

Lab 2 Report

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Bachelor of Artificial Intelligence

August 30, 2024

1 Introduction

This document provides an explanation of the ‘ls’ command in Linux, which is used to list directory contents. The ‘ls’ command can be used with various options to display the contents in different formats.

2 Commands and Outputs

2.1 Command: `ls -a`

The 'ls -a' command lists all the files and directories in the current directory, including hidden files (those starting with a dot '.'). Below is the output of the 'ls -a' command:

```
(base) shafeenkhan@shafeenkhan-Dell-G15-S515: / $ ls -la
```

2.2 Command: `ls -A`

The 'ls -A' command is similar to 'ls -a', but it does not list the '.' (current directory) and '..' (parent directory) entries. Below is the output of the 'ls -A' command:

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:/$ ls -A
bin boot cdrom dev etc home lib lib32 lib64 libx32 lost+found media mnt opt proc root run sbin snap srv swapfile sys tmp usr var
```

2.3 Command: `ls -t`

The 'ls -t' command lists files and directories sorted by modification time, with the most recently modified files listed first. Below is the output of the 'ls -t' command:

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:/$ ls -lt
```

2.4 Command: pwd

The 'pwd' (print working directory) command displays the full path of the current working directory. This is particularly useful to know where you are within the file system. Below is the output of the 'pwd' command:

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~$ pwd
/home/shafeenkhan
```

2.5 Command: adduser

The ‘adduser’ command is used to add a new user to the system. The image below shows an attempt to add a new user named ‘shafeencopy’. Initially, the command was entered incorrectly as ‘adduser’, which requires a single username argument. After correcting the command to ‘adduser shafeencopy’, a new user was successfully added, and the system prompted for additional information such as the full name, room number, and phone numbers. Below is the output of the ‘adduser’ command:

```

base) shafeenkan@shafeekh:~$ deli-G15-S515:~$ sudo -i
root@shafeenkan-dell-G15-S515:~# adduser
fatal: Only one or two names allowed
root@shafeenkan-dell-G15-S515:~# adduser shafeen
info: Adding user 'shafeen' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new user 'shafeen' (1002) ...
info: Adding new user 'shafeen' (1002) with group 'shafeen' (1002) ...
info: Creating home directory '/home/shafeen' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for shafeen
Enter the new value, or press ENTER for the default
  Full Name []: shafeenkan
  Room Number []: 1
  Work Phone []: 03309234480
  Home Phone []:
  Other []:
Is the information correct? [Y/n] Y
info: Adding new user 'shafeen' to supplemental / extra groups 'users' ...
info: Adding user 'shafeen' to group 'users' ...
root@shafeenkan-dell-G15-S515:~#

```

2.6 Command: Sudo

After using ‘sudo’, the package installation proceeded. Below is the output of the ‘apt install tree’ command: sudo apt install tree sudo gives root privileges and allows installation for some sensitive directories

[illegible]

2.7 Command: passwd

The 'passwd' command is used to change a user's password. In this case, the password for the user 'shafeenkhan' was being updated. Initially, the password entered was too simplistic, triggering a warning that it failed the dictionary check. However, after re-entering the password, it was updated successfully. Below is the output of the 'passwd' command:

```

root@shafeenkhan-Dell-G15-5511:~# passwd shafeenkhan
New password:
BAD PASSWORD: The password fails the dictionary check - it is too simplistic/systematic
Retype new password:
passwd: password updated successfully
root@shafeenkhan-Dell-G15-5511:~#

```

2.8 Command: ifconfig

The ‘ifconfig’ command is used to configure and display the network interfaces in a Unix-like operating system. In this example, the command provides detailed information about various network interfaces on the system, including ‘br-eca6762a74b’, ‘docker0’, ‘enp3s0’, ‘lo’, and ‘wlp4s0’. Each interface shows details like IP addresses, netmask, broadcast address, and statistics for transmitted and received packets. Below is the output of the ‘ifconfig’ command:

```

(base) shafeenkhan@shafeenkhan-Dell-G15-5511:~/Desktop$ ifconfig
br-eca6762a74b: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 172.18.0.1 netmask 255.255.0.0 broadcast 172.18.255.255
    ether 02:42:dc:de:4a:bb txqueuelen 0 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

docker0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 172.17.0.1 netmask 255.255.0.0 broadcast 172.17.255.255
    ether 02:42:52:e1:5b:ad txqueuelen 0 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp3s0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether b4:45:06:85:d5:d8 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    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 23643 bytes 2238465 (2.2 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 23643 bytes 2238465 (2.2 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlp4s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.42.0.236 netmask 255.255.255.0 broadcast 10.42.0.255
    inet6 fe80::3344:9511:93ae:16d0 prefixlen 64 scopeid 0x20<link>
    ether fc:70:db:8b:2b:7fe txqueuelen 1000 (Ethernet)
    RX packets 1490359 bytes 2031730742 (2.0 GB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 622548 bytes 68284505 (68.2 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

2.9 Command: iwconfig

The ‘iwconfig’ command is used to configure wireless network interfaces in Linux. It provides detailed information about wireless connections, including the ESSID, frequency, signal quality, and various other statistics. In the example below, the command displays information for the wireless interface ‘wlp4s0’, while other interfaces like ‘lo’, ‘enp3s0’, ‘br-eca6762a74b’, and ‘docker0’ report no wireless extensions. Below is the output of the ‘iwconfig’ command:

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/Desktop$ iwconfig
lo        no wireless extensions.

enp3s0    no wireless extensions.

wlp4s0    IEEE 802.11  ESSID:"Saad-A"
          Mode:Managed  Frequency:2.412 GHz  Access Point: 10:B1:DF:54:2E:53
          Bit Rate=144.4 Mb/s   Tx-Power=22 dBm
          Retry short limit:7    RTS thr:off   Fragment thr:off
          Power Management:on
          Link Quality=69/70   Signal level=-41 dBm
          Rx invalid nwid:0    Rx invalid crypt:0    Rx invalid frag:0
          Tx excessive retries:1    Invalid misc:114    Missed beacon:0

br-eca6726a274b  no wireless extensions.

docker0    no wireless extensions.

(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/Desktop$
```

3 Conclusion

In this lab, we explored various essential Linux commands used for system navigation, user management, network configuration, and software installation. Commands like 'pwd' and 'ls' help in understanding and navigating the file system, while 'cd' allows for directory changes. The 'adduser' and 'passwd' commands are crucial for managing users on the system. Networking tools such as 'ifconfig' and 'iwconfig' provide detailed insights into the network interfaces and wireless configurations. Lastly, the 'apt install' command is vital for package management in Debian-based distributions. Understanding these commands and their outputs is fundamental for effective system administration and troubleshooting in a Linux environment.