

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

# LINUX COMMANDS

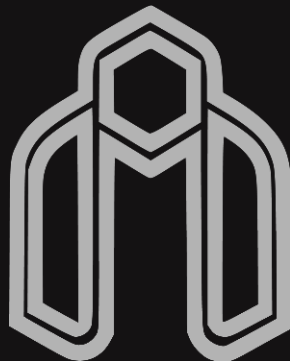


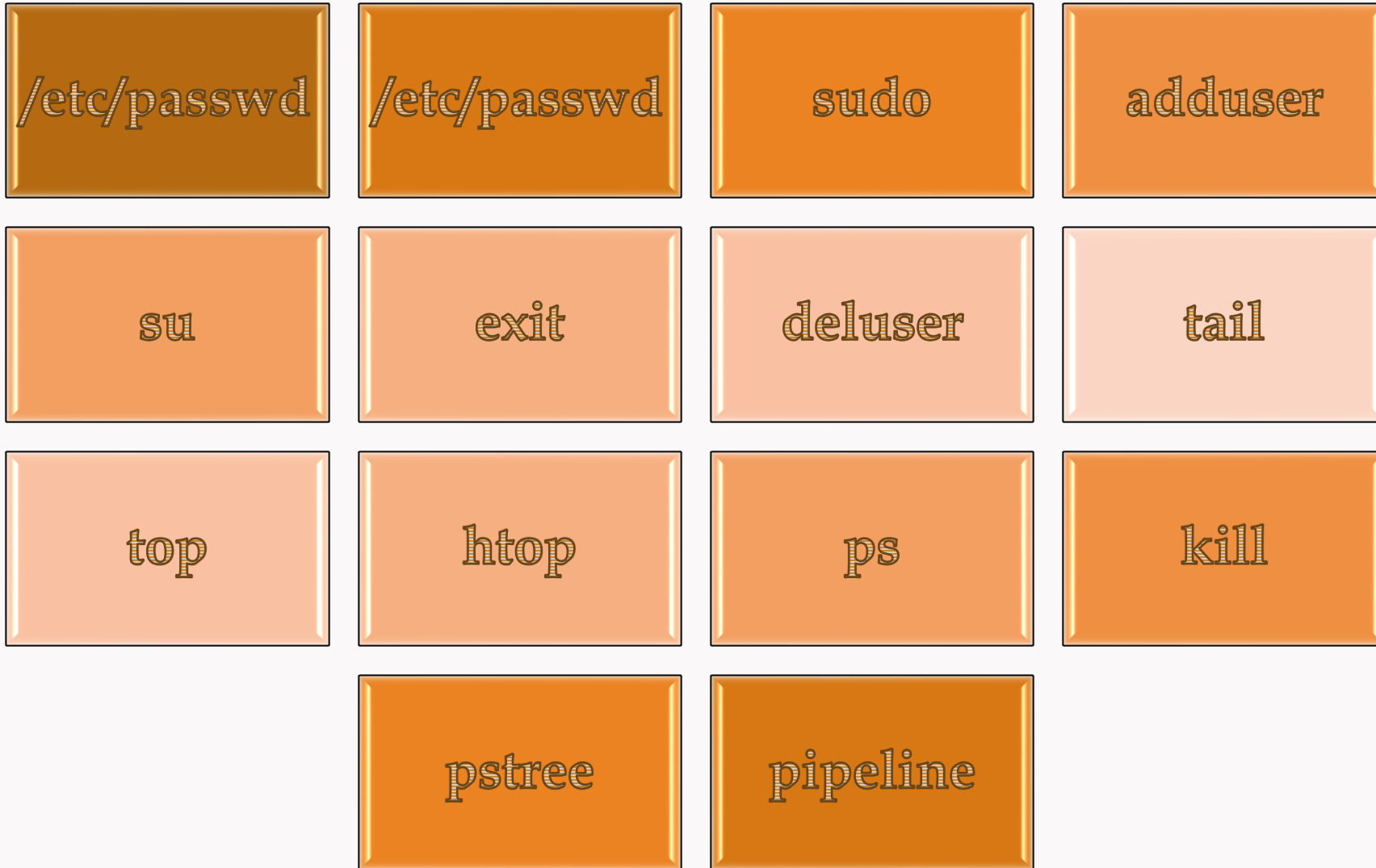
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## Description of some Linux commands – Part III OS Laboratory – Exercise 3

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# **/etc/passwd**



Show not normal users that using them for services, on the other words stores user account information.

It contains a list of the system's accounts, giving for each account some useful information like user ID, group ID, home directory, shell, and more.

Structure:

```
sudo less(or cat) /etc/passwd
```

# /etc/passwd

oracle:x:1021:1020:Oracle user:/data/network/oracle:/bin/bash

1 2 3 4 5 6 7

The diagram shows a line from the /etc/passwd file: 'oracle:x:1021:1020:Oracle user:/data/network/oracle:/bin/bash'. Below this line, seven arrows point down to the numbers 1 through 7, which correspond to the fields in the entry: 1 points to 'oracle', 2 to 'x', 3 to '1021', 4 to '1020', 5 to 'Oracle user', 6 to '/data/network/oracle', and 7 to '/bin/bash'.

**1.Username:** It is used when user logs in.

**2.Password:** An x character indicates that encrypted password is stored in /etc/shadow file.

**3.User ID (UID):** Each user must be assigned a user ID (UID). UID 0 (zero) is reserved for root and UIDs 1-99 are reserved for other predefined accounts.

**4.Group ID (GID):** The primary group ID (stored in /etc/group file)

**5.User ID Info (GECOS):** The comment field. It allow you to add extra information about the users such as user's full name, phone number etc. This field use by finger command.

