

# Title: Linux Command List Assessment

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## File and Directory Operations:

**ls:** List files and directories

```
└─$ ls
192.168.201.129  192.168.201.239  Desktop  Documents  Downloads  Helloworld
```

**cd:** Change directory

```
└─$ cd /home/sankypanky09/Documents
```

**pwd:** Print working directory

```
└─$ pwd
/home/sankypanky09/Documents
```

**mkdir:** Make directory

```
└─$ mkdir Assignment1
```

```
└─$ ls
Assignment1  learning
```

**touch:** Create an empty file

```
└─$ touch file1.txt
```

```
└─$ ls
Assignment1  file1.txt
```

**cp:** Copy files and directories

```
└─$ ls
Assignment1  file1.txt
```

```
└─$ cp file1.txt Assignment1
```

```
└─$ cd Assignment1
```

```
└─$ ls
file1.txt
```

**mv:** Move or rename files and directories

```
└─$ ls
file1.txt
```

```
└─$ mv file1.txt newfile.txt
```

```
└─$ ls
newfile.txt
```

rm: Remove files and directories

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ ls
newfile.txt

(sankypanky09@kali)-[~/Documents/Assignment1]
$ rm newfile.txt

(sankypanky09@kali)-[~/Documents/Assignment1]
$ ls
```

find: Search for files and directories

```
(sankypanky09@kali)-[~/Documents]
$ ls
Assignment1  file1.txt

(sankypanky09@kali)-[~/Documents]
$ find
.
./Assignment1
./file1.txt
```

## File Viewing and Editing:

cat: Concatenate and display file content

```
(sankypanky09@kali)-[~/Documents]
$ cat file1.txt
this is sankalpa's first assignment
```

less: View file content with pagination

```
(sankypanky09@kali)-[~/Documents]
$ less file1.txt
this is sankalpa's first assignment
file1.txt (END)
```

head: Display the beginning of a file

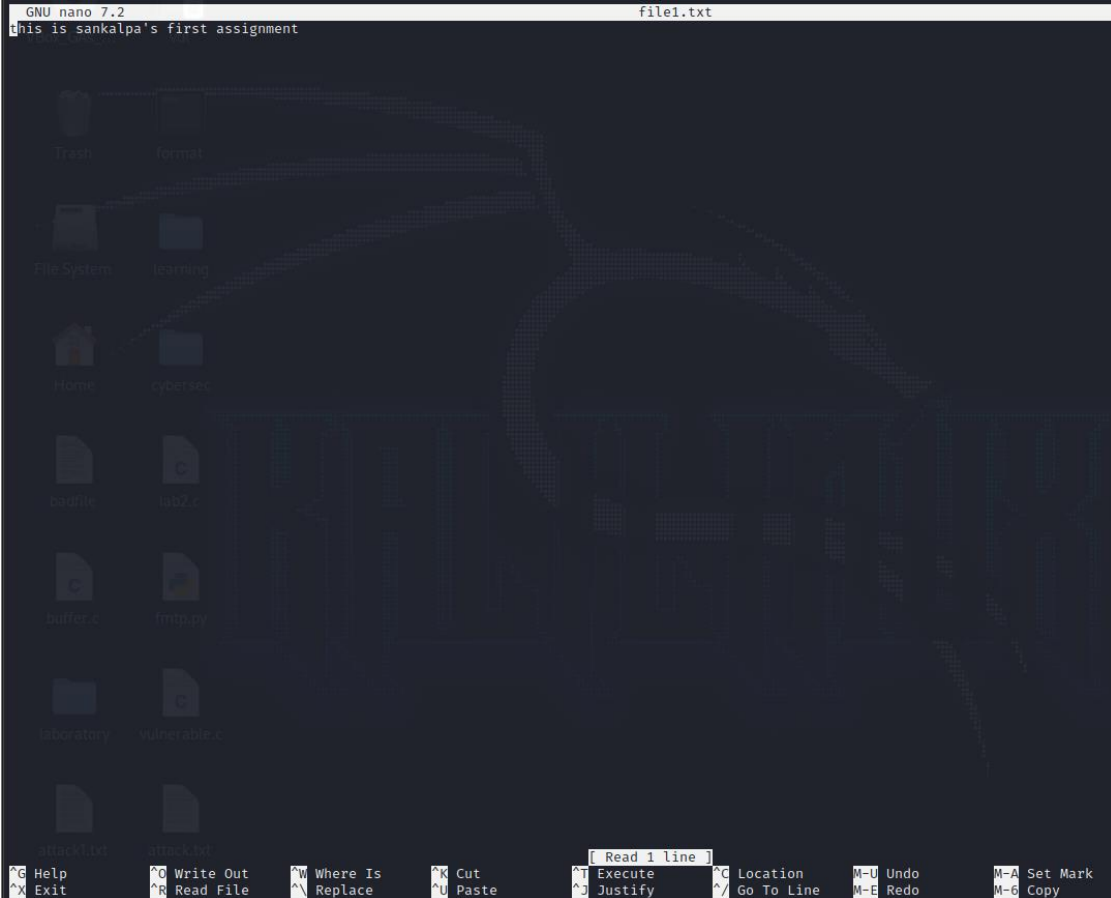
```
(sankypanky09@kali)-[~/Documents]
$ head file1.txt
this is sankalpa's first assignment
```

tail: Display the end of a file

