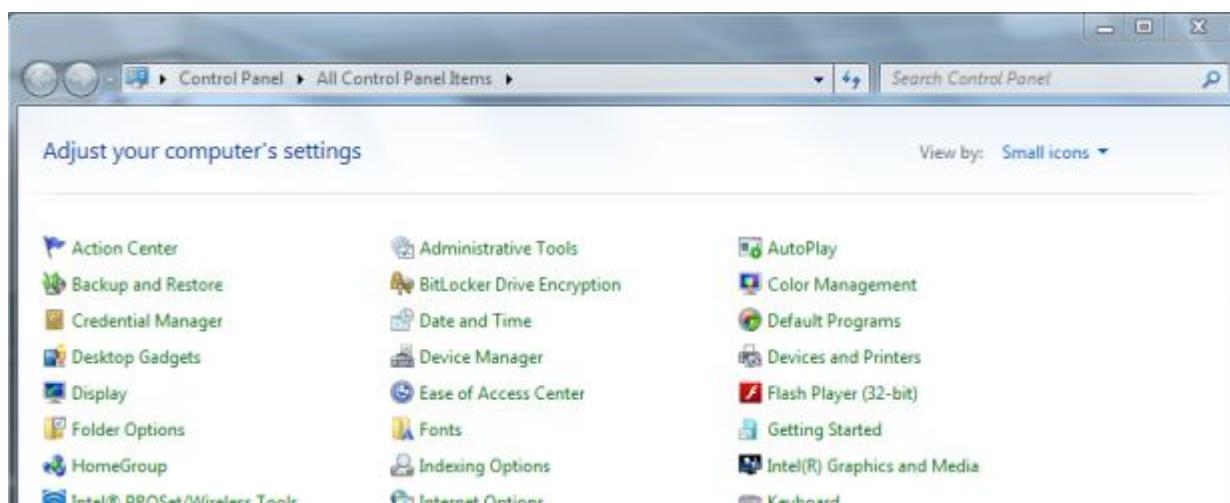
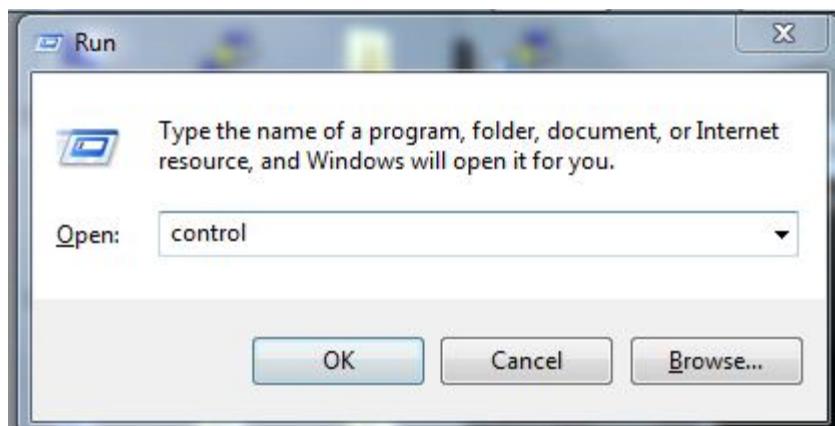
```
[root@client ~]# vim /etc/fstab
```

tmpfs	/dev/shm	tmpfs	defaults	0 0
devpts	/dev/pts	devpts	gid=5,mode=620	0 0
sysfs	/sys	sysfs	defaults	0 0
proc	/proc	proc	defaults	0 0
/dev/sdb1	/autelshare	ext4	_netdev	0 0

```
[root@client ~]# vim /etc/fstab
[root@client ~]# mount -a
[root@client ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/sda2       17G  2.3G  14G  15% /
tmpfs          705M    0  705M   0% /dev/shm
/dev/sda1      291M   30M  246M  11% /boot
/dev/sdb1       2.0G   68M  1.9G   4% /autelshare
[root@client ~]#
```



```
[root@server ~]# netstat -tla |grep iscsi
getnameinfo failed
tcp      0      0 *:iscsi-target          *:*
tcp      0      0 server.au-tel.:iscsi-target 192.168.10.7:51465      LISTEN
tcp      0      0 *:iscsi-target          *:*
[root@server ~]#
```



The screenshot shows the Windows Control Panel with the path: Control Panel > All Control Panel Items > Administrative Tools. A search bar at the top right says "Search Administrative Tools". On the left, there's a "Favorites" sidebar with icons for Desktop, Downloads, Recent Places, Dropbox, Libraries, Documents, Music, Pictures, Videos, and Homegroup. The main area is a table listing various administrative tools:

	Name	Date modified	Type	Size
Component Services	7/13/2009 9:57 PM	Shortcut	2 KB	
Computer Management	7/13/2009 9:54 PM	Shortcut	2 KB	
Data Sources (ODBC)	7/13/2009 9:53 PM	Shortcut	2 KB	
Event Viewer	7/13/2009 9:54 PM	Shortcut	2 KB	
iSCSI Initiator	7/13/2009 9:54 PM	Shortcut	2 KB	
Local Security Policy	3/22/2013 2:39 PM	Shortcut	2 KB	
Performance Monitor	7/13/2009 9:53 PM	Shortcut	2 KB	
Print Management	3/22/2013 2:38 PM	Shortcut	2 KB	
Services	7/13/2009 9:54 PM	Shortcut	2 KB	
System Configuration	7/13/2009 9:53 PM	Shortcut	2 KB	
Task Scheduler	7/13/2009 9:54 PM	Shortcut	2 KB	
Windows Firewall with Advanced Security	7/13/2009 9:54 PM	Shortcut	2 KB	

The screenshot shows the "iSCSI Initiator Properties" dialog box. The tabs at the top are Targets, Discovery, Favorite Targets, Volumes and Devices, RADIUS, and Configuration. The Targets tab is selected.

Quick Connect
To discover and log on to a target using a basic connection, type the IP address or DNS name of the target and then click Quick Connect.

Target: Quick Connect...

Discovered targets

Name	Status
sharedrive	Reconnecting...

Refresh

To connect using advanced options, select a target and then click Connect.

Connect

To completely disconnect a target, select the target and then click Disconnect.

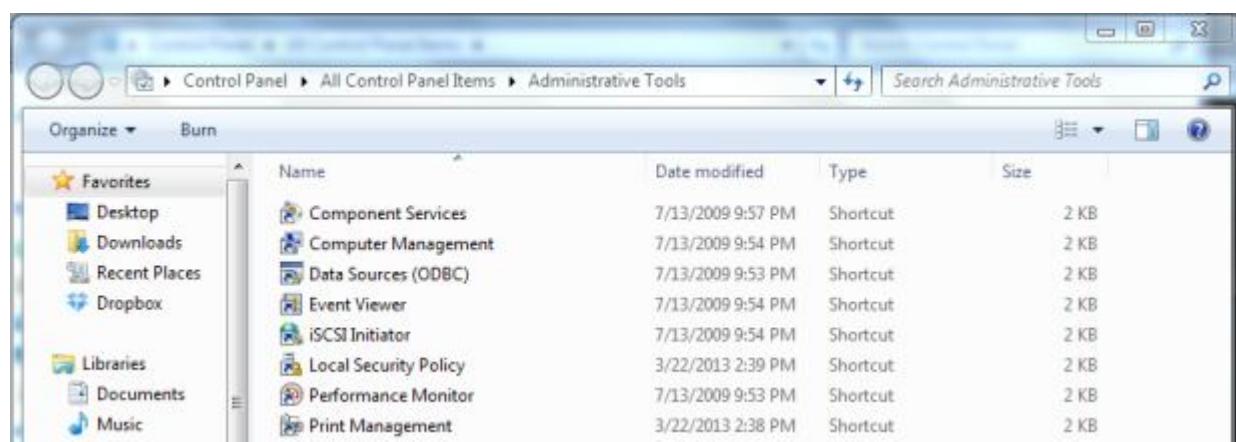
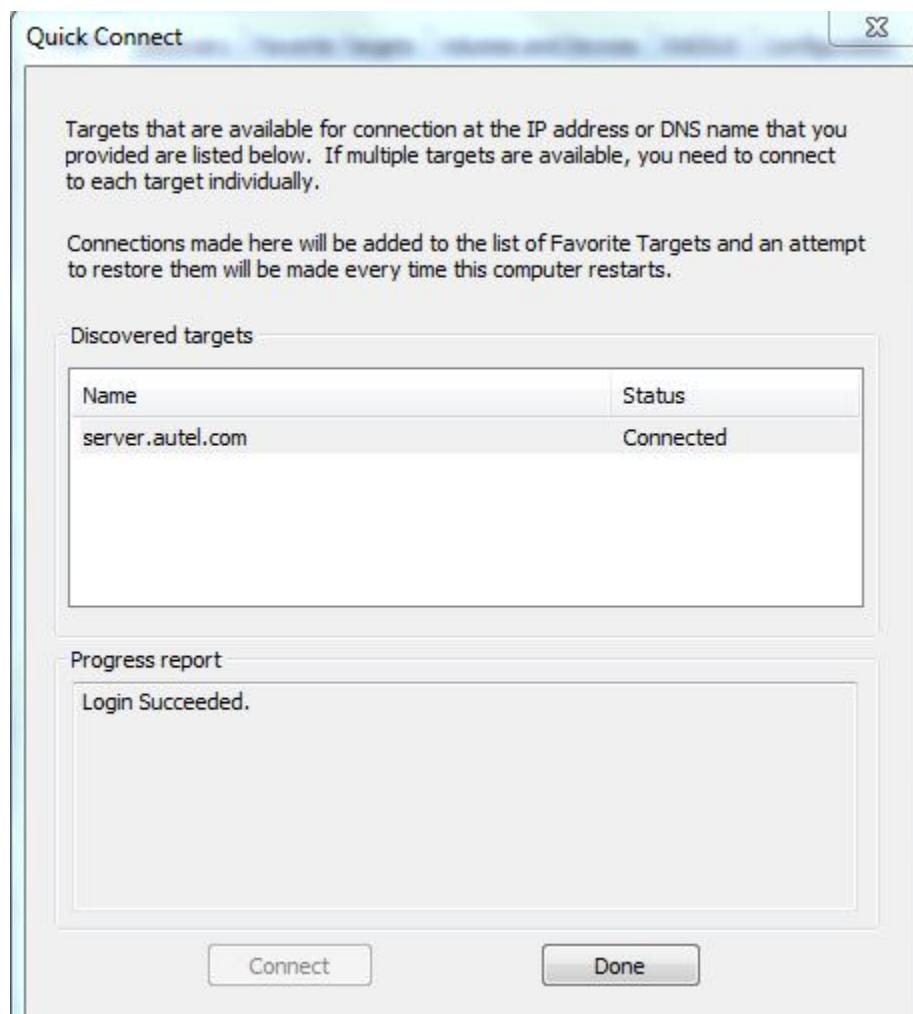
Disconnect