**6.Home directory:** The absolute path to the directory the user will be in when they log in. If this directory does not exists then users directory becomes /

**7.Command/shell:** The absolute path of a command or shell (/bin/bash)

File Actions Edit View Help

```
└─(mosfazli® Knight)-[~]
```

```
$ cat /etc/passwd
```

```
root:x:0:0:root:/root:/usr/bin/zsh
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mail List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
_apt:x:100:65534::/nonexistent:/usr/sbin/nologin
systemd-timesync:x:101:101:systemd Time Synchronization,,:/run/systemd:/usr/sbin/nologin
systemd-network:x:102:103:systemd Network Management,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:103:104:systemd Resolver,,:/run/systemd:/usr/sbin/nologin
mysql:x:104:110:MySQL Server,,:/nonexistent:/bin/false
tss:x:105:111:TPM software stack,,:/var/lib/tpm:/bin/false
strongswan:x:106:65534::/var/lib/strongswan:/usr/sbin/nologin
ntp:x:107:112::/nonexistent:/usr/sbin/nologin
messagebus:x:108:113::/nonexistent:/usr/sbin/nologin
redsocks:x:109:114::/var/run/redsocks:/usr/sbin/nologin
rwho:x:110:65534::/var/spool/rwho:/usr/sbin/nologin
iodine:x:111:65534::/run/iodine:/usr/sbin/nologin
miredo:x:112:65534::/var/run/miredo:/usr/sbin/nologin
_rpc:x:113:65534::/run/rpcbind:/usr/sbin/nologin
usbmux:x:114:46:usbmux daemon,,:/var/lib/usbmux:/usr/sbin/nologin
tcpdump:x:115:121::/nonexistent:/usr/sbin/nologin
rtkit:x:116:122:RealtimeKit,,:/proc:/usr/sbin/nologin
sshd:x:117:65534::/run/ssh:/usr/sbin/nologin
statd:x:118:65534::/var/lib/nfs:/usr/sbin/nologin
postgres:x:119:124:PostgreSQL administrator,,:/var/lib/postgresql:/bin/bash
avahi:x:120:126:Avahi mDNS daemon,,:/run/avahi-daemon:/usr/sbin/nologin
stunnel4:x:121:127::/var/run/stunnel4:/usr/sbin/nologin
Debian-snm:x:122:128::/var/lib/snm:/bin/false
speech-dispatcher:x:123:29:Speech Dispatcher,,:/run/speech-dispatcher:/bin/false
sshd:x:124:130::/nonexistent:/usr/sbin/nologin
nm-openvpn:x:125:131:NetworkManager OpenVPN,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
nm-openconnect:x:126:132:NetworkManager OpenConnect plugin,,:/var/lib/NetworkManager:/usr/sbin/nologin
pulse:x:127:133:PulseAudio daemon,,:/run/pulse:/usr/sbin/nologin
saned:x:128:136::/var/lib/saned:/usr/sbin/nologin
inetsim:x:129:138::/var/lib/inetsim:/usr/sbin/nologin
lightdm:x:130:139:Light Display Manager:/var/lib/lightdm:/bin/false
colord:x:131:140:colord colour management daemon,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:132:141::/var/lib/geoclue:/usr/sbin/nologin
sddm:x:133:142:Simple Desktop Display Manager:/var/lib/sddm:/bin/false
king-phisher:x:134:143::/var/lib/king-phisher:/usr/sbin/nologin
mosfazli:x:1000:1000:MosFazli,,:/home/mosfazli:/usr/bin/zsh
systemd-coredump:x:999:999:systemd Core Dumper:/usr/sbin/nologin
Debian-gdm:x:135:146:Gnome Display Manager:/var/lib/gdm3:/bin/false
```

**L\$**

# **/etc/shadow**



a text file that contains information about the system's users' passwords.

Structure:

```
sudo less(or cat) /etc/shadow
```

# /etc/shadow

mark:\$6\$.n.:17736:0:99999:7:::

[--] [----] [---] - [---] ----

| | | | | | | +-----> 9. Unused  
| | | | | | | +-----> 8. Expiration date  
| | | | | | +-----> 7. Inactivity period  
| | | | | +-----> 6. Warning period  
| | | | +-----> 5. Maximum password

age

| | | +-----> 4. Minimum password

age

| | +-----> 3. Last password change

| +-----> 2. Encrypted Password

+-----> 1. Username



# /etc/shadow



1.Username. The string you type when you log into the system.

2.Encrypted Password. The password with hashing format.

\$type\$salt\$hashed

\$type is the method cryptographic hash algorithm and can have the following values:

- \$1\$ – MD5
- \$2a\$ – Blowfish
- \$2y\$ – Eksblowfish
- \$5\$ – SHA-256
- \$6\$ – SHA-512

3.Last password change. This is the date when the password was last changed

4.Minimum password age. The number of days that must pass before the user password can be changed. Typically it is set to zero.

5.Maximum password age. The number of days after the user password must be changed. By default, this number is set to 99999.

6.Warning period. The number of days before the password expires during which the user is warned that the password must be changed.

7.Inactivity period. The number of days after the user password expires before the user account is disabled. Typically this field is empty.

8.Expiration date. The date when the account was disabled. It is represented as an epoch date.

9.Unused.