```
(sankypanky09@kali)-[~/Documents]
$ tail file1.txt
this is sankalpa's first assignment
```

nano: Text editor for creating and editing files

```
(sankypanky09@kali)-[~/Documents]
$ nano file1.txt
```



GNU nano 7.2 file1.txt

this is sankalpa's first assignment

Menu:

- ^G Help
- ^O Write Out
- ^W Where Is
- ^K Cut
- ^T Execute
- ^C Location
- M-U Undo
- M-A Set Mark
- ^X Exit
- ^R Read File
- ^N Replace
- ^U Paste
- ^J Justify
- ^\_ Go To Line
- M-E Redo
- M-G Copy

vi/vim: Powerful text editor for experienced users



## File Permissions:

chmod: Change file permissions

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ chmod u+rw file1.txt
```

chown: Change file owner

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ chown sankypanky09 file1.txt

(sankypanky09@kali)-[~/Documents/Assignment1]
$ ls -l file1.txt
-rwxr--r-- 1 sankypanky09 sankypanky09 36 May 28 16:53 file1.txt
```

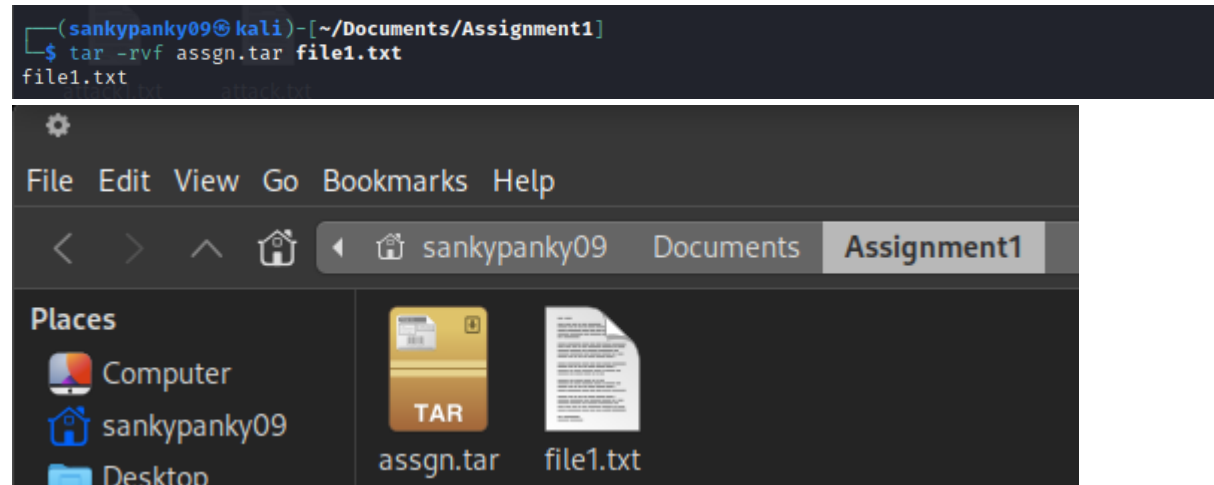
chgrp: Change file group

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ sudo chgrp sankypanky09 file1.txt
[sudo] password for sankypanky09:

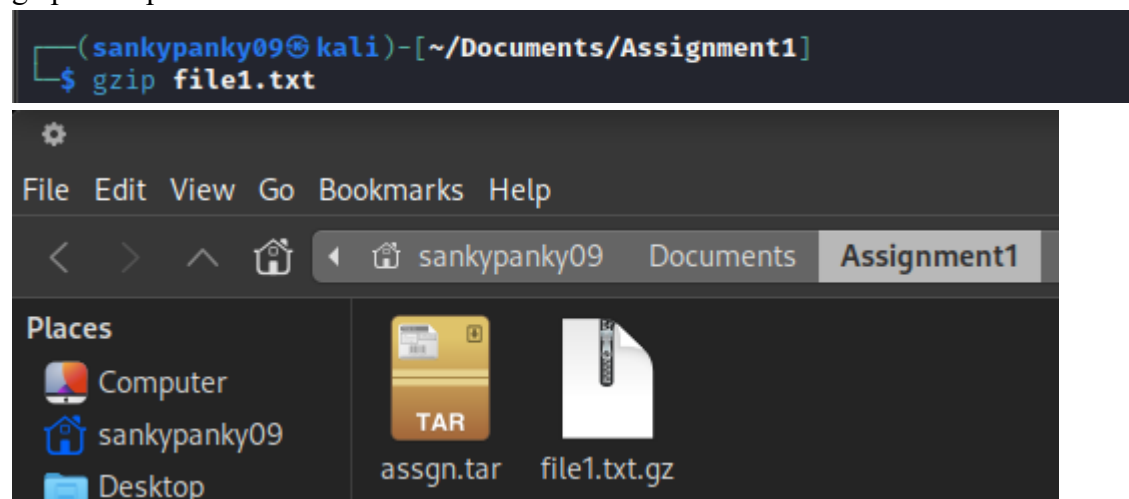
(sankypanky09@kali)-[~/Documents/Assignment1]
$ ls -l
total 4
-rwxr--r-- 1 sankypanky09 sankypanky09 36 May 28 16:53 file1.txt
```