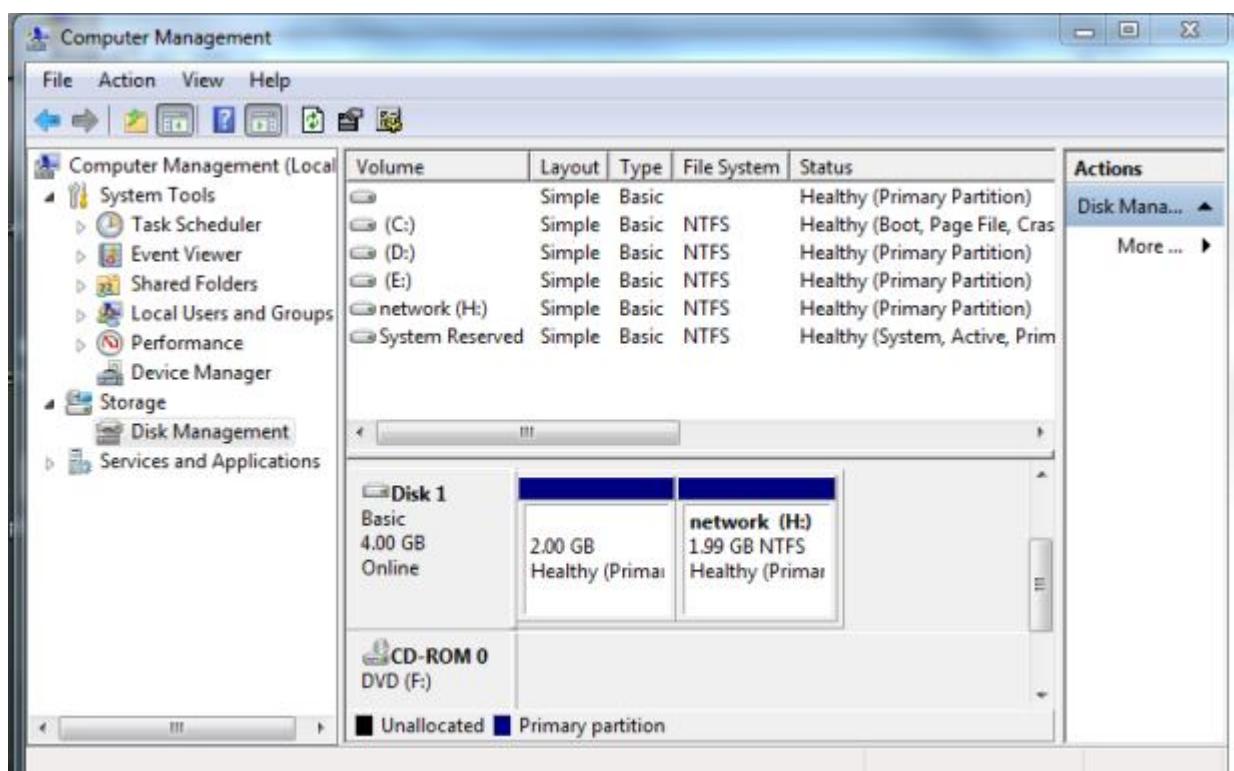
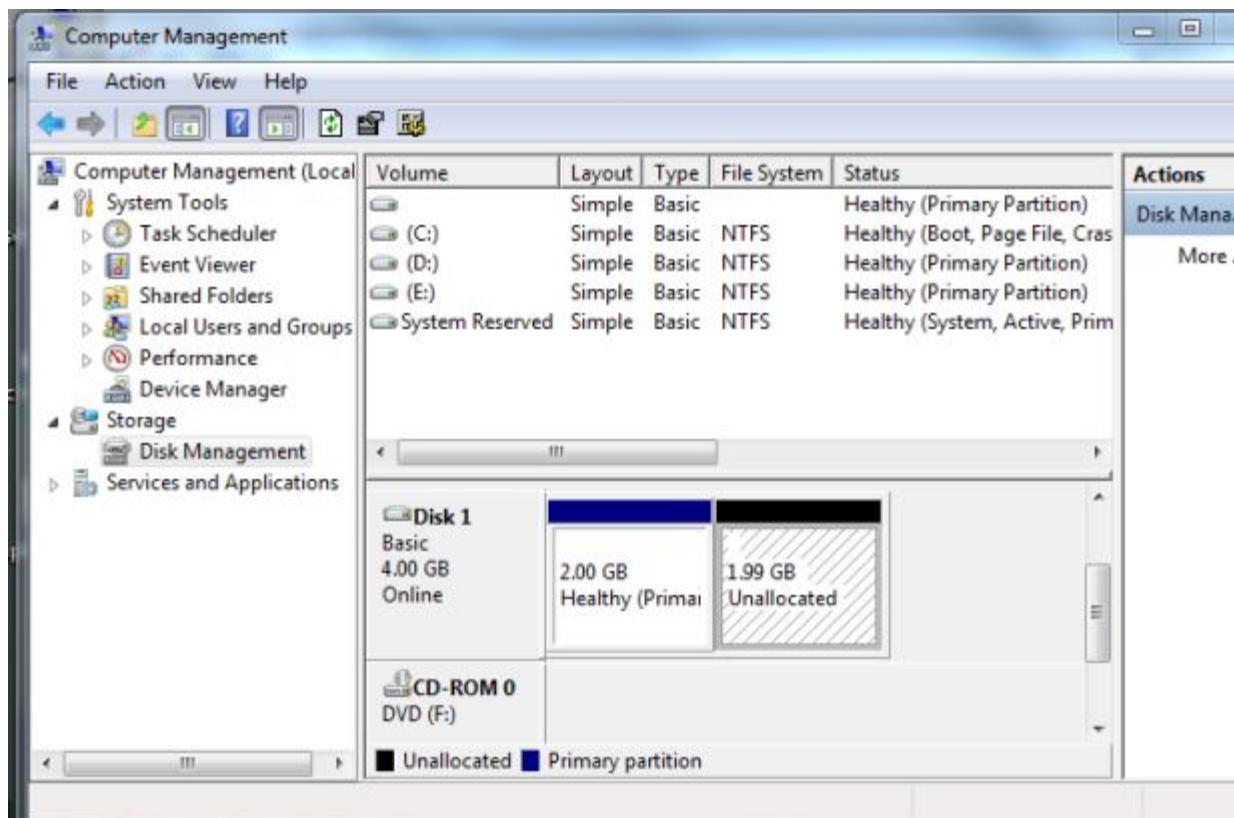
For target properties, including configuration of sessions, select the target and click Properties...

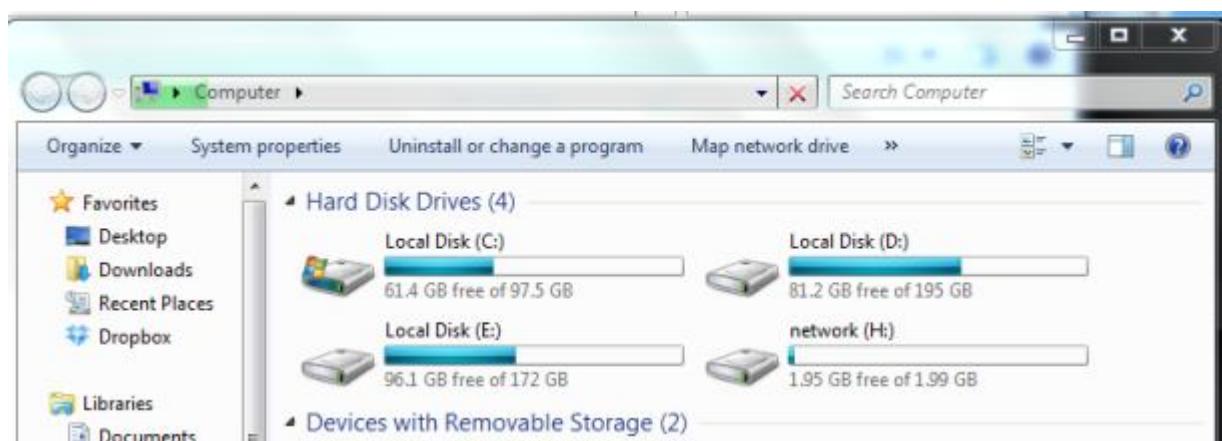
Properties...