File Actions Edit View Help

root:!:18921:0:99999:7:::  
daemon:!:18921:0:99999:7:::  
bin:!:18921:0:99999:7:::  
sys:!:18921:0:99999:7:::  
sync:!:18921:0:99999:7:::  
games:!:18921:0:99999:7:::  
man:!:18921:0:99999:7:::  
lp:!:18921:0:99999:7:::  
mail:!:18921:0:99999:7:::  
news:!:18921:0:99999:7:::  
uucp:!:18921:0:99999:7:::  
proxy:!:18921:0:99999:7:::  
www-data:!:18921:0:99999:7:::  
backup:!:18921:0:99999:7:::  
list:!:18921:0:99999:7:::  
irc:!:18921:0:99999:7:::  
gnats:!:18921:0:99999:7:::  
nobody:!:18921:0:99999:7:::  
\_apt:!:18921:0:99999:7:::  
systemd-timesync:!:18921:0:99999:7:::  
systemd-network:!:18921:0:99999:7:::  
systemd-resolve:!:18921:0:99999:7:::  
mysql:!:18921:0:99999:7:::  
tss:!:18921:0:99999:7:::  
strongswan:!:18921:0:99999:7:::  
ntp:!:18921:0:99999:7:::  
messagebus:!:18921:0:99999:7:::  
redsocks:!:18921:0:99999:7:::  
rwhod:!:18921:0:99999:7:::  
iodine:!:18921:0:99999:7:::  
miredo:!:18921:0:99999:7:::  
\_rpc:!:18921:0:99999:7:::  
usbmux:!:18921:0:99999:7:::  
tcpdump:!:18921:0:99999:7:::  
rtkit:!:18921:0:99999:7:::  
sshd:!:18921:0:99999:7:::  
statd:!:18921:0:99999:7:::  
postgres:!:18921:0:99999:7:::  
avahi:!:18921:0:99999:7:::  
stunnel4:!:18921:0:99999:7:::  
Debian-snmpl:!:18921:0:99999:7:::  
speech-dispatcher:!:18921:0:99999:7:::  
slsh:!:18921:0:99999:7:::  
nm-openvpn:!:18921:0:99999:7:::  
nm-openconnect:!:18921:0:99999:7:::  
pulse:!:18921:0:99999:7:::  
saned:!:18921:0:99999:7:::  
inetsim:!:18921:0:99999:7:::  
lightdm:!:18921:0:99999:7:::  
colord:!:18921:0:99999:7:::  
geoclue:!:18921:0:99999:7:::  
sddm:!:18921:0:99999:7:::  
king-phisher:!:18921:0:99999:7:::  
mosfazli:\$y\$j9T\$5VGHNdGndQdlnJJN.3yu1.\$w29ogvMy.uK4n0DXp9rvxjl0U2zBtIsdM9dz3oAXxt4:18921:0:99999:7:::  
systemd-coredump:!:18921:0:99999:7:::  
Debian-gdm:!:18924:0:99999:7:::  
~  
~  
~  
(END)

/etc/passwd

Show not normal users that using them for services, on the other words stores user account information.

It contains a list of the system's accounts, giving for each account some useful information like user ID, group ID, home directory, shell, and more.

Structure:

sudo less(or cat) /etc/passwd

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# sudo



that command with elevated privileges or in other words allow a user with proper permissions to execute a command as another user

Structure:

```
sudo -V | -h | -l | -k | -s | [ -b ]
```

- V: The -V (version) show version of sudo command
- l: The -l (list) option will print out the commands allowed
- h or -help: The -h (help) show help page of sudo command
- k: The -k (kill) option to sudo invalidates the user's timestamp
- b: The -b (background) option tells sudo to run the given command in the background.

```
iodine:x:111:65534::/run/iodine:/usr/sbin/nologin
miredo:x:112:65534::/var/run/miredo:/usr/sbin/nologin
_rpc:x:113:65534::/run/rpcbind:/usr/sbin/nologin
usbmux:x:114:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
tcpdump:x:115:121::/nonexistent:/usr/sbin/nologin
rtkit:x:116:122:RealtimeKit,,,:/proc:/usr/sbin/nologin
sshd:x:117:65534::/run/sshd:/usr/sbin/nologin
statd:x:118:65534::/var/lib/nfs:/usr/sbin/nologin
postgres:x:119:124:PostgreSQL administrator,,,:/var/lib/postgresql/bin/bash
avahi:x:120:126:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
stunnel4:x:121:127::/var/run/stunnel4:/usr/sbin/nologin
Debian-snmpp:x:122:128::/var/lib/snmpp:/bin/false
speech-dispatcher:x:123:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
ssllh:x:124:130::/nonexistent:/usr/sbin/nologin
nm-openvpn:x:125:131:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
nm-openconnect:x:126:132:NetworkManager OpenConnect plugin,,,:/var/lib/NetworkManager:/usr/sbin/nologin
pulse:x:127:133:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
saned:x:128:136::/var/lib/saned:/usr/sbin/nologin
inetsim:x:129:138::/var/lib/inetsim:/usr/sbin/nologin
lightdm:x:130:139:Light Display Manager:/var/lib/lightdm:/bin/false
colord:x:131:140:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:132:141::/var/lib/geoclue:/usr/sbin/nologin
sddm:x:133:142:Simple Desktop Display Manager:/var/lib/sddm:/bin/false
king-phisher:x:134:143::/var/lib/king-phisher:/usr/sbin/nologin
mosfazli:x:1000:1000:MosFazli,,,:/home/mosfazli:/usr/bin/zsh
systemd-coredump:x:999:999:systemd Core Dumper:/usr/sbin/nologin
Debian-gdm:x:135:146:Gnome Display Manager:/var/lib/gdm3:/bin/false
```

```
(mosfazli@Knight)-[~]
$ less /etc/shadow
/etc/shadow: Permission denied
```

```
(mosfazli@Knight)-[~]
$ sudo less /etc/shadow
[sudo] password for mosfazli:
```

```
(mosfazli@Knight)-[~]
$ sudo less /etc/shadow
```

```
(mosfazli@Knight)-[~]
$ sudo
usage: sudo -h | -K | -k | -V
usage: sudo -v [-AknS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-AknS] [-g group] [-h host] [-p prompt] [-U user] [-u user] [command]
usage: sudo [-AbEHknPS] [-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>]
usage: sudo -e [-AknS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user] file ...
```

```
(mosfazli@Knight)-[~]
$ sudo -v
```

```
(mosfazli@Knight)-[~]
$ sudo --v
sudo: option '--v' is ambiguous; possibilities: '--version' '--validate'
usage: sudo -h | -K | -k | -V
usage: sudo -v [-AknS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-AknS] [-g group] [-h host] [-p prompt] [-U user] [-u user] [command]
usage: sudo [-AbEHknPS] [-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>]
usage: sudo -e [-AknS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user] file ...
```

```
(mosfazli@Knight)-[~]
$
```

