

Practical - 07

Aim: Linux Editors: vi

a) Create, modify, search and navigate a file in editor

i) Creating a file

→ To create a file, on the terminal type vi followed by filename.

ii) modifying the file:

→ To modify a file, on the vi editor, type 'o'.

iii) search in a file:

→ To find a word (forward search) press / followed by the word to search.

iv) navigate:

movement in four directions

Key

k

g

h

l

Action

moves cursor up

moves cursor down

moves cursor left

moves cursor right

Word Navigation

Key	Action
b	mouse back to the beginning of word
e	mouse forward to the end of word
w	mouse forward to the beginning of word
0 (zero)	move to the first character in line
\$	move to the end of line

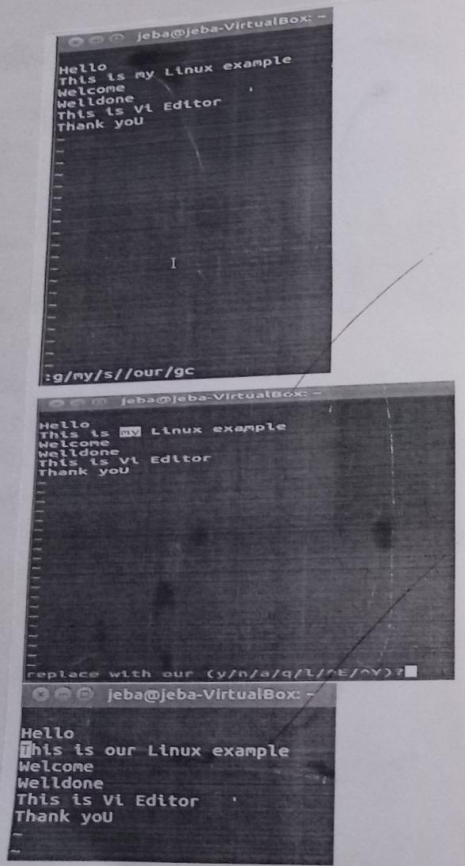
Scrolling

Key	Action
ctrl + f	scrolls forward
ctrl + b	scrolls backward
ctrl + d	scrolls half page
ctrl + u	scrolls half page backward

- 6) Learn all essential commands like search / replace, highlight, show line numbers.

i) Replace:

→ :/g / word to be replaced / s / new word / g c



ii) Highlight

→ use `hlsearch`

iii) Show the line number

→ use `set nu`

```
jeba@jeba-VirtualBox: -
Hello
This is our Linux example
Welcome
Well done
This is Vi Editor
Thank you

:set hlsearch
```

```
jeba@jeba-VirtualBox: -
1
2 Hello
3 This is our Linux example
4 Welcome
5 Well done
6 This is Vi Editor
7 Thank you

:set nu
```

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```
jeba@jeba-VirtualBox:~$ sudo useradd user1
[sudo] password for jeba:
jeba@jeba-VirtualBox:~$ sudo passwd user1
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
jeba@jeba-VirtualBox:~$
```

```
# Please consider adding local content in /etc/sudoers.d/ instead of
# directly modifying this file.
# See the man page for details on how to write a sudoers file.
#
Defaults    env_reset
Defaults    mail_badpass
Defaults    secure_path="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/
sbin:/bin"
# Host alias specification
# User alias specification
# Cmnd alias specification
# User privilege specification
root    ALL=(ALL:ALL) ALL
user1    ALL=(ALL:ALL) ALL
```

```
jeba@jeba-VirtualBox:~$ su user1
Password:
user1@jeba-VirtualBox:/home/jeba$ mkdir folder1
mkdir: cannot create directory 'folder1': Permission denied
user1@jeba-VirtualBox:/home/jeba$ sudo mkdir folder1
[sudo] password for user1:
user1 is not in the sudoers file. This incident will be reported.
```

Task 1

Aim: Linux Security

- a) Use of sudo to change user privileges is not
- i) Create an user named user1
- ii) To give some user root privileges set / etc / sudoers using vi editor. Enter new line as highlighted below.
- b) Identify operations that require sudo privileges

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7) modify expiration date for new user using password ageing

- -E : Expiration Date
- -m : Minimum number of days before password change
- -M : Number of days password is valid
- -I : Account Inactive
- -W : Number of days of warning before password change is required