For configuration of devices associated with a target, select the target and then click Devices...

Devices...







A terminal window showing the output of the netstat command. The user is root at a server in the /var/log directory. The command netstat -tlna | grep 3260 is run, displaying a list of TCP connections on port 3260. The output shows four entries: one listening on 0.0.0.0:3260 and three established connections from 192.168.10.7, 192.168.10.2, and :: to various ports.

```
[root@server log]# netstat -tlna | grep 3260
tcp        0      0 0.0.0.0:3260          0.0.0.0:*
tcp        0      0 192.168.10.100:3260    192.168.10.7:51465      LISTEN
tcp        0      0 192.168.10.100:3260    192.168.10.2:25487      ESTABLISHED
tcp        0      0 :::3260                 :::*
[root@server log]#
```

Samba Server Configuration in Linux rhel6

```
[root@server:~]# yum install samba* -y
```

```
[root@server:~]# mkdir /backup  
[root@server ~]# chmod 777 /backup/  
[root@server ~]#
```

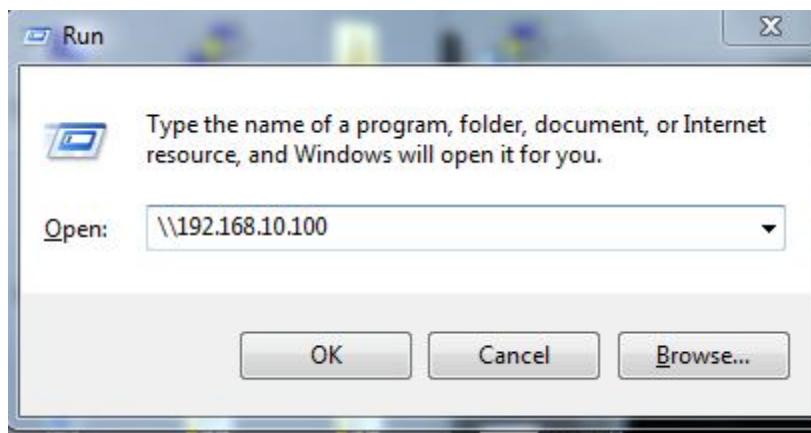
```
[root@server:~]# vim /etc/samba/smb.conf
```

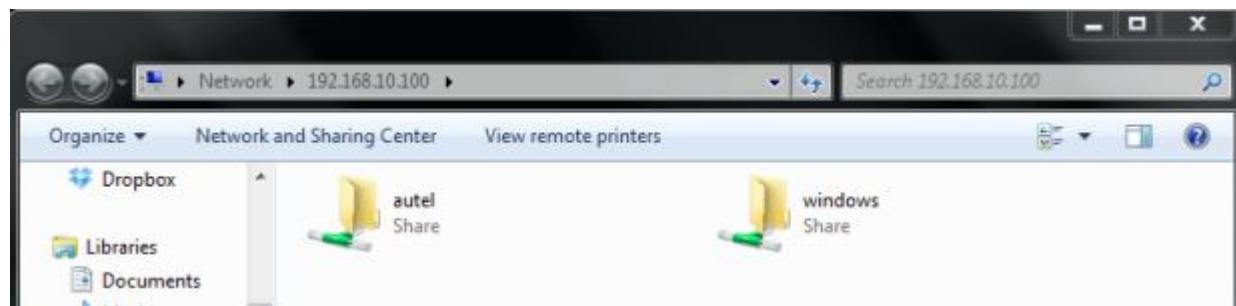
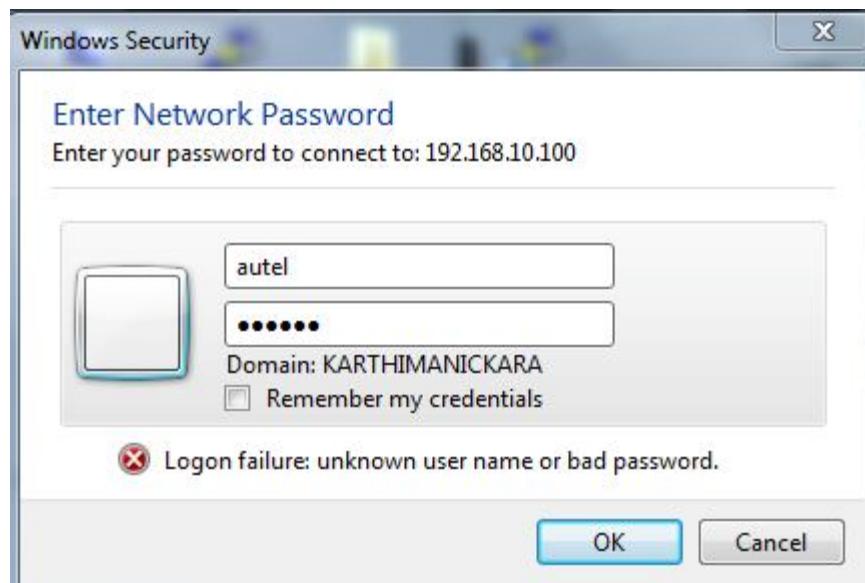
```
[windows]  
path=/backup  
browseable=yes  
writeable=yes  
valid users=autel  
~
```

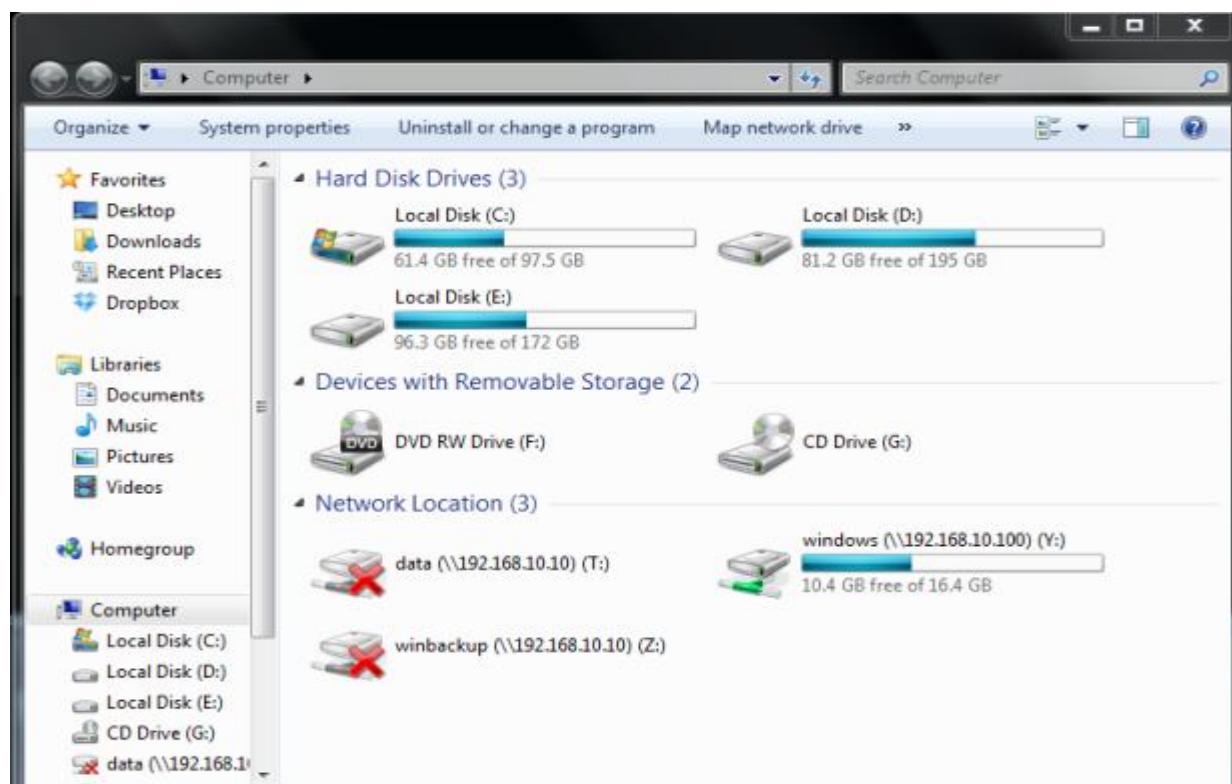
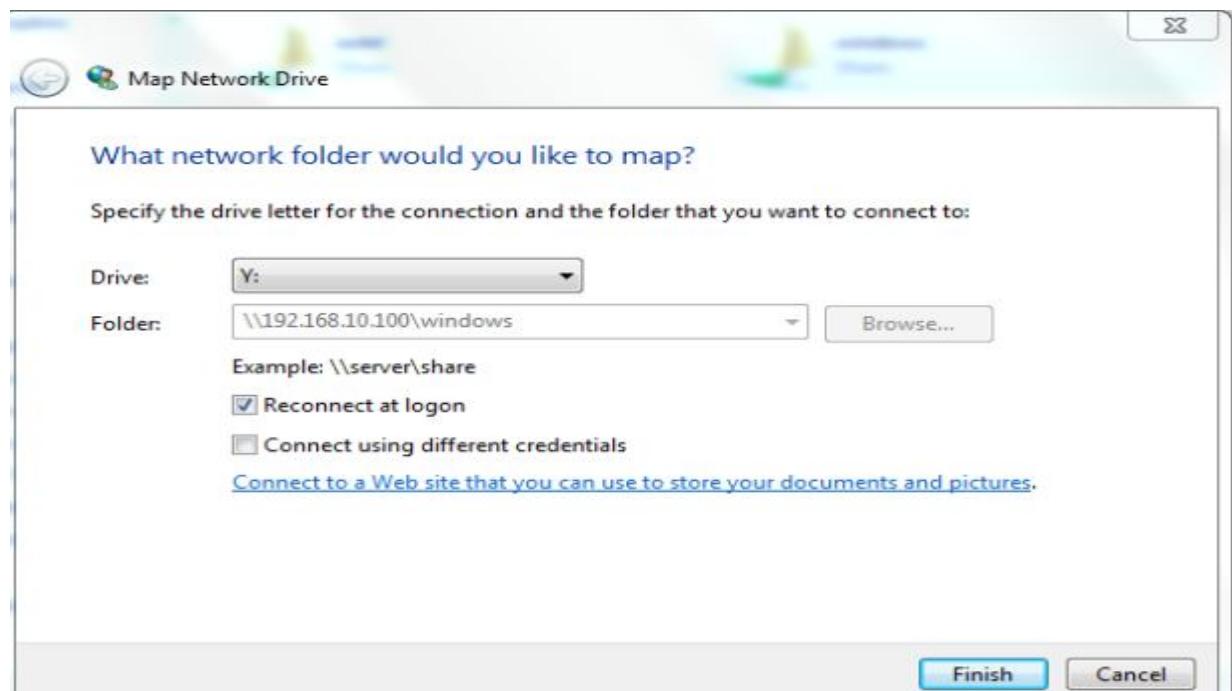
```
[root@server:~]# smbpasswd -a autel
```