## File Compression and Archiving:

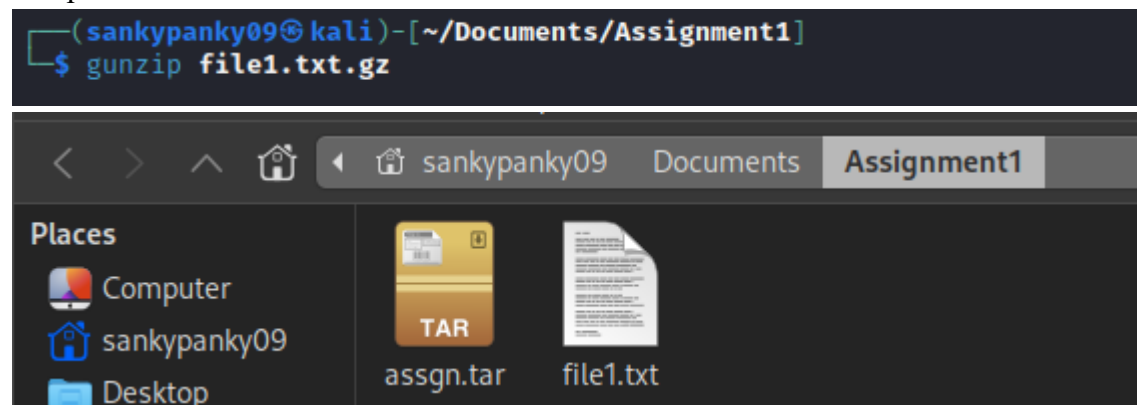
tar: Archive files



gzip: Compress files



unzip: Extract files from a ZIP archive



## Process Management:

ps: List running processes

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ ps
  PID TTY          TIME CMD
 7585 pts/0    00:00:00 zsh
 9676 pts/0    00:00:00 ps
```

top: Display real-time system information and processes

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ top
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
904	root	20	0	462488	142136	65284	S	0.7	3.5	0:10.28	Xorg
7582	sankypa+	20	0	466956	107040	87916	S	0.7	2.7	0:00.88	qterminal
633	redis	20	0	353632	273756	9904	S	0.3	6.8	0:25.80	redis-server
1258	sankypa+	20	0	540872	51452	30916	S	0.3	1.3	0:00.58	panel-1-whisker
1262	sankypa+	20	0	435844	43776	22560	S	0.3	1.1	0:02.12	panel-13-cpugra
9799	sankypa+	20	0	10360	3912	3120	R	0.3	0.1	0:00.01	top
1	root	20	0	168004	12460	9052	S	0.0	0.3	0:00.84	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd
3	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_gp
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_par_gp
5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	netns
7	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0H-events_highpri
9	root	0	-20	0	0	0	I	0.0	0.0	0:00.06	kworker/0:1H-events_highpri
10	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	mm_percpu_wq
11	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_kthreadd
12	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_rude_kthreadd
13	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_trace_kthreadd
14	root	20	0	0	0	0	S	0.0	0.0	0:00.02	ksoftirqd/0
15	root	20	0	0	0	0	I	0.0	0.0	0:00.87	rcu_preempt

Kill: Terminate processes

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ kill -l
HUP INT QUIT ILL TRAP IOT BUS FPE KILL USR1 SEGV USR2 PIPE ALRM TERM STKFLT CHLD CONT STOP TSTP TTIN TTOU URG XCPU XFSZ VTALRM PROF WINCH POLL PWR SYS
```

bg: Run processes in the background

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ bg
bg: no current job
```

fg: Bring background processes to the foreground

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ fg
fg: no current job
```

## System Information:

uname: Print system information

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ uname
Linux
```

df: Display disk space usage

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ df
Filesystem      1K-blocks      Used Available Use% Mounted on
udev            1973192         0    1973192   0% /dev
tmpfs           402332         1072    401260   1% /run
/dev/sda1       49835576 22583992  24687644  48% /
tmpfs           2011656         0    2011656   0% /dev/shm
tmpfs           5120           0       5120   0% /run/lock
