King Abdulaziz University
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Information Technology Department
CPIT-490

Assignment-1
User and Software Management and The Filesystem

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User Program Management

1.1 Creating a Sudo User

```
azzoz@ubuntoserver:~$ sudo -i
[sudo] password for azzoz:
root@ubuntoserver:~# usermod -aG wheel azzoz
root@ubuntoserver:~# localhost login: azzoz
localhost: command not found
root@ubuntoserver:~# su - azzoz
azzoz@ubuntoserver:~$ sudo ls /root
[sudo] password for azzoz:
snap
azzoz@ubuntoserver:~$ pwd
/home/azzoz
```

1.2 Creating a new group & 1.3 Listing groups

```
azzoz@ubuntoserver:~$ groupadd staff
groupadd: group 'staff' already exists
azzoz@ubuntoserver:~$ groups azzoz
azzoz : azzoz adm cdrom sudo dip plugdev lxd wheel
azzoz@ubuntoserver:~$ ls /etc/group
/etc/group
azzoz@ubuntoserver:~$ pwd
/home/azzoz
azzoz@ubuntoserver:~$ cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:syslog,azzoz
tty:x:5:
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
```

1.4 Adding an existing user to a group

&

1.5 Listing all users on the system

```
root@ubuntoserver:~# sudo -i
root@ubuntoserver:~# usermod -aG staff azzoz
root@ubuntoserver:~# cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
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:Mailing List Manager:/var/list:/usr/sbi
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/va
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/n
_apt:x:100:65534::/nonexistent:/usr/sbin/nologin
systemd-network:x:101:102:systemd Network Management
systemd-resolve:x:102:103:systemd Resolver,,,:/run/s
messagebus:x:103:104::/nonexistent:/usr/sbin/nologin
systemd-timesync:x:104:105:systemd Time Synchronizat
pollinate:x:105:1::/var/cache/pollinate:/bin/false
sshd:x:106:65534::/run/sshd:/usr/sbin/nologin
syslog:x:107:113::/home/syslog:/usr/sbin/nologin
uuidd:x:108:114::/run/uuidd:/usr/sbin/nologin
tcpdump:x:109:115::/nonexistent:/usr/sbin/nologin
tss:x:110:116:TPM software stack,,,:/var/lib/tpm:/bi
landscape:x:111:117::/var/lib/landscape:/usr/sbin/no
fwupd-refresh:x:112:118:fwupd-refresh user,,,:/run/s
azzoz:x:1000:1000:Azzoz:/home/azzoz:/bin/bash
```

1.6 Adding a new user & 1.7 Changing the password

```
azzoz@ubuntoserver:~$ sudo useradd ali
[sudo] password for azzoz:
azzoz@ubuntoserver:~$ sudo passwd ali
New password:
BAD PASSWORD: The password is shorter than 8
Retype new password:
Sorry, passwords do not match.
New password:
BAD PASSWORD: The password is shorter than 8
Retype new password:
passwd: password updated successfully
```

2.1 Installing a new software

```
azzoz@ubuntoserver:~$ sudo apt install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1 libap
Processing triggers for ufw (0.36.1-4ubuntu0.1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.6) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
```