```
jeba@jeba-VirtualBox:~$ sudo chage -l user1
Last password change           : Jan 20, 2020
Password expires                : never
Password inactive               : never
Account expires                 : never
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
```

```
jeba@jeba-VirtualBox:~$ sudo chage user1
Changing the aging information for user1
Enter the new value, or press ENTER for the default

Minimum Password Age [0]: 100
Maximum Password Age [99999]: 200
Last Password Change (YYYY-MM-DD) [2020-01-20]: 2020-01-21
Password Expiration Warning [7]: 5
Password Inactive [-1]:
Account Expiration Date (YYYY-MM-DD) [-1]: 2020-01-31
jeba@jeba-VirtualBox:~$ sudo chage -l user1
Last password change           : Jan 21, 2020
Password expires                : Aug 08, 2020
Password inactive               : never
Account expires                 : Jan 31, 2020
Minimum number of days between password change : 100
Maximum number of days between password change : 200
Number of days of warning before password expires : 5
jeba@jeba-VirtualBox:~$
```

```
jeba@jeba-VirtualBox:~$ sudo chage -E 25/01/2020 -m 10 -M 90 -I 30 -W 30 user1
jeba@jeba-VirtualBox:~$ sudo chage -l user1
Last password change           : Jan 21, 2020
Password expires                : Apr 20, 2020
Password inactive               : May 20, 2020
Account expires                 : Jan 01, 2022
Minimum number of days between password change : 10
Maximum number of days between password change : 90
Number of days of warning before password expires : 30
jeba@jeba-VirtualBox:~$
```

```
jeba@jeba-VirtualBox:~$ sudo userdel user1
[sudo] password for jeba:
jeba@jeba-VirtualBox:~$ su user1
No passwd entry for user 'user1'
jeba@jeba-VirtualBox:~$
```

delete newly added user

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Practical - 09

Aim : Network Management

a) Get IP address of your machine using ifconfig

```
jeba@jeba-VirtualBox:~$ ifconfig
enp0s3  Link encap:Ethernet  HWaddr 08:00:27:0e:6b:69
        inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
        inet6 addr: fe80::c0cd:53a0:d5a3:848e/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:2 errors:0 dropped:0 overruns:0 frame:0
        TX packets:73 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:1180 (1.1 KB)  TX bytes:8518 (8.5 KB)

lo      Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        inet6 addr: ::1/128 Scope:Host
        UP LOOPBACK RUNNING  MTU:65536  Metric:1
        RX packets:53240 errors:0 dropped:0 overruns:0 frame:0
        TX packets:53240 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1
        RX bytes:4225072 (4.2 MB)  TX bytes:4225072 (4.2 MB)
```

b) Get hostname of your machine.

```
jeba@jeba-VirtualBox:~$ hostname
jeba-VirtualBox
jeba@jeba-VirtualBox:~$
```

c) Use ping to check the network connectivity to host machine

```
jeba@jeba-VirtualBox:~$ ping www.google.com
PING www.google.com (172.217.31.196) 56(84) bytes of data:
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=1 ttl=54 time=
97.8 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=2 ttl=54 time=
82.0 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=3 ttl=54 time=
84.8 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=4 ttl=54 time=
87.1 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=5 ttl=54 time=
93.5 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=6 ttl=54 time=
86.9 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=7 ttl=54 time=
98.0 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=8 ttl=54 time=
90.9 ms
^C
[1]+  Stopped                  ping www.google.com
jeba@jeba-VirtualBox:~$
```