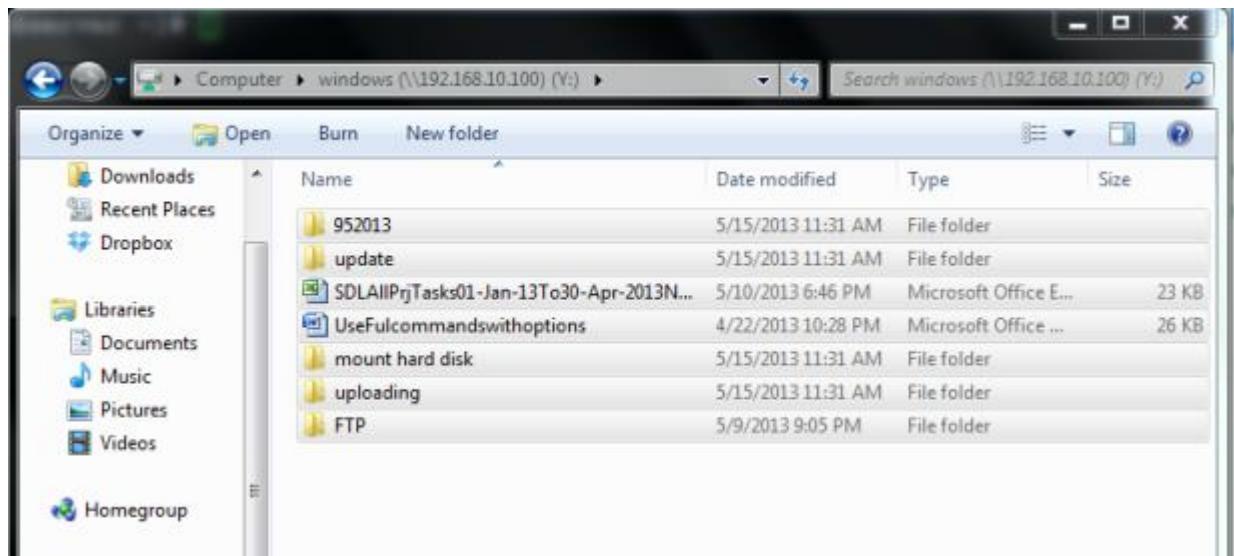
```
[root@server ~]# service smb restart
Shutting down SMB services: [FAILED]
Starting SMB services: [OK]
[root@server ~]# chkconfig smb on
[root@server ~]#
```

```
[root@server ~]#
[root@server ~]# testparm
Load smb config files from /etc/samba/smb.conf
rlimit_max: rlimit_max (1024) below minimum Windows limit (16384)
Processing section "[homes]"
Processing section "[printers]"
Processing section "[windows]"
Loaded services file OK.
Server role: ROLE_STANDALONE
Press enter to see a dump of your service definitions
```









```
[root@server ~]# smbstatus

Samba version 3.5.4-68.el6
PID      Username      Group      Machine
-----
2289      autel        autel      client      (::ffff:192.168.10.7)
2272      autel        autel      karthimanickara  (::ffff:192.168.10.2)

Service      pid      machine      Connected at
-----
IPC$        2272      karthimanickara  Wed May 15 11:28:11 2013
windows     2289      client        Wed May 15 11:38:15 2013
windows     2272      karthimanickara  Wed May 15 11:29:10 2013
```

```
[root@server backup]# cd /backup/
[root@server backup]# ls
952013          update
FTP             uploading
mount hard disk
SDLAllPrjTasks01-Jan-13To30-Apr-2013New.xls
UseFulcommandswithoptions.docx
[root@server backup]# 
```

```
[root@client:~]# smbclient //192.168.10.100/windows -U autel  
Enter autel's password:  
Domain=[MYGROUP] OS=[Unix] Server=[Samba 3.5.4-68.el6]  
smb: \> [ ]
```

```
[root@client Desktop]# smbclient //192.168.10.100/windows -U autel  
Enter autel's password:  
Domain=[MYGROUP] OS=[Unix] Server=[Samba 3.5.4-68.el6]  
smb: \> mput teamviewer_linux.rpm  
Put file teamviewer_linux.rpm? y  
putting file teamviewer_linux.rpm as \teamviewer_linux.rpm (11798.8 kb/s) (average 11798.8 kb/s)  
smb: \> mput flash-plugin-11.2.202.285-release.x86_64.rpm  
Put file flash-plugin-11.2.202.285-release.x86_64.rpm? y  
putting file flash-plugin-11.2.202.285-release.x86_64.rpm as \flash-plugin-11.2.  
202.285-release.x86_64.rpm (10877.3 kb/s) (average 11521.9 kb/s)  
smb: \> [ ]
```

```
[root@server backup]# cd /backup/  
[root@server backup]# ls  
952013 teamviewer_linux.rpm  
flash-plugin-11.2.202.285-release.x86_64.rpm update  
FTP uploading  
mount hard disk UseFulcommandswithoptions.docx  
SDLAllPrjTasks01-Jan-13To30-Apr-2013New.xls  
[root@server backup]# [ ]
```

```
[root@server var/log/samba]  
[root@server samba]# pwd  
/var/log/samba  
[root@server samba]# ls  
cores log._ffff_192.168.10.2 log.karthimanickara old  
log.client log._ffff_192.168.10.7 log.smbd  
[root@server samba]# [ ]
```

HTTP Server Configuration in Linux rhel6

```
root@server:~ [root@server ~]# yum install http* -y
```

```
root@server:~ [root@server ~]# cd /var/www/html  
[root@server html]# vim index.html  
[root@server html]#
```

```
root@server:~ [root@server ~]# vim /etc/httpd/conf/httpd.conf
```

```
<VirtualHost server.au-tel.com>  
    ServerAdmin root@server.au-tel.com  
    DocumentRoot /var/www/html  
    ServerName server.au-tel.com  
</VirtualHost>
```

```
root@server:~ [root@server ~]# vim /etc/hosts  
[root@server ~]#
```