2.2 Updating installed packages or software

```
azzoz@ubuntoserver:~$ sudo apt update
Hit:1 http://ports.ubuntu.com/ubuntu-ports jammy InRelease
Hit:2 http://ports.ubuntu.com/ubuntu-ports jammy-updates InRelease
Hit:3 http://ports.ubuntu.com/ubuntu-ports jammy-backports InRelease
Hit:4 http://ports.ubuntu.com/ubuntu-ports jammy-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
12 packages can be upgraded. Run 'apt list --upgradable' to see them.
azzoz@ubuntoserver:~$ sudo apt --only-upgrade install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
apache2 is already the newest version (2.4.52-1ubuntu4.7).
0 upgraded, 0 newly installed, 0 to remove and 12 not upgraded.
azzoz@ubuntoserver:~$ sudo apt install unattended-upgrades
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
unattended-upgrades is already the newest version (2.8ubuntu1).
unattended-upgrades set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 12 not upgraded.
azzoz@ubuntoserver:~$ sudo unattended upgrade -d --dry-run
sudo: unattended: command not found
azzoz@ubuntoserver:~$ sudo unattended-upgrade -d --dry-run
Running on the development release
Starting unattended upgrades script
Allowed origins are: o=Ubuntu,a=jammy, o=Ubuntu,a=jammy-security, o=UbuntuESMApps,a=jammy-apps-
nfra-security
Initial blacklist:
Initial whitelist (not strict):
Marking not allowed <apt_pkg.PackageFile object: filename:'/var/lib/apt/lists/ports.ubuntu.com_
rts_universe_i18n_Translation-en'  a=jammy-backports,c=universe,v=22.04,o=Ubuntu,l=Ubuntu arch=
xType='Debian Translation Index' Size=55763 ID:19> with -32768 pin
Marking not allowed <apt_pkg.PackageFile object: filename:'/var/lib/apt/lists/ports.ubuntu.com_
```

2.3 Removing/Uninstalling a new software

```
azzoz@ubuntoserver:~$ sudo apt purge nano
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages will be REMOVED:
  nano*
0 upgraded, 0 newly installed, 1 to remove and 12 not upgraded.
After this operation, 872 kB disk space will be freed.
Do you want to continue? [Y/n] y
(Reading database ... 166254 files and directories currently installed.)
Removing nano (6.2-1) ...
update-alternatives: using /usr/bin/vim.basic to provide /usr/bin/editor
Processing triggers for install-info (6.8-4build1) ...
Processing triggers for man-db (2.10.2-1) ...
(Reading database ... 166182 files and directories currently installed.)
Purging configuration files for nano (6.2-1) ...
```

The Filesystem

1. Navigating the Filesystem

```
azzoz@ubuntoserver:~$ pwd
/home/azzoz
azzoz@ubuntoserver:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  snap  Templates  Videos
azzoz@ubuntoserver:~$ ls -a
.                  .bash_history  .cache    Documents  .local    .profile  .ssh                        Videos
..                 .bash_logout   .config   Downloads  Music     Public    .sudo_as_admin_successful
.apport-ignore.xml .bashrc        Desktop   .lesshst   Pictures  snap      Templates
azzoz@ubuntoserver:~$
```

2. Creating directories

```
azzoz@ubuntoserver:~$ mkdir notes
azzoz@ubuntoserver:~$ mkdir -p notes/personal/summer
azzoz@ubuntoserver:~$
```

3. Creating and Deleting files

```
azzoz@ubuntoserver:~$ cd notes/personal/summer/
azzoz@ubuntoserver:~/notes/personal/summer$ touch notes.txt
azzoz@ubuntoserver:~/notes/personal/summer$ touch .hiden-file.txt
azzoz@ubuntoserver:~/notes/personal/summer$ cd ..
azzoz@ubuntoserver:~/notes/personal$ cd ...
-bash: cd: ...: No such file or directory
azzoz@ubuntoserver:~/notes/personal$ cd ..
azzoz@ubuntoserver:~/notes$ cd ..
azzoz@ubuntoserver:~$ mkdir dir1
azzoz@ubuntoserver:~$ mkdir dir2
azzoz@ubuntoserver:~$ rm -r ./dir1
azzoz@ubuntoserver:~$ rmdir ./dir2
azzoz@ubuntoserver:~$
```

4. Copying files

```
azzoz@ubuntoserver:~$ cd notes/personal/summer/
azzoz@ubuntoserver:~/notes/personal/summer$ touch notes.txt
azzoz@ubuntoserver:~/notes/personal/summer$ touch .hiden-file.txt
azzoz@ubuntoserver:~/notes/personal/summer$ cd ..
azzoz@ubuntoserver:~/notes/personal$ cd ...
-bash: cd: ...: No such file or directory
azzoz@ubuntoserver:~/notes/personal$ cd ..
azzoz@ubuntoserver:~/notes$ cd ..
azzoz@ubuntoserver:~$ mkdir dir1
azzoz@ubuntoserver:~$ mkdir dir2
azzoz@ubuntoserver:~$ rm -r ./dir1
azzoz@ubuntoserver:~$ rmdir ./dir2
azzoz@ubuntoserver:~$ █
```