```
jeba@jeba-VirtualBox:~$ dig www.google.com
<<> DIG 9.10.3-P4-Ubuntu <<> www.google.com
; global options: +cmd
Got answer:
-->HEADER<-- opcode: QUERY, status: NOERROR, id: 52068
; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:;, udp: 4096
; QUESTION SECTION:
; www.google.com.
; ANSWER SECTION:
www.google.com. 91 IN A 172.217.166.100
; Query time: 152 msec
; SERVER: 127.0.1.1#53(127.0.1.1)
; WHEN: Mon Jan 20 22:40:06 IST 2020
; MSG SIZE rcvd: 59
jeba@jeba-VirtualBox:~$
```

```
jeba@jeba-VirtualBox:~$ traceroute www.google.com
traceroute to www.google.com (172.217.166.100), 30 hops max, 60 byte packets
 1 10.0.2.2 (10.0.2.2) 0.190 ms 0.143 ms 0.151 ms
 2 * * *
 3 10.0.2.2 (10.0.2.2) 68.568 ms 68.486 ms 68.405 ms
jeba@jeba-VirtualBox:~$
```

```
jeba@jeba-VirtualBox:~$ route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default 10.0.2.2 0.0.0.0 UG 100 0 0 enp0s3
10.0.2.0 * 255.255.255.0 U 100 0 0 enp0s3
link-local * 255.255.0.0 U 1000 0 0 enp0s3
jeba@jeba-VirtualBox:~$
```

```
jeba@jeba-VirtualBox:~$ arp
Address HWtype HWaddress Flags Mask Iface
10.0.2.2 ether 52:54:00:12:35:02 C enp0s3
jeba@jeba-VirtualBox:~$
```

1) use of dig command

2) Troubleshooting network using traceroute, route command

3) use of ~~arp~~ command

g) use of host command

```
jeba@jeba-VirtualBox:~$ host -V
host 9.10.3-P4-Ubuntu
jeba@jeba-VirtualBox:~$
```

h) use of netstat command & nmap command

```
jeba@jeba-VirtualBox:~$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
Active UNIX domain sockets (w/o servers)
Proto Refcnt Flags               Type                    State
unix 2      [ ]          DGRAM                  42149
d/notify              9694 /run/systemd/journal/
unix 2      [ ]          DGRAM                  9695 /run/systemd/journal/
unix 16     [ ]          DGRAM                  9794 /run/systemd/journal/
dev-log
unix 7      [ ]          DGRAM                  9684 /run/systemd/notify
socket                44042 @/tmp/dbus-CynTe17AQC
unix 3      [ ]          STREAM                 CONNECTED 43331 @/tmp/dbus-CynTe17AQC
unix 3      [ ]          STREAM                 CONNECTED 42988 @/tmp/dbus-CAGceAG7P5
unix 3      [ ]          STREAM                 CONNECTED 42690 /run/systemd/journal/
unix 3      [ ]          STREAM                 CONNECTED 13242 /run/systemd/journal/
stdout
unix 2      [ ]          STREAM                 CONNECTED 43113 /run/systemd/journal/
unix 2      [ ]          STREAM                 CONNECTED 43013
unix 3      [ ]          STREAM                 CONNECTED 42935
```

```
jeba@jeba-VirtualBox:~$ nmap www.google.com

Starting Nmap 7.01 ( https://nmap.org ) at 2020-01-20 22:51 IST
Nmap scan report for www.google.com (216.58.196.68)
Host is up (0.044s latency).
Other addresses for www.google.com (not scanned): 2404:6800:4007:811::2004
rDNS record for 216.58.196.68: bom05s11-in-f4.1e100.net
Not shown: 998 filtered ports
PORT      STATE SERVICE
80/tcp    open  http
443/tcp   open  https

Nmap done: 1 IP address (1 host up) scanned in 20.32 seconds
jeba@jeba-VirtualBox:~$
```

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