tmpfs           402328         84     402244   1% /run/user/1000
```

free: Display memory usage

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ free
             total        used        free      shared  buff/cache   available
Mem:      4023316      1218108      1309124        15044      1496084      2503124
Swap:      998396           0        998396
```

uptime: Show system uptime

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ uptime
17:02:53 up 34 min,  1 user,  load average: 0.10, 0.08, 0.09
```

who: Display logged-in users

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ who
sankypanky09 tty7                2023-05-28 16:30 (:0)
```

w: Display logged-in users and their activities

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ w
17:02:59 up 34 min,  1 user,  load average: 0.17, 0.09, 0.09
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT
sankypan  tty7     :0            16:30    34:40  10.84s  0.46s xfce4-session
```

## Networking:



ifconfig: Configure network interfaces

```
(sankypanky09@kali)-[~]
$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.35.4 netmask 255.255.255.0 broadcast 192.168.35.255
    inet6 fe80::a00:27ff:fe45:64a9 prefixlen 64 scopeid 0x20<link>
    inet6 fd17:625c:f037:2:a00:27ff:fe45:64a9 prefixlen 64 scopeid 0x0<global>
    inet6 fd17:625c:f037:2:97db:982d:54b4:2f35 prefixlen 64 scopeid 0x0<global>
    ether 08:00:27:45:64:a9 txqueuelen 1000 (Ethernet)
    RX packets 7176 bytes 10415234 (9.9 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 1861 bytes 134053 (130.9 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 324 bytes 22339 (21.8 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 324 bytes 22339 (21.8 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

ping: Send ICMP echo requests to a network host

```
(sankypanky09@kali)-[~]
$ ping 192.168.35.5
PING 192.168.35.5 (192.168.35.5) 56(84) bytes of data.
64 bytes from 192.168.35.5: icmp_seq=1 ttl=64 time=0.552 ms
64 bytes from 192.168.35.5: icmp_seq=2 ttl=64 time=0.318 ms
64 bytes from 192.168.35.5: icmp_seq=3 ttl=64 time=0.409 ms
64 bytes from 192.168.35.5: icmp_seq=4 ttl=64 time=0.298 ms
64 bytes from 192.168.35.5: icmp_seq=5 ttl=64 time=0.259 ms
64 bytes from 192.168.35.5: icmp_seq=6 ttl=64 time=0.248 ms
64 bytes from 192.168.35.5: icmp_seq=7 ttl=64 time=0.522 ms
64 bytes from 192.168.35.5: icmp_seq=8 ttl=64 time=0.406 ms
64 bytes from 192.168.35.5: icmp_seq=9 ttl=64 time=0.361 ms
64 bytes from 192.168.35.5: icmp_seq=10 ttl=64 time=0.417 ms
64 bytes from 192.168.35.5: icmp_seq=11 ttl=64 time=0.352 ms
64 bytes from 192.168.35.5: icmp_seq=12 ttl=64 time=0.363 ms
^C
— 192.168.35.5 ping statistics —
12 packets transmitted, 12 received, 0% packet loss, time 11239ms
rtt min/avg/max/mdev = 0.248/0.375/0.552/0.089 ms
```