# sudo

with elevated privileges or in other words allow a user with proper permissions to execute a command as another user

## Structure:

```
sudo -V | -h | -l | -k | -s | [-b]
```

-V: The -V (version) show version of sudo command

-l: The -l (list) option will print out the commands allowed

-k: The -k (kill) option to sudo invalidates the user's timestamp

-b: The -b (background) option tells sudo to run the given command in the background.

# adduser



For adding a user

\*It's privilege command so need to prefix `sudo` to work

\*If your linux doesn't supports this command write "`sudo apt-get install adduser`" for install it

Structure:

`adduser (username)`

In some linux its need to password, phone number and more, if you want skip that use enter without writing anything.

Changing the user information for test  
Enter the new value, or press ENTER for the default

```
Full Name []:  
Room Number []:  
Work Phone []:  
Home Phone []:  
Other []:
```

```
Is the information correct? [Y/n] y
```

—(mosfazli® Knight)—[~]

```

$ sudo adduser mos
Adding user `mos' ...
Adding new group `mos' (1002) ...
Adding new user `mos' (1002) with group `mos' ...
Creating home directory `/home/mos' ...
Copying files from `/etc/skel' ...
New password:

```

```
Retype new password:
passwd: password updated successfully
Changing the user information for mos
```

Enter the new value, or press ENTER for the default

```
Full Name []: mostafa
Room Number []: 1
Work Phone []: 1
Home Phone []: 1
Other []:
```

Is the information correct? [Y/n] y

—(mosfazli® Knight)—[~]

```
$ cat /etc/passwd
root:x:0:0:root:/root:/usr/bin/zsh
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mail List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
_apt:x:100:65534::/nonexistent:/usr/sbin/nologin
systemd-timesync:x:101:101:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
systemd-network:x:102:103:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:103:104:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
mysql:x:104:110:MySQL Server,,,:/nonexistent:/bin/false
tss:x:105:111:TPM software stack,,,:/var/lib/tpm:/bin/false
strongswan:x:106:65534::/var/lib/strongswan:/usr/sbin/nologin
ntp:x:107:112::/nonexistent:/usr/sbin/nologin
messagebus:x:108:113::/nonexistent:/usr/sbin/nologin
redsocks:x:109:114::/var/run/redsocks:/usr/sbin/nologin
rwhod:x:110:65534::/var/spool/rwho:/usr/sbin/nologin
iodine:x:111:65534::/run/iodine:/usr/sbin/nologin
miredo:x:112:65534::/var/run/miredo:/usr/sbin/nologin
```

By default

## Structure:

```
nologin user (username)
n/nologin
```

# su



su command using for opening a user or using another user.

Structure:

su [options] [username [arguments]]

- l -> To switch the logged-in user in this terminal
- c -> Run Specific Command as a Different User
- s -> To use a different shell, or operating environment,

```
mos@Knight: /home/mosfazli
File Actions Edit View Help
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
_apt:x:100:65534::/nonexistent:/usr/sbin/nologin
systemd-timesync:x:101:101:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
systemd-network:x:102:103:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:103:104:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
mysql:x:104:110:MySQL Server,,,:/nonexistent:/bin/false
tss:x:105:111:TPM software stack,,,:/var/lib/tpm:/bin/false
strongswan:x:106:65534::/var/lib/strongswan:/usr/sbin/nologin
ntp:x:107:112::/nonexistent:/usr/sbin/nologin
messagebus:x:108:113::/nonexistent:/usr/sbin/nologin
redsocks:x:109:114::/var/run/redsocks:/usr/sbin/nologin
rwhod:x:110:65534::/var/spool/rwho:/usr/sbin/nologin
iodine:x:111:65534::/run/iodine:/usr/sbin/nologin
miredo:x:112:65534::/var/run/miredo:/usr/sbin/nologin
_rpc:x:113:65534::/run/rpcbind:/usr/sbin/nologin
usbmux:x:114:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
tcpdump:x:115:121::/nonexistent:/usr/sbin/nologin
rtkit:x:116:122:RealtimeKit,,,:/proc:/usr/sbin/nologin
sshd:x:117:65534::/run/sshd:/usr/sbin/nologin
statd:x:118:65534::/var/lib/nfs:/usr/sbin/nologin
postgres:x:119:124:PostgreSQL administrator,,,:/var/lib/postgresql:/bin/bash
avahi:x:120:126:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
stunnel4:x:121:127::/var/run/stunnel4:/usr/sbin/nologin
Debian-snmp:x:122:128::/var/lib/snmp:/bin/false
speech-dispatcher:x:123:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
sshd:x:124:130::/nonexistent:/usr/sbin/nologin
nm-openvpn:x:125:131:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
nm-openconnect:x:126:132:NetworkManager OpenConnect plugin,,,:/var/lib/NetworkManager:/usr/sbin/nologin
pulse:x:127:133:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
saned:x:128:136::/var/lib/saned:/usr/sbin/nologin
inetsim:x:129:138::/var/lib/inetsim:/usr/sbin/nologin
lightdm:x:130:139:Light Display Manager:/var/lib/lightdm:/bin/false
colord:x:131:140:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:132:141::/var/lib/geoclue:/usr/sbin/nologin
sddm:x:133:142:Simple Desktop Display Manager:/var/lib/sddm:/bin/false
king-phisher:x:134:143::/var/lib/king-phisher:/usr/sbin/nologin
mosfazli:x:1000:1000:MosFazli,,,:/home/mosfazli:/usr/bin/zsh
systemd-coredump:x:999:999:systemd Core Dumper:/usr/sbin/nologin
Debian-gdm:x:135:146:Gnome Display Manager:/var/lib/gdm3:/bin/false
test:x:1001:1001::/home/test:/bin/bash
mos:x:1002:1002:mostafa,1,1,1:/home/mos:/bin/bash

(sudo mosfazli@Knight)-[~]
$ sudo su
(sudo root@Knight)-[/home/mosfazli]
# su mos
(sudo mos@Knight)-[/home/mosfazli]
$
```

