



Programming Languages

Linux Commands #1



남 범 석

bnam@skku.edu



uname

- print detailed information about the machine name, Operating System and Kernel.

```
bsnam@dicl1:~$ uname -a
```

```
Linux dicl1 4.15.0-47-generic #50-Ubuntu SMP Wed Mar 13  
10:44:52 UTC 2019 x86_64 x86_64 x86_64 GNU/Linux
```



man

- If you know the name of the Linux command, you can read its manual by typing `$ man command`

```
bsnam@dicl1:~$ man grep
```

```
GREP(1)
```

```
User Commands
```

```
GREP(1)
```

NAME

grep, egrep, fgrep, rgrep - print lines matching a pattern

SYNOPSIS

```
grep [OPTIONS] PATTERN [FILE...]
```

```
grep [OPTIONS] -e PATTERN ... [FILE...]
```

```
grep [OPTIONS] -f FILE ... [FILE...]
```

DESCRIPTION

grep searches for PATTERN in each FILE. A FILE of "-" stands for standard input. If no FILE is given, recursive searches examine the working directory, and nonrecursive searches read standard input. By default, grep prints the matching lines.



ps

- **ps displays information about the running processes of the system.**

```
bsnam@dicl1:~$ ps -ef | grep bsnam
root      13322  1053  0 May01 ?           00:00:00 sshd: bsnam [priv]
bsnam     13408 13322  0 May01 ?           00:00:00 sshd: bsnam@notty
bsnam     13409 13408  0 May01 ?           00:00:00 /usr/lib/openssh/sftp-server
bsnam     13415 13408  0 May01 ?           00:00:00 /usr/lib/openssh/sftp-server
root      17259  1053  0 Apr29 ?           00:00:00 sshd: bsnam [priv]
bsnam     17261     1  0 Apr29 ?           00:00:00 /lib/systemd/systemd --user
bsnam     17263 17261  0 Apr29 ?           00:00:00 (sd-pam)
bsnam     17359 17259  0 Apr29 ?           00:00:01 sshd: bsnam@pts/0
bsnam     17360 17359  0 Apr29 pts/0       00:00:00 -bash
bsnam     21285 17360  0 12:02 pts/0       00:00:00 ps -ef
bsnam     21286 17360  0 12:02 pts/0       00:00:00 grep bsnam
```



grep

- The 'grep' command searches the given file for lines containing a match to the given strings or words.
- E.g. Search '*.cpp' for 'main'.

```
bsnam@dicl1:~$ grep main *cpp  
test2.cpp:int main()  
test.cpp:int main()
```

kill , killall

- Used to kill a process with pid or process name

```
bsnam@dicl1:~$ ps -ef | grep a.out
```

```
bsnam    13408 13322  0 May01 ?          00:00:00 a.out
```

```
bsnam@dicl1:~$ kill -9 13408
```

```
bsnam@dicl1:~$ ps
```

```
  PID TTY          TIME CMD
 21409 pts/1    00:00:00 bash
 21501 pts/1    00:00:00 ps
[1]+  Killed                  ./a.out
```

```
bsnam@dicl1:~$ killall a.out
```



find

- Search for files in the given directory

```
bsnam@dicl1:~$ find . -name *.sh
./submit/hwsubmit.sh
./submit/submit.sh
./APG/apps/vm/killrogue.sh
...
```

whereis, which, locate

- locate the binary, source, and manual page files for a command

```
bsnam@dicl1:~$ whereis bash
```

```
bash: /bin/bash /etc/bash.bashrc /usr/share/man/man1/bash.1.gz
```

```
bsnam@dicl1:~$ which bash
```

```
/bin/bash
```

```
bsnam@dicl1:~$ locate bash
```

```
/bin/bash
```

```
/bin/rbash
```

```
/etc/bash.bashrc
```

```
/etc/bash_completion
```

```
/etc/bash_completion.d
```

```
/etc/apparmor.d/abstractions/bash
```


service

- start, stop, or restart a System V init script without restarting the system

```
bsnam@dicl1:/etc/init.d$ ls
```

```
acpid                cups                lvm2-lvmetad        rsync
alsa-utils           cups-browsed        lvm2-lvmpolld       rsyslog
anacron              dbus                mdadm                saned
apache2              dns-clean           mdadm-waitidle       speech-dispatcher
apache-htcacheclean docker               mysql                spice-vdagent
```

```
bsnam@dicl1:~$ sudo service apache2 status
```

```
● apache2.service - The Apache HTTP Server
```

```
Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
```

```
Drop-In: /lib/systemd/system/apache2.service.d
```

```
└─apache2-systemd.conf
```

```
Active: active (running) since Thu 2019-05-02 12:17:28 KST; 6s ago
```

```
Process: 21594 ExecStop=/usr/sbin/apachectl stop (code=exited, status=0/SUCCESS)
```

```
Process: 21599 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
```