```
(sankypanky09@kali)-[~]
$ ping google.com
PING google.com (172.217.166.46) 56(84) bytes of data.
64 bytes from bom07s18-in-f14.1e100.net (172.217.166.46): icmp_seq=1 ttl=110 time=51.3 ms
64 bytes from bom07s18-in-f14.1e100.net (172.217.166.46): icmp_seq=2 ttl=110 time=50.2 ms
64 bytes from bom07s18-in-f14.1e100.net (172.217.166.46): icmp_seq=3 ttl=110 time=52.5 ms
64 bytes from bom07s18-in-f14.1e100.net (172.217.166.46): icmp_seq=4 ttl=110 time=52.5 ms
64 bytes from bom07s18-in-f14.1e100.net (172.217.166.46): icmp_seq=5 ttl=110 time=52.2 ms
64 bytes from bom07s18-in-f14.1e100.net (172.217.166.46): icmp_seq=6 ttl=110 time=52.8 ms
64 bytes from bom07s18-in-f14.1e100.net (172.217.166.46): icmp_seq=7 ttl=110 time=49.9 ms
^C
— google.com ping statistics —
7 packets transmitted, 7 received, 0% packet loss, time 6046ms
rtt min/avg/max/mdev = 49.910/51.632/52.773/1.078 ms
```



ssh: Securely connect to a remote system

```
(sankypanky09@kali)-[~]
$ ssh sankalpa@192.168.35.5
The authenticity of host '192.168.35.5 (192.168.35.5)' can't be established.
ED25519 key fingerprint is SHA256:7ocpgy6BaW+VILqUImS2eSX05T3apWagZjA4Ssse4kU.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.35.5' (ED25519) to the list of known hosts.
sankalpa@192.168.35.5's password:
Welcome to Ubuntu 20.04.1 LTS (GNU/Linux 5.13.0-35-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

641 updates can be installed immediately.
421 of these updates are security updates.
To see these additional updates run: apt list --upgradable

The list of available updates is more than a week old.
To check for new updates run: sudo apt update
Your Hardware Enablement Stack (HWE) is supported until April 2025.

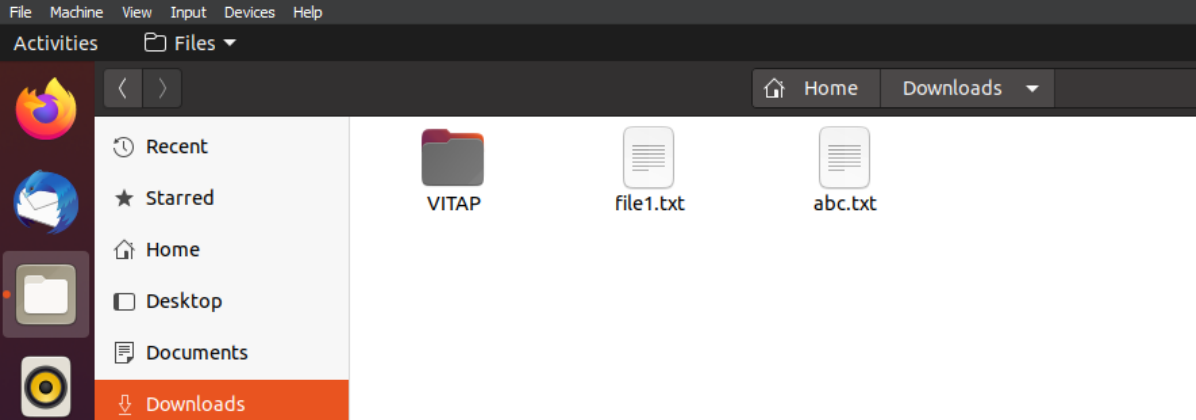
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