su

and using for opening a user or using another user.

sure:

options] [username [arguments]]

to switch the logged-in user in this terminal

and as a Different User

To use a different shell, or operating environment,



# exit



exit command used to exit the shell where it is currently running

Structure:

exit [n]

Without n -> After pressing enter, the terminal will simply close.

If you opened a user you can use this command to close the user.

File Actions Edit View Help

mail:x:8:8:mail:/var/mail:/usr/sbin/nologin  
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin  
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin  
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin  
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin  
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin  
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin  
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin  
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin  
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin  
\_apt:x:100:65534::/nonexistent:/usr/sbin/nologin  
systemd-timesync:x:101:101:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin  
systemd-network:x:102:103:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin  
systemd-resolve:x:103:104:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin  
mysql:x:104:110:MySQL Server,,,:/nonexistent:/bin/false  
tss:x:105:111:TPM software stack,,,:/var/lib/tpm:/bin/false  
strongswan:x:106:65534::/var/lib/strongswan:/usr/sbin/nologin  
ntp:x:107:112::/nonexistent:/usr/sbin/nologin  
messagebus:x:108:113::/nonexistent:/usr/sbin/nologin  
redsocks:x:109:114::/var/run/redsocks:/usr/sbin/nologin  
rwho:x:110:65534::/var/spool/rwho:/usr/sbin/nologin  
iodine:x:111:65534::/run/iodine:/usr/sbin/nologin  
miredo:x:112:65534::/var/run/miredo:/usr/sbin/nologin  
\_rpc:x:113:65534::/run/rpcbind:/usr/sbin/nologin  
usbmux:x:114:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin  
tcpdump:x:115:121::/nonexistent:/usr/sbin/nologin  
rtkit:x:116:122:RealtimeKit,,,:/proc:/usr/sbin/nologin  
sshd:x:117:65534::/run/sshd:/usr/sbin/nologin  
statd:x:118:65534::/var/lib/nfs:/usr/sbin/nologin  
postgres:x:119:124:PostgreSQL administrator,,,:/var/lib/postgresql:/bin/bash  
avahi:x:120:126:Avahi mDNS daemon,,,:/var/lib/avahi-daemon:/usr/sbin/nologin  
stunnel4:x:121:127::/var/run/stunnel4:/usr/sbin/nologin  
Debian-snmpp:x:122:128::/var/lib/snmpp:/bin/false  
speech-dispatcher:x:123:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false  
sslm:x:124:130::/nonexistent:/usr/sbin/nologin  
nm-openvpn:x:125:131:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin  
nm-openconnect:x:126:132:NetworkManager OpenConnect plugin,,,:/var/lib/NetworkManager:/usr/sbin/nologin  
pulse:x:127:133:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin  
saned:x:128:136::/var/lib/saned:/usr/sbin/nologin  
inetsim:x:129:138::/var/lib/inetsim:/usr/sbin/nologin  
lightdm:x:130:139:Light Display Manager:/var/lib/lightdm:/bin/false  
colord:x:131:140:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin  
geoclue:x:132:141::/var/lib/geoclue:/usr/sbin/nologin  
sddm:x:133:142:Simple Desktop Display Manager:/var/lib/sddm:/bin/false  
king-phisher:x:134:143::/var/lib/king-phisher:/usr/sbin/nologin  
mosfazli:x:1000:1000:MosFazli,,,:/home/mosfazli:/usr/bin/zsh  
systemd-coredump:x:999:999:systemd Core Dumper:/usr/sbin/nologin  
Debian-gdm:x:135:146:Gnome Display Manager:/var/lib/gdm3:/bin/false  
test:x:1001:1001::/home/test:/bin/bash  
mos:x:1002:1002:mostafa,1,1,1:/home/mos:/bin/bash

exit

(mosfazli@Knight)-[~]  
\$ sudo su  
(root@Knight)-[/home/mosfazli]  
# su mos  
(mos@Knight)-[/home/mosfazli]  
\$ exit  
exit  
(root@Knight)-[/home/mosfazli]  
#

Screenshot taken

View image

exit

Command used to exit the shell where it is currently running

terminal will simply close.

opened a user you can use this command to close the user.

13

# deluser



This command using for delete a user.