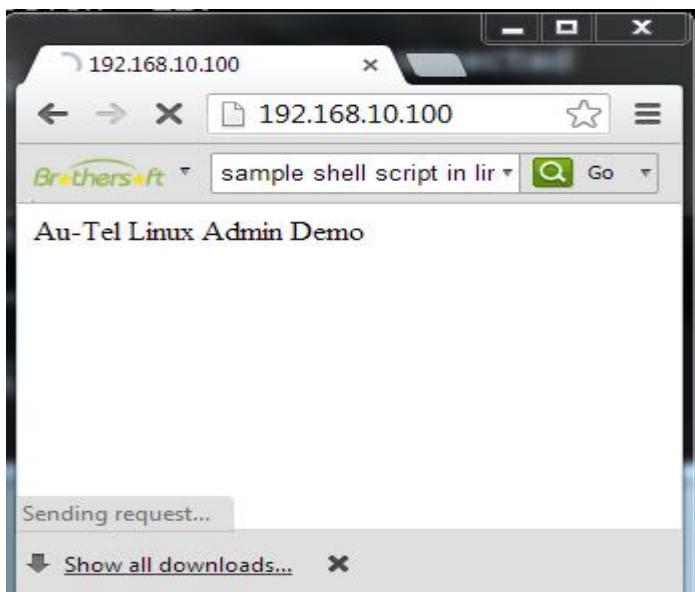
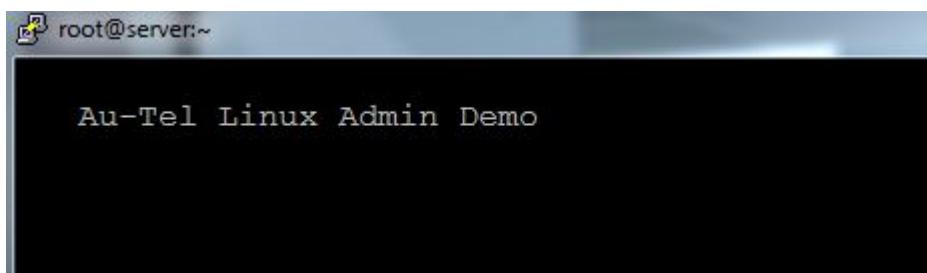
```
root@server:/var/www/html
[192.168.10.100 server.au-tel.com      server # Added by NetworkManager
127.0.0.1      localhost.localdomain  localhost
::1      server.au-tel.com      server  localhost6.localdomain6 localhost6
```

```
root@server:~
[root@server ~]# service httpd restart
Stopping httpd:                                         [FAILED]
Starting httpd:                                         [ OK ]
[root@server ~]# chkconfig httpd on
[root@server ~]#
```

```
root@server:~
[root@server ~]# httpd -t
Syntax OK
[root@server ~]#
```

```
root@server:~
[root@server ~]# yum install elinks* -y
Loaded plugins: refresh-packagekit, rhnplugin
This system is not registered with RHN.
RHN support will be disabled.
Setting up Install Process
```

```
root@server:~
[root@server ~]# elinks server.au-tel.com
```



```
[root@server ~]# tailf /var/log/httpd/access_log
::1 - - [15/May/2013:11:08:33 -0700] "GET / HTTP/1.1" 200 24 "-" "ELinks/0.12pre
5 (textmode; Linux; 80x24-2)"
::1 - - [15/May/2013:11:09:39 -0700] "GET / HTTP/1.0" 200 24 "-" "Lynx/2.8.6rel.
5 libwww-FM/2.14 SSL-MM/1.4.1 OpenSSL/1.0.0-fips"
192.168.10.2 - - [15/May/2013:11:12:36 -0700] "GET / HTTP/1.1" 200 24 "-" "Mozilla/5.0 (Windows NT 6.1; WOW64; rv:20.0) Gecko/20100101 Firefox/20.0"
```

```
[root@server ~]# netstat -tlna | grep 80
tcp      0      0 ::*:80                  ::::*                               LISTEN
tcp      0      0 ::ffff:192.168.10.100:80    ::ffff:192.168.10.2:25179    TIME_WAIT
tcp      0      0 ::ffff:192.168.10.100:80    ::ffff:192.168.10.2:25176    TIME_WAIT
tcp      0      0 ::ffff:192.168.10.100:80    ::ffff:192.168.10.2:25173    TIME_WAIT
tcp      0      0 ::ffff:192.168.10.100:80    ::ffff:192.168.10.2:25174    TIME_WAIT
[root@server ~]#
```

NFS Server Configuration in rhel6

```
root@server:~ [root@server ~]# yum install nfs* -y
```

```
root@server:/nfsshare [root@server ~]# mkdir /nfsshare  
[root@server ~]# cd /nfsshare/  
[root@server nfsshare]# touch 1.txt  
[root@server nfsshare]# cat>>1.txt  
hi nfs demo  
^C  
[root@server nfsshare]#
```

```
root@server:/nfsshare  
/nfsshare 192.168.10.0/255.255.255.0 [rw, sync]
```

```
root@server:/nfsshare [root@server nfsshare]# vim /etc/exports  
[root@server nfsshare]#
```

```
root@server:~ [root@server ~]# service rpcbind restart  
Stopping rpcbind: [ OK ]  
Starting rpcbind: [ OK ]  
[root@server ~]# service nfs restart  
Shutting down NFS mountd: [ OK ]  
Shutting down NFS daemon: [ OK ]  
Shutting down NFS quotas: [ OK ]  
Starting NFS services: [ OK ]  
Starting NFS quotas: [ OK ]  
Starting NFS daemon: [ OK ]  
Starting NFS mountd: [ OK ]  
[root@server ~]# chkconfig rpcbind on  
[root@server ~]# chkconfig nfs on  
[root@server ~]#
```

```
root@server:/nfsshare
[root@server nfsshare]# exportfs
/nfsshare      192.168.10.0/255.255.255.0
[root@server nfsshare]#
```

```
root@client:~
[root@client ~]# mount -t nfs 192.168.10.100:/nfsshare /mnt
[root@client ~]# ls /mnt/
1.txt
[root@client ~]# cat >> /mnt/1.txt
Linux Client side demo
^C
[root@client ~]#
```

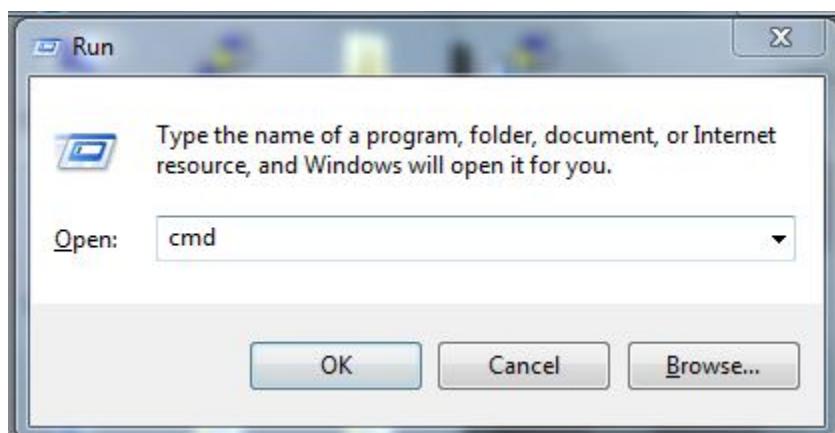
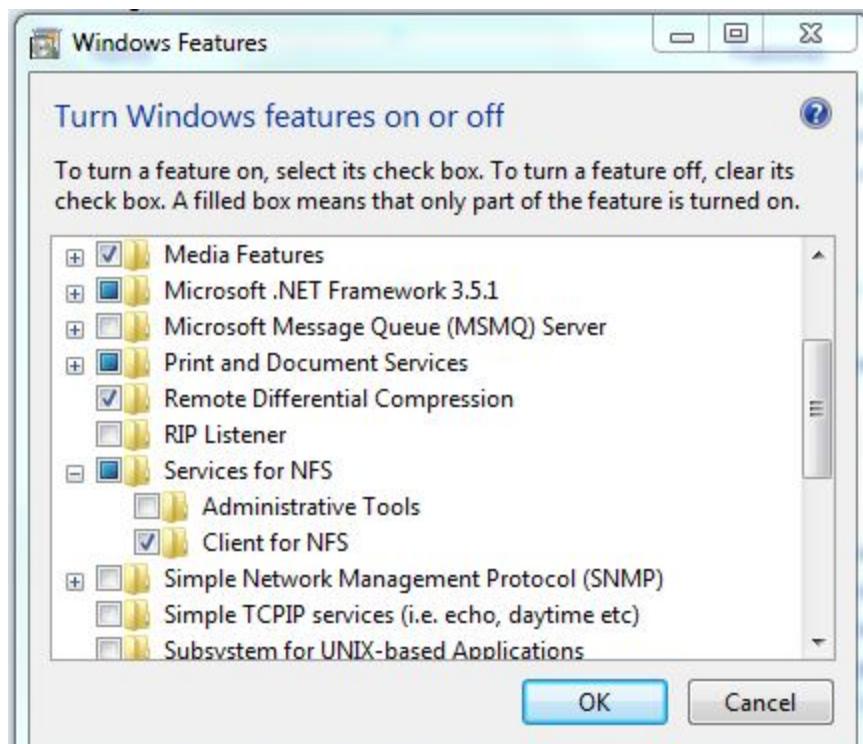
```
root@client:~
[root@client ~]# vim /etc/fstab
```

tmpfs	/dev/shm	tmpfs	defaults	0 0
devpts	/dev/pts	devpts	gid=5,mode=620	0 0
sysfs	/sys	sysfs	defaults	0 0
proc	/proc	proc	defaults	0 0
192.168.10.100:/nfsshare	/mnt	nfs	defaults	0 0

```
root@client:~
[root@client ~]# vim /etc/fstab
[root@client ~]# mount -a
[root@client ~]#
```

The screenshot shows the Windows Control Panel interface under 'Programs and Features'. It displays a list of installed software packages:

Name	Publisher	Installed On	Size
Adobe Flash Player 11 Plugin	Adobe Systems Incorporated	5/7/2013	
Adobe Reader X (10.0.1)	Adobe Systems Incorporated	3/22/2013	
avast! Free Antivirus	AVAST Software	4/5/2013	
Core FTP LE		5/13/2013	
dnPDF 7.3 printer	Softland	3/25/2013	



```
C:\Windows\system32\cmd.exe
C:\Users\Karthi Manickaraj>mount \\192.168.10.100\nfsshare z:
```

Telnet Server Configuration in rhel6

```
[root@server:~]# yum install telnet* -y
```

```
[root@server:~]# service xinetd restart
Stopping xinetd: [FAILED]
Starting xinetd: [OK]
[root@server:~]# chkconfig telnet on
[root@server:~]#
```

```
[root@server:~]# vim /etc/securetty
```

```
tty1
tty5
tty6
tty7
tty8
tty9
tty10
tty11
pts/0
pts/1
pts/2
pts/4
pts/5
-- INSERT --
```

```
[root@client:~]# telnet 192.168.10.100
Trying 192.168.10.100...
Connected to 192.168.10.100.
Escape character is '^]'.
Red Hat Enterprise Linux Server release 6.0 (Santiago)
Kernel 2.6.32-71.el6.x86_64 on an x86_64
login: root
Password:
Last login: Tue May 14 10:45:07 from 192.168.10.2
[root@server:~]#
```

```
[autel@server:~]
[root@client ~]# telnet 192.168.10.100
Trying 192.168.10.100...
Connected to 192.168.10.100.
Escape character is '^].
Red Hat Enterprise Linux Server release 6.0 (Santiago)
Kernel 2.6.32-71.el6.x86_64 on an x86_64
login: autel
Password:
[autel@server ~]$
```