sankalpa@sankalpa-VirtualBox:~$
```

scp: Securely copy files between systems

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ scp file1.txt sankalpa@192.168.35.5:/home/sankalpa/Downloads
sankalpa@192.168.35.5's password:
file1.txt
100% 36 49.7KB/s 00:00
```



wget: Download files from the web

```
(sankypanky09@kali)~[~/Documents/Assignment1]
$ wget https://download.configserver.com/csf.tgz

--2023-05-28 17:15:08-- https://download.configserver.com/csf.tgz
Resolving download.configserver.com (download.configserver.com)... 94.130.90.175
Connecting to download.configserver.com (download.configserver.com)|94.130.90.175|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 2288477 (2.2M) [application/x-gzip]
Saving to: 'csf.tgz'

csf.tgz                                     100%[=====>] 2.18M 2.05MB/s in 1.1s

2023-05-28 17:15:11 (2.05 MB/s) - 'csf.tgz' saved [2288477/2288477]
```

## System Administration:

sudo: Execute commands with superuser privileges

```
(sankypanky09@kali)~[~/Documents/Assignment1]
$ sudo
usage: sudo -h | -K | -k | -V
usage: sudo -v [-ABkNnS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-ABkNnS] [-g group] [-h host] [-p prompt] [-U user] [-u user] [command [arg ...]]
usage: sudo [-ABbEHknPS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user] [VAR=value] [-i | -s] [command [arg ...]]
usage: sudo -e [-ABkNnS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user] file ...
```

apt-get: Package management for Debian-based distributions

```
(sankypanky09@kali)~[~/Documents/Assignment1]
$ apt-get
apt 2.6.0 (amd64)
Usage: apt-get [options] command
       apt-get [options] install|remove pkg1 [pkg2 ...]
       apt-get [options] source pkg1 [pkg2 ...]

apt-get is a command line interface for retrieval of packages
and information about them from authenticated sources and
for installation, upgrade and removal of packages together
with their dependencies.

Most used commands:
  update - Retrieve new lists of packages
  upgrade - Perform an upgrade
  install - Install new packages (pkg is libc6 not libc6.deb)
  reinstall - Reinstall packages (pkg is libc6 not libc6.deb)
  remove - Remove packages
  purge - Remove packages and config files
  autoremove - Remove automatically all unused packages
  dist-upgrade - Distribution upgrade, see apt-get(8)
  dselect-upgrade - Follow dselect selections
  build-dep - Configure build-dependencies for source packages
  satisfy - Satisfy dependency strings
  clean - Erase downloaded archive files
  autoclean - Erase old downloaded archive files
  check - Verify that there are no broken dependencies
  source - Download source archives
  download - Download the binary package into the current directory
  changelog - Download and display the changelog for the given package

See apt-get(8) for more information about the available commands.
Configuration options and syntax is detailed in apt.conf(5).
Information about how to configure sources can be found in sources.list(5).
Package and version choices can be expressed via apt_preferences(5).
Security details are available in apt-secure(8).

This APT has Super Cow Powers.
```