Structure:

`deluser (username)`

# tail



Show live mode of a file

We can use this command with `-f` for logs to understand modification of system

Structure:

`tail [OPTION]... [FILE]...`

`-f` -> used by system administration to monitor the growth of the log files written by many Unix program as they are running

`-version` -> This option is used to display the version of tail which is currently running on your system.

```
root@Knight:/home/mosfazli

File Actions Edit View Help

lm-sensors strace
The following NEW packages will be installed:
 htop
0 upgraded, 1 newly installed, 0 to remove and 21 not upgraded.
Need to get 127 kB of archives.
After this operation, 328 kB of additional disk space will be used.
Ign:1 http://http.kali.org/kali kali-rolling/main amd64 htop amd64 3.0.5-7
Ign:1 http://http.kali.org/kali kali-rolling/main amd64 htop amd64 3.0.5-7
Ign:1 http://http.kali.org/kali kali-rolling/main amd64 htop amd64 3.0.5-7
Err:1 http://http.kali.org/kali kali-rolling/main amd64 htop amd64 3.0.5-7
      Could not resolve 'http.kali.org'
E: Failed to fetch http://http.kali.org/kali/pool/main/h/htop/htop_3.0.5-7_amd64.deb  Could not resolve 'http.kali.org'
E: Unable to fetch some archives, maybe run apt-get update or try with --fix-missing?

(root@Knight)-[/home/mosfazli]
# htop
Command 'htop' not found, but can be installed with:
apt install htop
Do you want to install it? (N/y)y
apt install htop
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
 libdap27 libdapclient6v5 libdavid4 libepsilon1 libgdal28 libgupnp-1.2-0 libidn11 libnetcdf18 libntfs-3g883 libomp-11-dev libomp5-11 liburcu6 libx265-192 libyara4 python3-editor python3-ipython-genutils
Use 'sudo apt autoremove' to remove them.
Suggested packages:
 lm-sensors strace
The following NEW packages will be installed:
 htop
0 upgraded, 1 newly installed, 0 to remove and 21 not upgraded.
Need to get 127 kB of archives.
After this operation, 328 kB of additional disk space will be used.
Ign:1 http://http.kali.org/kali kali-rolling/main amd64 htop amd64 3.0.5-7
Ign:1 http://http.kali.org/kali kali-rolling/main amd64 htop amd64 3.0.5-7
Ign:1 http://http.kali.org/kali kali-rolling/main amd64 htop amd64 3.0.5-7
Err:1 http://http.kali.org/kali kali-rolling/main amd64 htop amd64 3.0.5-7
      Could not resolve 'http.kali.org'
E: Failed to fetch http://http.kali.org/kali/pool/main/h/htop/htop_3.0.5-7_amd64.deb  Could not resolve 'http.kali.org'
E: Unable to fetch some archives, maybe run apt-get update or try with --fix-missing?

(root@Knight)-[/home/mosfazli]
# tail -f /var/log/syslog
Nov  2 15:13:11 Knight systemd[1345]: Started Tracker metadata extractor.
Nov  2 15:13:45 Knight dbus-daemon[1375]: [session uid=1000 pid=1375] Activating via systemd: service name='org.freedesktop.Tracker3.Miner.Extract' unit='tracker-extract-3.service' requested by ':1.7' (uid=1000 pid=1395 comm="/usr/libexe
c/tracker-miner-fs-3 ")
Nov  2 15:13:45 Knight systemd[1345]: Starting Tracker metadata extractor ...
Nov  2 15:13:45 Knight dbus-daemon[1375]: [session uid=1000 pid=1375] Successfully activated service 'org.freedesktop.Tracker3.Miner.Extract'
Nov  2 15:13:45 Knight systemd[1345]: Started Tracker metadata extractor.
Nov  2 15:14:24 Knight dbus-daemon[1375]: [session uid=1000 pid=1375] Activating via systemd: service name='org.freedesktop.Tracker3.Miner.Extract' unit='tracker-extract-3.service' requested by ':1.7' (uid=1000 pid=1395 comm="/usr/libexe
c/tracker-miner-fs-3 ")
Nov  2 15:14:24 Knight systemd[1345]: Starting Tracker metadata extractor ...
Nov  2 15:14:24 Knight dbus-daemon[1375]: [session uid=1000 pid=1375] Successfully activated service 'org.freedesktop.Tracker3.Miner.Extract'
Nov  2 15:14:24 Knight systemd[1345]: Started Tracker metadata extractor.
Nov  2 15:15:01 Knight CRON[2823]: (root) CMD (command -v debian-sa1 > /dev/null && debian-sa1 1 1)
Nov  2 15:15:06 Knight dbus-daemon[1375]: [session uid=1000 pid=1375] Activating via systemd: service name='org.freedesktop.Tracker3.Miner.Extract' unit='tracker-extract-3.service' requested by ':1.7' (uid=1000 pid=1395 comm="/usr/libexe
c/tracker-miner-fs-3 ")
Nov  2 15:15:06 Knight systemd[1345]: Starting Tracker metadata extractor ...
Nov  2 15:15:06 Knight dbus-daemon[1375]: [session uid=1000 pid=1375] Successfully activated service 'org.freedesktop.Tracker3.Miner.Extract'
Nov  2 15:15:06 Knight systemd[1345]: Started Tracker metadata extractor.
```



Show top process with resources that need  
to be killed for manage processes

Screenshot taken

View image

127 x

127 x

# top



Show top process with resources that need  
This command using for manage processes