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Karthi Manickaraj>telnet 192.168.10.100
```

```
Telnet 192.168.10.100
Red Hat Enterprise Linux Server release 6.0 (Santiago)
Kernel 2.6.32-71.el6.x86_64 on an x86_64
Login: root
Password:
Last login: Tue May 14 10:53:47 from 192.168.10.7
[root@server ~]#
```

```
Telnet 192.168.10.100
Red Hat Enterprise Linux Server release 6.0 (Santiago)
Kernel 2.6.32-71.el6.x86_64 on an x86_64
Login: autel
Password:
Last login: Tue May 14 10:54:08 from 192.168.10.7
[autel@server ~]$
```

FTP Server Configuration in rhel 6

```
[root@client:~]# yum install vsftpd* -y
```

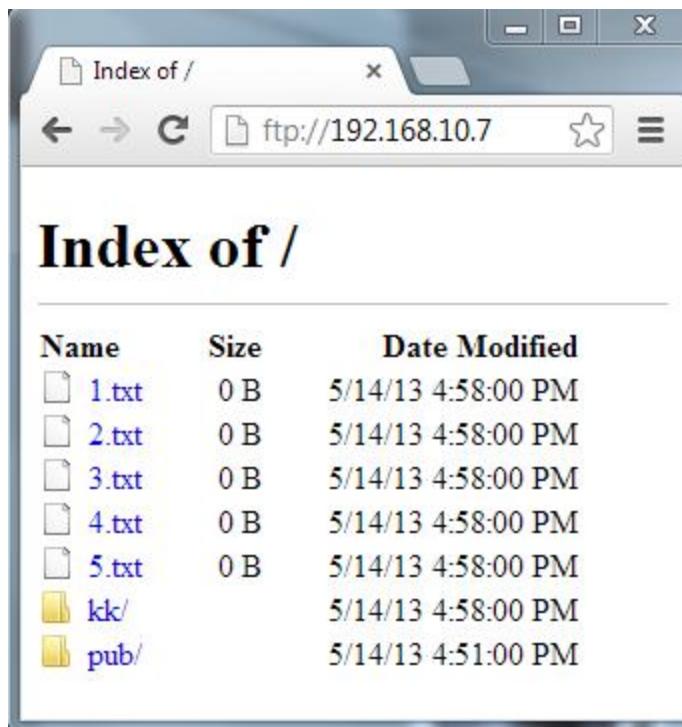
```
anonymous_enable=YES
#
# Uncomment this to allow local users to log in.
local_enable=YES
#
# Uncomment this to enable any form of FTP write
write_enable=YES
#
# Default umask for local users is 077. You may
# if your users expect that (022 is used by most
local_umask=022
#
```

```
[root@client:~]# vim /etc/vsftpd/vsftpd.conf
[root@client ~]# vim /etc/vsftpd/ftpusers
[root@client ~]# vim /etc/vsftpd/user_list
[root@client ~]#
```

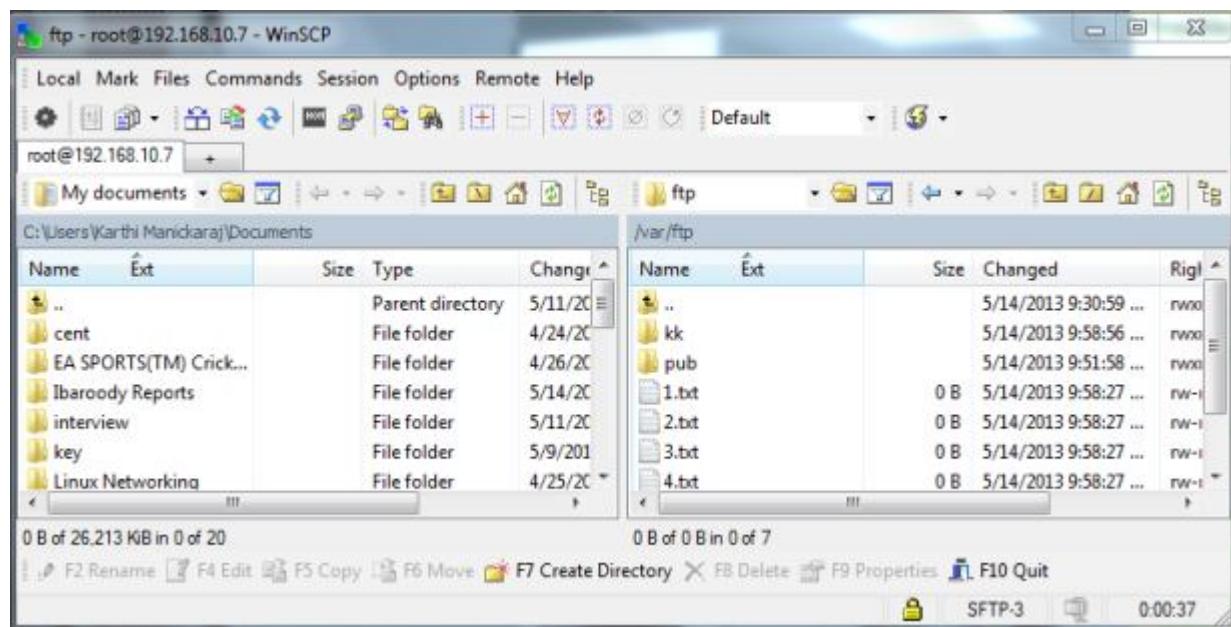
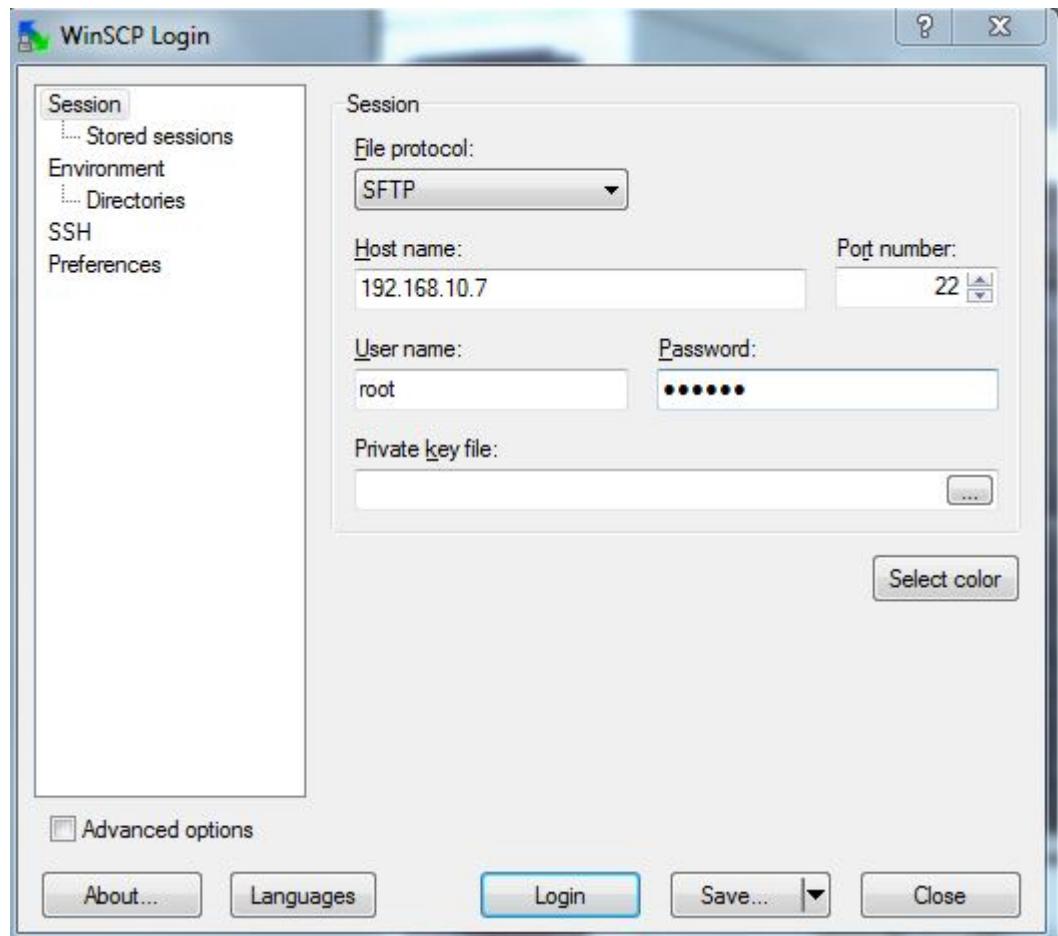
```
[root@client ~]# cd /var/ftp/kk  
[root@client ftp]# ls  
pub  
[root@client ftp]# mkdir kk ;touch {1..5}.txt  
[root@client ftp]# ls  
1.txt 2.txt 3.txt 4.txt 5.txt kk pub  
[root@client ftp]# cd kk  
[root@client kk]# touch report{1..5}.pdf  
[root@client kk]# ls  
report1.pdf report2.pdf report3.pdf report4.pdf report5.pdf  
[root@client kk]#
```

```
[root@client ~]# cd /var/ftp/kk  
[root@client kk]# service vsftpd restart  
Shutting down vsftpd: [ OK ]  
Starting vsftpd for vsftpd: [ OK ]  
[root@client kk]# chkconfig vsftpd on  
[root@client kk]#
```