yum: Package management for Red Hat-based distributions

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ yum
Command 'yum' not found, did you mean:
  command 'uum' from deb freewnn-jserver
  command 'zum' from deb perforate
  command 'sum' from deb coreutils
  command 'num' from deb quickcal
Try: sudo apt install <deb name>
```

systemctl: Manage system services

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ systemctl
UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
nrc-sys-fs-binfmt_misc.automount    loaded active running Arbitrary Executable File Formats File S
sys-devices-pci0000:00-0000:00:01.1-ata1-host0-target0:0:0-0:0:0-block-sr0.device loaded active plugged VBOX_CD-ROM VBOX_GAs_7.0.6
sys-devices-pci0000:00-0000:00:01.1-ata2-host1-target1:0:0-1:0:0-block-sr1.device loaded active plugged VBOX_CD-ROM
sys-devices-pci0000:00-0000:00:03.0-net-eth0.device loaded active plugged 82540EM Gigabit Ethernet Controller (PRO
sys-devices-pci0000:00-0000:00:05.0-sound-card0-controlC0.device loaded active plugged /sys/devices/pci0000:00/0000:00:05.0/sou
sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0-block-sda1.device loaded active plugged VBOX_HARDDISK 1
sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0-block-sda2.device loaded active plugged VBOX_HARDDISK 2
sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0-block-sda5.device loaded active plugged VBOX_HARDDISK 5
sys-devices-pci0000:00-0000:00:0d.0-ata3-host2-target2:0:0-2:0:0-block-sda.device loaded active plugged VBOX_HARDDISK
sys-devices-platform-serial8250-tty-ttyS0.device loaded active plugged /sys/devices/platform/serial8250/tty/tty
sys-devices-platform-serial8250-tty-ttyS1.device loaded active plugged /sys/devices/platform/serial8250/tty/tty
sys-devices-platform-serial8250-tty-ttyS2.device loaded active plugged /sys/devices/platform/serial8250/tty/tty
sys-devices-platform-serial8250-tty-ttyS3.device loaded active plugged /sys/devices/platform/serial8250/tty/tty
sys-devices-virtual-misc-rfkill.device loaded active plugged /sys/devices/virtual/misc/rfkill
sys-module-configfs.device loaded active plugged /sys/module/configfs
sys-module-fuse.device loaded active plugged /sys/module/fuse
sys-subsystem-net-devices-eth0.device loaded active plugged 82540EM Gigabit Ethernet Controller (PRO
- mount loaded active mounted Root Mount
dev-hugepages.mount loaded active mounted Huge Pages File System
dev-mqueue.mount loaded active mounted POSIX Message Queue File System
proc-sys-fs-binfmt_misc.mount loaded active mounted Arbitrary Executable File Formats File S
run-credentials-systemd\x2dsysctl.service.mount loaded active mounted /run/credentials/systemd-sysctl.service
run-credentials-systemd\x2dsysusers.service.mount loaded active mounted /run/credentials/systemd-sysusers.service
run-credentials-systemd\x2dtmpfiles\x2dsetup.service.mount loaded active mounted /run/credentials/systemd-tmpfiles-setup.
run-credentials-systemd\x2dtmpfiles\x2dsetup\x2dddev.service.mount loaded active mounted /run/credentials/systemd-tmpfiles-setup-
run-rpc_pipefs.mount loaded active mounted RPC Pipe File System
run-user-1000-doc.mount loaded active mounted /run/user/1000/doc
run-user-1000-gvfs.mount loaded active mounted /run/user/1000/gvfs
run-user-1000.mount loaded active mounted /run/user/1000
sys-fs-fuse-connections.mount loaded active mounted FUSE Control File System
sys-kernel-config.mount loaded active mounted Kernel Configuration File System
sys-kernel-debug.mount loaded active mounted Kernel Debug File System
sys-kernel-tracing.mount loaded active mounted Kernel Trace File System
systemd-ask-password-plymouth.path loaded active waiting Forward Password Requests to Plymouth Di
systemd-ask-password-wall.path loaded active waiting Forward Password Requests to Wall Direct
init.scope loaded active running System and Service Manager
session-2.scope loaded active running Session 2 of User sankypanky09
colord.service loaded active running Manage, Install and Generate Color Profi
console-setup.service loaded active exited Set console font and keymap
cron.service loaded active running Regular background program processing da
csf.service loaded failed failed ConfigServer Firewall & Security - csf
dbus.service loaded active running D-Bus System Message Bus
getty@tty1.service loaded active running Getty on tty1
haveged.service loaded active running Entropy Daemon based on the HAVEGE algor
ifupdown-pre.service loaded active exited Helper to synchronize boot up for ifupdo
keyboard-setup.service loaded active exited Set the console keyboard layout
kmod-static-nodes.service loaded active exited Create List of Static Device Nodes
lfd.service loaded failed failed ConfigServer Firewall & Security - lfd
```

crontab: Schedule recurring tasks

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ crontab -l
no crontab for sankypanky09
```

useradd: Add a new user

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ sudo useradd kali
[sudo] password for sankypanky09:
```

passwd: Change user password

```
(sankypanky09@kali)-[~/Documents/Assignment1]
$ passwd
Changing password for sankypanky09.
Current password:
New password:
Retype new password:
passwd: password updated successfully
```