File Actions Edit View Help

```
top - 15:14:23 up 5 min, 1 user, load average: 0.21, 0.18, 0.09
Tasks: 289 total, 2 running, 287 sleeping, 0 stopped, 0 zombie
%Cpu(s): 3.4 us, 1.0 sy, 0.0 ni, 95.6 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 15873.6 total, 13962.2 free, 1018.5 used, 893.0 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used. 14368.5 avail Mem
```

| PID  | USER     | PR | NI  | VIRT    | RES    | SHR   | S | %CPU | %MEM | TIME+   | COMMAND                     |
|------|----------|----|-----|---------|--------|-------|---|------|------|---------|-----------------------------|
| 1404 | mosfazli | 20 | 0   | 1449672 | 120192 | 77288 | R | 13.3 | 0.7  | 0:18.97 | Xorg                        |
| 1670 | mosfazli | 20 | 0   | 852476  | 86344  | 62660 | S | 6.7  | 0.5  | 0:03.82 | xfwm4                       |
| 2031 | mosfazli | 20 | 0   | 98.7g   | 164508 | 88240 | S | 6.7  | 1.0  | 0:09.66 | atril                       |
| 2749 | root     | 20 | 0   | 10480   | 3960   | 3116  | R | 6.7  | 0.0  | 0:00.02 | top                         |
| 1    | root     | 20 | 0   | 164652  | 10820  | 7944  | S | 0.0  | 0.1  | 0:00.85 | 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     | 20 | 0   | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/0:0-events          |
| 6    | root     | 0  | -20 | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/0:0H-events_highpri |
| 7    | root     | 20 | 0   | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:01.20 | kworker/0:1-events          |
| 8    | root     | 20 | 0   | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.02 | kworker/u24:0-flush-259:0   |
| 9    | root     | 0  | -20 | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | mm_percpu_wq                |
| 10   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | rcu_tasks_rude              |
| 11   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | rcu_tasks_trace             |
| 12   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | ksoftirqd/0                 |
| 13   | root     | 20 | 0   | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.29 | rcu_sched                   |
| 14   | root     | rt | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | migration/0                 |
| 15   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | cpuhp/0                     |
| 16   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | cpuhp/1                     |
| 17   | root     | rt | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.09 | migration/1                 |
| 18   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | ksoftirqd/1                 |
| 19   | root     | 20 | 0   | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/1:0-inet_frag_wq    |
| 20   | root     | 0  | -20 | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/1:0H-events_highpri |
| 21   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | cpuhp/2                     |
| 22   | root     | rt | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.10 | migration/2                 |
| 23   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | ksoftirqd/2                 |
| 24   | root     | 20 | 0   | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/2:0-cgroup_destroy  |
| 25   | root     | 0  | -20 | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/2:0H-events_highpri |
| 26   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | cpuhp/3                     |
| 27   | root     | rt | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.10 | migration/3                 |
| 28   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.42 | ksoftirqd/3                 |
| 29   | root     | 20 | 0   | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/3:0-rcu_gp          |
| 30   | root     | 0  | -20 | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/3:0H-events_highpri |
| 31   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | cpuhp/4                     |
| 32   | root     | rt | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.10 | migration/4                 |
| 33   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | ksoftirqd/4                 |
| 34   | root     | 20 | 0   | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/4:0-events          |
| 35   | root     | 0  | -20 | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/4:0H-events_highpri |
| 36   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | cpuhp/5                     |
| 37   | root     | rt | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.10 | migration/5                 |
| 38   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | ksoftirqd/5                 |
| 39   | root     | 20 | 0   | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/5:0-events          |
| 40   | root     | 0  | -20 | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/5:0H-events_highpri |
| 41   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | cpuhp/6                     |
| 42   | root     | rt | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.10 | migration/6                 |
| 43   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | ksoftirqd/6                 |
| 44   | root     | 20 | 0   | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/6:0-pm              |
| 45   | root     | 0  | -20 | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/6:0H-events_highpri |
| 46   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | cpuhp/7                     |
| 47   | root     | rt | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.11 | migration/7                 |
| 48   | root     | 20 | 0   | 0       | 0      | 0     | S | 0.0  | 0.0  | 0:00.00 | ksoftirqd/7                 |
| 49   | root     | 20 | 0   | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/7:0-events          |
| 50   | root     | 0  | -20 | 0       | 0      | 0     | I | 0.0  | 0.0  | 0:00.00 | kworker/7:0H-events_highpri |

top

Swap processes that need  
To manage processes

# htop



Like top command, have more graphical and more accessible

\*defaults this command not installed and needs to install by command



# ps



Number of processes that running and available in system

Structure:

ps [OPTION]

Without option -> Shows the processes for the current shell

-a -> View all the running processes

-r -> View all the running processes

# kill



kill command used to terminate processes manually

Structure:

Kill [OPTION] [PID]

-l -> To display all the available signals.

-pid -> To show how to use a PID with the kill command

# pstree



Show process with tree like, on the other word shows the running processes as a tree which is a more convenient way to display the processes hierarchy and makes the output more visually appealing.