```
[root@client kk]# hostname  
client.autel.com  
[root@client kk]# hostname -i  
192.168.10.7 127.0.0.1  
[root@client kk]#
```



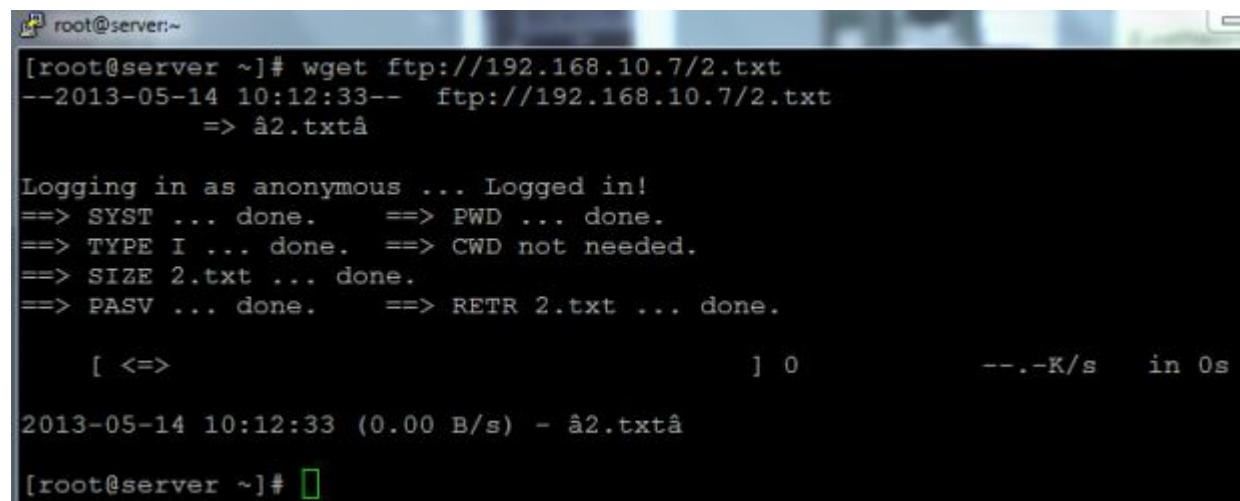
```
[root@client kk]# netstat -tla
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp      0      0 *:ftp                  *:*
tcp      0      0 *:ssh                  *:*
tcp      0      0 localhost.localdomain:smtp  *:*
tcp      0      0 client.autel.com:ssh     192.168.10.2:nkd    ESTABLISHED
tcp      0      52 client.autel.com:ssh    192.168.10.2:entp   ESTABLISHED
tcp      0      0 *:ssh                  *:*
[root@client kk]#
```



```
[root@server ~]# lftp 192.168.10.7
lftp 192.168.10.7:~> ls
-rw-r--r--    1 0          0          0 May 14 16:58 1.txt
-rw-r--r--    1 0          0          0 May 14 16:58 2.txt
-rw-r--r--    1 0          0          0 May 14 16:58 3.txt
-rw-r--r--    1 0          0          0 May 14 16:58 4.txt
-rw-r--r--    1 0          0          0 May 14 16:58 5.txt
drwxr-xr-x   2 0          0        4096 May 14 16:58 kk
drwxr-xr-x   2 0          0        4096 May 14 16:51 pub
lftp 192.168.10.7:/> get 1.txt
lftp 192.168.10.7:/> mirror kk
Total: 1 directory, 5 files, 0 symlinks
New: 5 files, 0 symlinks
lftp 192.168.10.7:/> 
```



```
[root@server:~]
[root@server ~]# wget ftp://192.168.10.7/2.txt
```



```
[root@server:~]
[root@server ~]# wget ftp://192.168.10.7/2.txt
--2013-05-14 10:12:33--  ftp://192.168.10.7/2.txt
                      => á2.txtâ

Logging in as anonymous ... Logged in!
==> SYST ... done.      ==> PWD ... done.
==> TYPE I ... done.    ==> CWD not needed.
==> SIZE 2.txt ... done.
==> PASV ... done.      ==> RETR 2.txt ... done.

[ <=>                                ] 0          --.-K/s    in 0s

2013-05-14 10:12:33 (0.00 B/s) - á2.txtâ
[root@server ~]# 
```

```
[root@client ~]# tailf /var/log/xferlog
Tue May 14 10:07:30 2013 1 192.168.10.2 0 /kk/report1.pdf b _ o a chrome@example.com
Tue May 14 10:11:03 2013 1 192.168.10.100 0 /*.txt b _ o a lftp@ ftp 0 * i
Tue May 14 10:11:20 2013 1 192.168.10.100 0 /1.txt b _ o a lftp@ ftp 0 * c
Tue May 14 10:12:34 2013 1 192.168.10.100 0 /2.txt b _ o a -wget@ ftp 0 * c
```

```
[root@client ~]# tailf /var/log/xferlog
[root@client ~]# vsftpd -v
vsftpd: version 2.2.2
[root@client ~]#
```

```
[root@client ~]# netstat -tln | grep 21
tcp        0      0 0.0.0.0:21          0.0.0.0:*                LISTEN
[root@client ~]#
```

DHCP Server Configuration in rhel 6

```
root@server:~ [root@server ~]# vim /etc/sysconfig/network-scripts/ifcfg-eth0
```

```
DEVICE=eth0
BOOTPROTO=none
HWADDR=00:0c:29:38:0f:97
MTU=1500
NM_CONTROLLED=yes
ONBOOT=yes
IPADDR=192.168.10.100
NETMASK=255.255.255.0
TYPE=Ethernet
GATEWAY=192.168.10.100
DNS1=192.168.10.100
IPV6INIT=no
USERCTL=no
```

```
root@server:~ [root@server ~]# vim /etc/sysconfig/network-scripts/ifcfg-eth0
[root@server ~]# service network restart
Shutting down interface eth0: Device state: 3 (disconnected) [ OK ]
Shutting down loopback interface: [ OK ]
Bringing up loopback interface: [ OK ]
Bringing up interface eth0: Active connection state: activated
Active connection path: /org/freedesktop/NetworkManager/ActiveConnection/1 [ OK ]
[root@server ~]# chkconfig network on
[root@server ~]#
```

```
root@server:~ [root@server ~]# yum install dhcp* -y
```

```
[root@server:~]# cp /usr/share/doc/dhcp-4.1.1/dhcpd.conf.sample /etc/dhcp/dhcpd.conf
```

```
[root@server:~]# vim /etc/dhcp/dhcpd.conf
```

```
# option definitions common to all supported networks...
option domain-name "au-tel.com";
option domain-name-servers server.au-tel.com;

default-lease-time 600;
max-lease-time 7200;

# See this to enable / disable dynamic dns updates globally.
#ddns-update-style none;

# If this DHCP server is the official DHCP server for the local
# network, the authoritative directive should be uncommented.
authoritative;

# See this to send dhcp log messages to a different log file (you also
# have to back syslog.conf to complete the redirection).
log-facility local7;

# No service will be given on this subnet, but declaring it helps the
# DHCP server to understand the network topology.

subnet 192.168.10.0 netmask 255.255.255.0 {
}

# This is a very basic subnet declaration.

subnet 192.168.10.0 netmask 255.255.255.0 {
    range 192.168.10.1 192.168.10.25;
    option routers 192.168.10.100;
```

```
[root@server:~]# vim /etc/dhcp/dhcpd.conf
[root@server ~]# service dhcpcd restart
Shutting down dhcpcd: [ OK ]
Starting dhcpcd: [ OK ]
[root@server ~]# chkconfig dhcpcd on
[root@server ~]#
```

```
[root@client ~]# service network restart
Shutting down interface eth0: Device state: 3 (disconnected)
[ OK ]
Shutting down loopback interface: [ OK ]
Bringing up loopback interface: [ OK ]
Bringing up interface eth0: Active connection state: activating
Active connection path: /org/freedesktop/NetworkManager/ActiveConnection/1
state: activated
Connection activated [ OK ]

[root@client ~]# chkconfig network on
[root@client ~]# hostname -i
192.168.10.7 127.0.0.1
[root@client ~]#
```

```
on C:\Windows\system32\cmd.exe
C:\Users\Karthi Manickaraj>ipconfig /release
Windows IP Configuration

No operation can be performed on Bluetooth Network Connection while it has its media disconnected.

Ethernet adapter Local Area Connection:

  Connection-specific DNS Suffix . :
  Link-local IPv6 Address . . . . . : fe80::e44b:a063:c581:3d2d%13
  Default Gateway . . . . . :
```

```
on C:\Windows\system32\cmd.exe
C:\Users\Karthi Manickaraj>ipconfig /renew
Windows IP Configuration

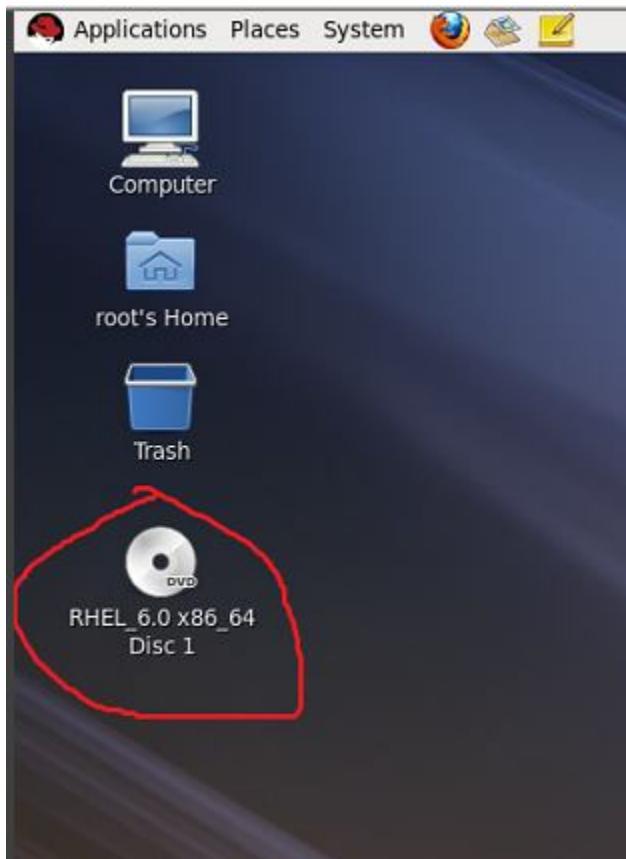
No operation can be performed on Bluetooth Network Connection while it has its media disconnected.