df

- Report disk usages of file system

```
bnam@swin:~$ df -k
```

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
udev	65941112	0	65941112	0%	/dev
tmpfs	13192084	18500	13173584	1%	/run
/dev/sda1	98298500	41795892	51486288	45%	/
tmpfs	65960408	176	65960232	1%	/dev/shm
tmpfs	5120	0	5120	0%	/run/lock
tmpfs	65960408	0	65960408	0%	/sys/fs/cgroup
/dev/loop1	93312	93312	0	100%	/snap/core/6531
/dev/loop2	91392	91392	0	100%	/snap/core/6673
/dev/loop4 up/1045	112512	112512	0	100%	/snap/conjure-
/dev/sdb1	3845577736	529426236	3120784284	15%	/home
/dev/sda3	3717619056	394744	3528357036	1%	/localdisk
/dev/sdc1	3845577736	69632	3650140888	1%	/home2
/dev/sdd1	3845577736	790581560	2859628960	22%	/home3

lsblk

- print block devices by their assigned name on the standard output in a tree-like fashion.

```
bsnam@dicl1:~$ lsblk
```

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
loop0	7:0	0	151M	1	loop	/snap/gnome-3-28-1804/31
loop1	7:1	0	14.8M	1	loop	/snap/gnome-characters/206
loop2	7:2	0	89.3M	1	loop	/snap/core/6673
...						
loop25	7:25	0	143.5M	1	loop	/snap/gnome-3-28-1804/23
loop26	7:26	0	89.4M	1	loop	/snap/core/6818
sda	8:0	0	931.5G	0	disk	
└─sda1	8:1	0	931.5G	0	part	/home
sr0	11:0	1	1024M	0	rom	
nvme0n1	259:0	0	238.5G	0	disk	
└─nvme0n1p1	259:1	0	238.5G	0	part	/



dd

- Duplicate disk image

- Copy 'if' to 'of'

- `bsnam@dicl1:~$ dd if=/home/user/Downloads/debian.iso
of=/dev/sdb1 bs=512M; sync`



du

- Estimate file space usage. Output the summary of disk usages by every file hierarchically, i.e., in recursive manner.

```
bsnam@dicl1:~$ du | more
120 ./minibase/javaminibase/javamini_hwk/handout/BufMgr/html
0 ./minibase/javaminibase/javamini_hwk/handout/BufMgr/javadoc/Package-
232 ./minibase/javaminibase/javamini_hwk/handout/BufMgr/javadoc
624 ./minibase/javaminibase/javamini_hwk/handout/BufMgr
40 ./minibase/javaminibase/javamini_hwk/handout/HeapFile/html
440 ./minibase/javaminibase/javamini_hwk/handout/HeapFile/javadoc
720 ./minibase/javaminibase/javamini_hwk/handout/HeapFile
96 ./minibase/javaminibase/javamini_hwk/handout/SM_Join/html
...
```

mount

- Plug-in an external filesystem such as USB or external disk drives into your file system. You need root permission to mount a device.

```
bsnam@dicl1:~$ cd /dev
bnam@swin:/dev$ ls -l sd*
brw-rw---- 1 root disk 8,  0 Apr 18 12:25 sda
brw-rw---- 1 root disk 8,  1 Apr 18 12:26 sda1
brw-rw---- 1 root disk 8,  2 Apr 18 12:26 sda2
brw-rw---- 1 root disk 8,  3 Apr 18 12:26 sda3
brw-rw---- 1 root disk 8, 16 Apr 18 12:25 sdb
brw-rw---- 1 root disk 8, 17 Apr 18 12:26 sdb1
brw-rw---- 1 root disk 8, 32 Apr 18 12:25 sdc
brw-rw---- 1 root disk 8, 33 Apr 18 12:26 sdc1
brw-rw---- 1 root disk 8, 48 Apr 18 12:25 sdd
brw-rw---- 1 root disk 8, 49 Apr 18 12:26 sdd1

bnam@swin:/dev$ mount /dev/sdd1 /home/bnam/usb
```