Structure:

`ps tree [OPTION] [PID OR USERNAME]`

-p -> To display PIDs

-a -> To include command line arguments in output

-n -> To sort processes

```
Nov 2 15:13:45 Knight dbus-daemon[1375]: [session uid=1000 pid=1375] Activating via systemd: service name='org.freedesktop.Tracker3.Miner.Extract' unit='tracker-extract-3.service' requested by ':1.7' (uid=1000 pid=1395 comm="/usr/libexe
c/tracker-miner-fs-3 ")
Nov 2 15:13:45 Knight systemd[1345]: Starting Tracker metadata extractor ...
Nov 2 15:13:45 Knight dbus-daemon[1375]: [session uid=1000 pid=1375] Successfully activated service 'org.freedesktop.Tracker3.Miner.Extract'
Nov 2 15:14:24 Knight systemd[1345]: Started Tracker metadata extractor.
Nov 2 15:14:24 Knight dbus-daemon[1375]: [session uid=1000 pid=1375] Activating via systemd: service name='org.freedesktop.Tracker3.Miner.Extract' unit='tracker-extract-3.service' requested by ':1.7' (uid=1000 pid=1395 comm="/usr/libexe
c/tracker-miner-fs-3 ")
Nov 2 15:14:24 Knight systemd[1345]: Starting Tracker metadata extractor ...
Nov 2 15:14:24 Knight dbus-daemon[1375]: [session uid=1000 pid=1375] Successfully activated service 'org.freedesktop.Tracker3.Miner.Extract'
Nov 2 15:14:24 Knight systemd[1345]: Started Tracker metadata extractor.
Nov 2 15:15:01 Knight CRON[2823]: (root) CMD (command -v debian-sa1 > /dev/null && debian-sa1 1 1)
Nov 2 15:15:06 Knight dbus-daemon[1375]: [session uid=1000 pid=1375] Activating via systemd: service name='org.freedesktop.Tracker3.Miner.Extract' unit='tracker-extract-3.service' requested by ':1.7' (uid=1000 pid=1395 comm="/usr/libexe
c/tracker-miner-fs-3 ")
Nov 2 15:15:06 Knight systemd[1345]: Starting Tracker metadata extractor ...
Nov 2 15:15:06 Knight dbus-daemon[1375]: [session uid=1000 pid=1375] Successfully activated service 'org.freedesktop.Tracker3.Miner.Extract'
Nov 2 15:15:06 Knight systemd[1345]: Started Tracker metadata extractor.
^C
```

```
(root@Knight)~[/home/mosfazli]
# pstree
systemd--ModemManager--2*[{ModemManager}]
--NetworkManager--2*[{NetworkManager}]
--accounts-daemon--2*[{accounts-daemon}]
--atril--WebKitNetworkPr--8*[{WebKitNetworkPr}]
--10*[{atril}]
--colord--2*[{colord}]
--cron
--dbus-daemon
--gdm3--gdm-session-wor--gdm-x-session--Xorg--13*[{Xorg}]
--xfce4-session--Thunar--2*[{Thunar}]
--agent--2*[{agent}]
--blueman-applet--3*[{blueman-applet}]
--evolution-alarm--5*[{evolution-alarm}]
--nm-applet--3*[{nm-applet}]
--polkit-gnome-au--2*[{polkit-gnome-au}]
--ssh-agent
--xfce4-panel--panel-1-whisker--2*[{panel-1-whisker}]
--panel-16-systra--2*[{panel-16-systra}]
--panel-17-pulsea--2*[{panel-17-pulsea}]
--panel-18-notifi--2*[{panel-18-notifi}]
--panel-19-power--2*[{panel-19-power-}]
--panel-21-action--2*[{panel-21-action}]
--2*[{xfce4-panel}]
--xfce4-power-man--2*[{xfce4-power-man}]
--xfdesktop--2*[{xfdesktop}]
--xfsettingsd--2*[{xfsettingsd}]
--xfwm4--6*[{xfwm4}]
--xicc--2*[{xicc}]
--6*[{xfce4-session}]
--2*[{gdm-x-session}]
--2*[{gdm-session-wor}]
--2*[{gdm3}]
--gnome-keyring-d--3*[{gnome-keyring-d}]
--haveged
--ibus-daemon--ibus-engine-sim--2*[{ibus-engine-sim}]
--ibus-extension--7*[{ibus-extension-}]
--ibus-memconf--2*[{ibus-memconf}]
--ibus-ui-gtk3--7*[{ibus-ui-gtk3}]
--2*[{ibus-daemon}]
--ibus-x11--6*[{ibus-x11}]
--2*[{mount.ntfs}]
```

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Show process with tree like, on the other word shows the running processes as a tree which is a more convenient way to display the processes hierarchy and makes the output more visually appealing.

- p -> To display PID
- a -> To include command arguments in output
- n -> To sort

# pipeline



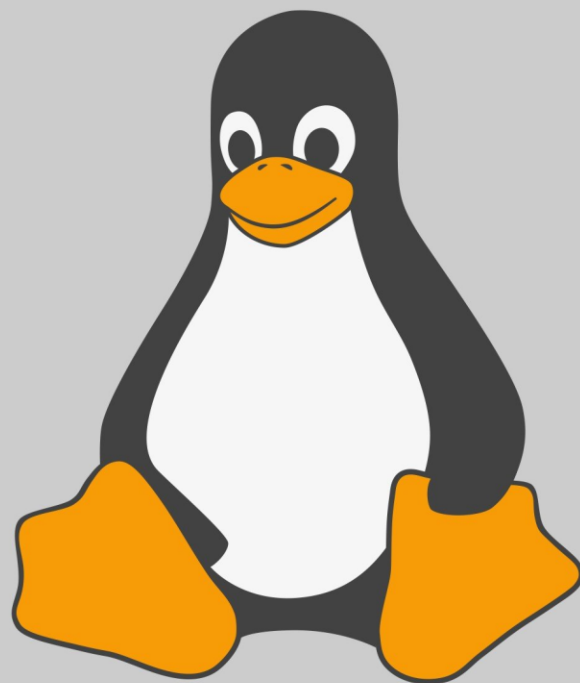
Pipeline or piping is used in Linux and other Unix-like operating systems to send the output of one command/program/process to another command/program/process for further processing

Structure:

```
command_1 | command_2 | command_3 | .... | command_N
```

Examples:

```
tail -n 7 state.txt | sort -r
```



L I N U X