5. File Types

```
azzoz@ubuntoserver:~$ ls -l
total 48
drwxr-xr-x 2 azzoz azzoz 4096 Jan 28 19:17 Desktop
drwxrwxr-x 2 azzoz azzoz 4096 Feb  4 20:19 dir1
drwxrwxr-x 2 azzoz azzoz 4096 Feb  4 20:17 dir2
drwxr-xr-x 2 azzoz azzoz 4096 Jan 28 19:17 Documents
drwxr-xr-x 2 azzoz azzoz 4096 Jan 28 19:17 Downloads
drwxr-xr-x 2 azzoz azzoz 4096 Jan 28 19:17 Music
drwxrwxr-x 3 azzoz azzoz 4096 Feb  4 20:11 notes
drwxr-xr-x 2 azzoz azzoz 4096 Jan 28 19:17 Pictures
drwxr-xr-x 2 azzoz azzoz 4096 Jan 28 19:17 Public
drwx------ 3 azzoz azzoz 4096 Jan 28 19:22 snap
drwxr-xr-x 2 azzoz azzoz 4096 Jan 28 19:17 Templates
drwxr-xr-x 2 azzoz azzoz 4096 Jan 28 19:17 Videos
azzoz@ubuntoserver:~$ █
```

6. Soft links

```
azzoz@ubuntoserver:~$ touch file2.txt
azzoz@ubuntoserver:~$ ln -s file2.txt f2
azzoz@ubuntoserver:~$
```

7. Changing File Ownership and Group

```
azzoz@ubuntoserver:~$ mkdir -p ./dir4/dir5/dir6
azzoz@ubuntoserver:~$ ls -l ./dir4
total 4
drwxrwxr-x 3 azzoz azzoz 4096 Feb  4 20:28 dir5
azzoz@ubuntoserver:~$ chown azzoz:staff ./dir4
azzoz@ubuntoserver:~$ ls -l ./dir4/
total 4
drwxrwxr-x 3 azzoz azzoz 4096 Feb  4 20:28 dir5
azzoz@ubuntoserver:~$ ls -l ./dir4/dir5
total 4
drwxrwxr-x 2 azzoz azzoz 4096 Feb  4 20:28 dir6
azzoz@ubuntoserver:~$ ls -l ./dir4/dir5/dir6
total 0
azzoz@ubuntoserver:~$ chown -R azzoz:staff ./dir4/
azzoz@ubuntoserver:~$ ls -l ./dir4/dir5
total 4
drwxrwxr-x 2 azzoz staff 4096 Feb  4 20:28 dir6
azzoz@ubuntoserver:~$ ls -l ./dir4/dir5/dir6
total 0
azzoz@ubuntoserver:~$
```

9. Free Disk space information

```
azzoz@ubuntoserver:~$ df -h
Filesystem                         Size  Used Avail Use% Mounted on
tmpfs                              392M  1.8M  390M   1% /run
/dev/mapper/ubuntu--vg-ubuntu--lv   14G  9.1G  3.5G  73% /
tmpfs                              2.0G     0  2.0G   0% /dev/shm
tmpfs                              5.0M  4.0K  5.0M   1% /run/lock
/dev/vda2                          2.0G  134M  1.7G   8% /boot
/dev/vda1                          1.1G  6.4M  1.1G   1% /boot/efi
tmpfs                              392M  100K  392M   1% /run/user/1000
azzoz@ubuntoserver:~$
```

10. Mounting an external storage

```
azzoz@ubuntoserver:~$ sudo mount /dev/sdab mnt/disks/mumainssd/
[sudo] password for azzoz:
mount: /home/azzoz/mnt/disks/mumainssd: special device /dev/sdab does not exist.
azzoz@ubuntoserver:~$ umount /mnt/disks/mumainssd
umount: /mnt/disks/mumainssd: No such file or directory
azzoz@ubuntoserver:~$
```