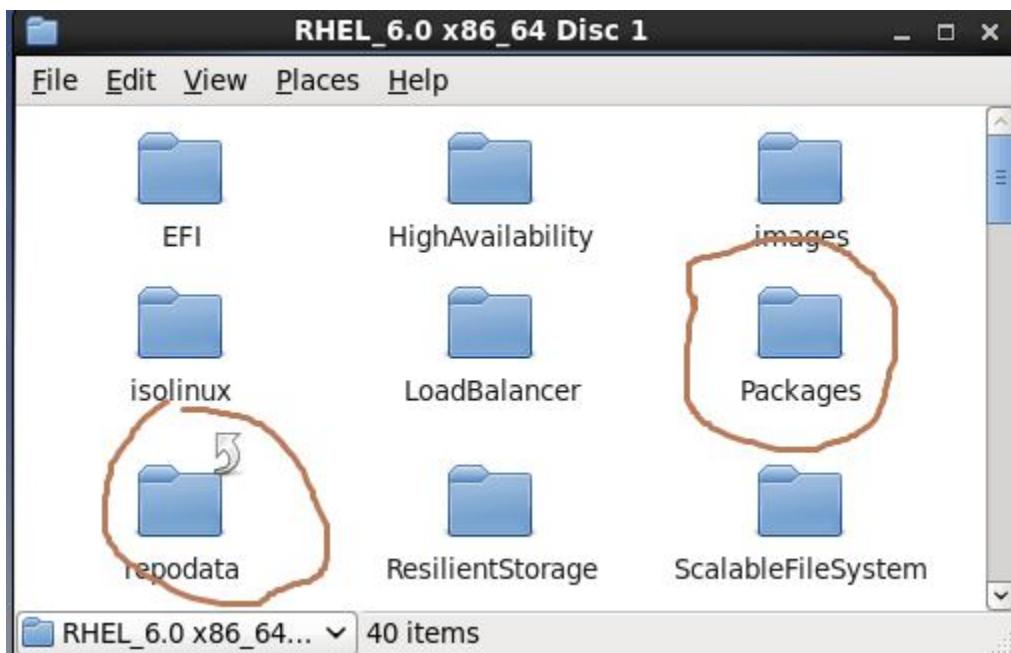
Ethernet adapter Local Area Connection:

  Connection-specific DNS Suffix . : au-tel.com
  Link-local IPv6 Address . . . . . : fe80::e44b:a063:c581:3d2d%13
  IPv4 Address . . . . . : 192.168.10.2
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . : 192.168.10.100
```

```
[root@server ~]# tail -5 /var/log/messages
May 14 10:44:09 server dhcpcd: DHCPOFFER on 192.168.10.2 to 30:f9:ed:e9:c2:5a (KarthiManickaraj) via eth0
May 14 10:44:09 server dhcpcd: DHCPREQUEST for 192.168.10.2 (192.168.10.100) from 30:f9:ed:e9:c2:5a (KarthiManickaraj) via eth0
May 14 10:44:09 server dhcpcd: DHCPACK on 192.168.10.2 to 30:f9:ed:e9:c2:5a (KarthiManickaraj) via eth0
May 14 10:44:12 server dhcpcd: DHCPINFORM from 192.168.10.2 via eth0
May 14 10:44:12 server dhcpcd: DHCPACK to 192.168.10.2 (30:f9:ed:e9:c2:5a) via eth0
```

Yum Server Configuration in RHEL 6



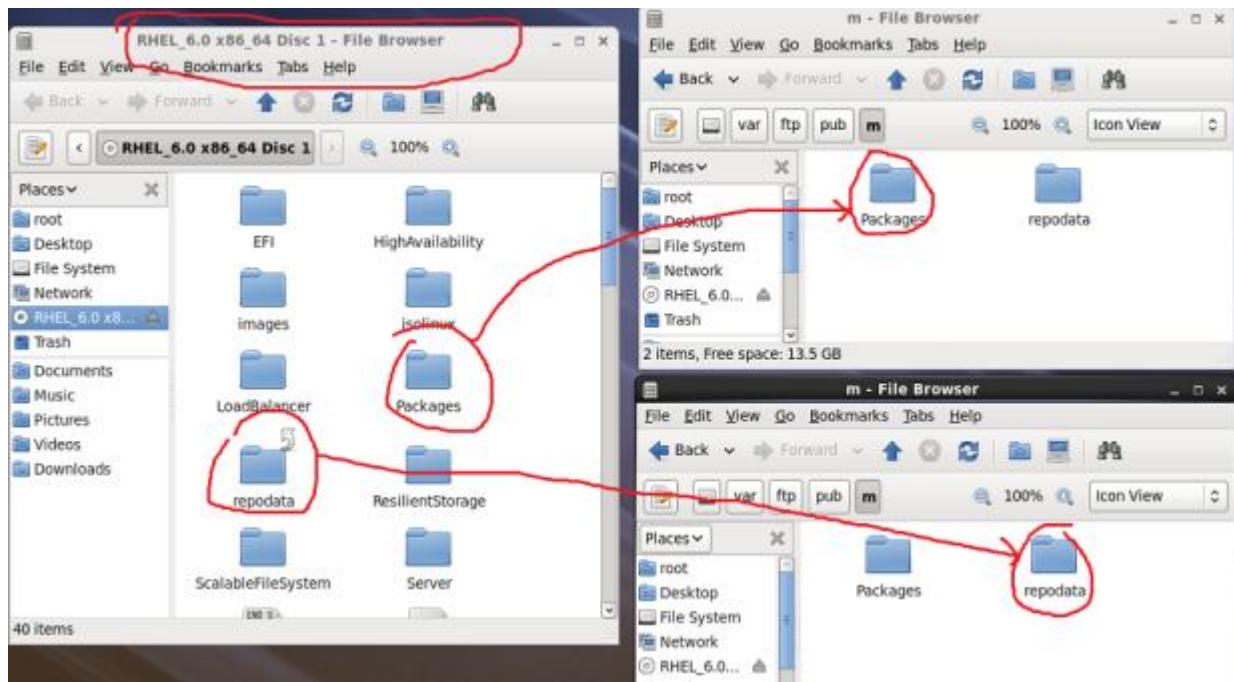


```
root@client:~ [root@client ~]# cp /media/RHEL_6.0\ x86_64\ Disc\ 1/Packages/vsftpd-2.2.2-6.el6.x86_64.rpm . [root@client ~]#
```

```
root@client:~ [root@client ~]# rpm -ivh vsftpd-2.2.2-6.el6.x86_64.rpm warning: vsftpd-2.2.2-6.el6.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID fd431d51: NOKEY Preparing... # [100%] 1:vsftpd # [100%] [root@client ~]#
```

```
root@client:~ [root@client ~]# service vsftpd restart Shutting down vsftpd: [FAILED] Starting vsftpd for vsftpd: [ OK ] [root@client ~]# chkconfig vsftpd on [root@client ~]#
```

```
[root@client ~]# cd /var/ftp/pub/ [root@client pub]# mkdir m [root@client pub]# cd m [root@client m]# mkdir Packages repodata [root@client m]# ls Packages repodata [root@client m]#
```



```
root@client:/var/ftp/pub/m
[root@client m]# cp -f /media/RHEL_6.0\ x86_64\ Disc\ 1/Packages/* /var/ftp/pub/m/Packages/
```

```
root@client:/var/ftp/pub/m
[root@client m]# cp -f /media/RHEL_6.0\ x86_64\ Disc\ 1/repodata/* /var/ftp/pub/m/repodata/
[root@client m]#
```

```
root@client:/var/ftp/pub/m
[root@client m]# vim /etc/yum.repos.d/yum.repo
```

```
root@client:~
[yum]
name=yumserver
baseurl=file:///var/ftp/pub/m/
gpgcheck=0
```

```
[root@client ~]# vim /etc/yum.repos.d/yum.repo
[root@client ~]# yum repolist all
Loaded plugins: refresh-packagekit, rhnplugin
This system is not registered with RHN.
RHN support will be disabled.
yum                                         | 3.7 kB     00:00 ...
yum/primary_db                                |
repo id          repo name      status
yum              yumserver      enabled: 3,391
repolist: 3,391
[root@client ~]#
```

```
[root@client /var/ftp/pub/m]
[root@client m]# vim /etc/yum.repos.d/yum.repo
```

```
[root@client ~]
[client]
name=client
baseurl=ftp://192.168.10.100/pub/m/
gpgcheck=0
```

```
[root@client ~]
[root@client ~]# yum repolist all
Loaded plugins: refresh-packagekit, rhnplugin
This system is not registered with RHN.
RHN support will be disabled.
repo id          repo name      status
InstallMedia     Red Hat Enterprise Linux 6.0  disabled
client           client          enabled: 3,391
repolist: 3,391
[root@client ~]#
```