

## Learning goals: Linux OS commands apropos, file permissions

NOTE: Save screenshots of each exercise, and upload your work to your github account as Lab7.pdf by end of Friday Aug 8.

EXERCISES Start a fresh terminal for this Lab.

(1) The **apropos** command allows you to search the **system's manual** pages for commands that match a **specific task** or **keyword**. This is particularly useful when you need to find a **command** that performs a **specific task** but you **don't know the name** of the **command**. Try the following and display the **output in your lab document**.

(i) apropos "search for files"

```
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ apropos "search for files"
find (1) - search for files in a directory hierarchy
suspicious-source (1) - search for files that do not meet the GPL's definition of "source" for a work
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ |
```

(Snap No.1)

(ii) apropos "list directory contents". Another way to get the same output is apropos "^list.\*directory" (note the use of wildcards here). The ^ denotes that there is no other character before the word 'list' in the search.

```
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ apropos "list directory contents"
dir (1) - list directory contents
ls (1) - list directory contents
ntfsls (8) - list directory contents on an NTFS filesystem
vdir (1) - list directory contents
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ |
```

(Snap No.2)

```
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ apropos "^list.*directory"
dir (1) - list directory contents
ls (1) - list directory contents
ntfsls (8) - list directory contents on an NTFS filesystem
vdir (1) - list directory contents
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ |
```

(Snap No.3)

(iii) apropos "file compress"

```
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ apropos "file compress"
bunzip2 (1) - a block-sorting file compressor, v1.0.8
bzip2 (1) - a block-sorting file compressor, v1.0.8
Dpkg::Compression::FileHandle (3perl) - class dealing transparently with file compression
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ |
```

(Snap No.4)

(iv) apropos "file.\*copy\$" (The \$ denotes that there is no character to be searched after the word 'copy'. Come up with 3 more keywords/phrases that you can try for this command and got meaningful output (show the screenshots of all your outputs)

```
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ apropos "file.*copy$"
rcp (1) - OpenSSH secure file copy
scp (1) - OpenSSH secure file copy
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ |
```

(Snap No.5)

```
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ apropos "current working directory"
get_current_dir_name (3) - get current working directory
getcwd (2) - get current working directory
getcwd (3) - get current working directory
getwd (3) - get current working directory
pwdx (1) - report current working directory of a process
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ apropos "current file content"
```

(Snap No.6)

```
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ apropos "sorting"
bunzip2 (1) - a block-sorting file compressor, v1.0.8
bzip2 (1) - a block-sorting file compressor, v1.0.8
ldap_sort (3) - LDAP sorting routines (deprecated)
ldap_sort_entries (3) - LDAP sorting routines (deprecated)
ldap_sort_strcasecmp (3) - LDAP sorting routines (deprecated)
ldap_sort_values (3) - LDAP sorting routines (deprecated)
Sort::Versions (3pm) - a perl 5 module for sorting of revision-like numbers
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ |
```

(Snap No.7)

```
pattern search. nothing appropriate.
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ apropos "search"
ALTER_TEXT_SEARCH_CONFIGURATION (7) - change the definition of a text search configuration
ALTER_TEXT_SEARCH_DICTIONARY (7) - change the definition of a text search dictionary
ALTER_TEXT_SEARCH_PARSER (7) - change the definition of a text search parser
ALTER_TEXT_SEARCH_TEMPLATE (7) - change the definition of a text search template
apropos (1) - search the manual page names and descriptions
apt-patterns (7) - Syntax and semantics of apt search patterns
badblocks (8) - search a device for bad blocks
bsearch (3) - binary search of a sorted array
bzegrep (1) - search possibly bzip2 compressed files for a regular expression
bzfgrep (1) - search possibly bzip2 compressed files for a regular expression
```

(Snap No.8)

(2) File permissions. Try the following exercises and explain the output in your work.

(i) touch newfile followed by ls -al newfile. Describe the permissions set for the user, group and everyone else.

```
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ touch newfile | ls -al
total 64
drwxrwxr-x 2 ibab ibab 4096 Aug  8 16:15 .
drwxrwxr-x 7 ibab ibab 4096 Aug  8 15:33 ..
-rw-rw-r-- 1 ibab ibab 56144 Aug  8 15:32 lab7.pdf
-rw-rw-r-- 1 ibab ibab    0 Aug  8 16:15 newfile
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ |
```

(Snap No.8)

Ans Created file is newfile file permissions are **-rw-rw-r--**.

- 1) First **-rw-** specifies permission for user it is read & write .
- 2) Second **-rw-** specifies permission for Group it is read & write.
- 3) Third **-r--** specifies permission for Other & all Third Party it is read only

(ii) Print the output of umask command. Explain what is the actual level of default permission based on this output for a file, and for a directory

```
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ umask
0002
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ |
```

(Snap No.9)

Ans :- it is octal representation of permission of a file 0002  
the first 0 is stick bit remaining 002 is octal representation of permission

- 1) for ex. File has maximum permision of **666** or **-rw-rw-rw-** so thus **666-002 = 664** as asper output of file paermision of file is **-rw-rw-r--**
- 2) for ex. Diorectory has maximum permision of **777** or **-rwxrwxrwx** so thus **777-002 = 775** as asper output of file paermision of file is **-rwxrwxr-x**

(iii) Create a new file in your Lab7 directory and print and explain the current per-missions for the file. Write down the octal values for the user, group and everyone else

```
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ umask
0002
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ ls-l
ls-l: command not found
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ ls -l
total 56
-rw-rw-r-- 1 ibab ibab 56144 Aug  8 15:32 lab7.pdf
-rw-rw-r-- 1 ibab ibab    0 Aug  8 16:15 newfile
-rw-rw-r-- 1 ibab ibab    0 Aug  8 16:31 nfile
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ |
```

(Snap No.9)

Ans Created file is nfile file permissions are **-rw-rw-r--**.

- 1) First **-rw-** specifies permission for user it is read & write .
- 2) Second **-rw-** specifies permission for Group it is read & write.
- 3) Third **-r--** specifies permission for Other & all Third Party it is read only

File has genrally maximum permision of **666** or **-rw-rw-rw-** so thus **666-002 = 664** as asper output of file paermision of file is **-rw-rw-r--**

Octal value for user is =**6** in binary **110** in permission **rw-**  
Octal value for group is =**6** in binary **110** in permission **rw-**  
Octal valur for other is =**4** in binary **100** in permission **r--**

(iv) Create a new directory in your Lab7 directory and print and explain the current permissions for the file. Write down the octal values for the user, group and every one else.

```
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7/newdr$ cd ..
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ ls -l
total 60
-rw-rw-r-- 1 ibab ibab 56144 Aug  8 15:32 lab7.pdf
drwxrwxr-x 2 ibab ibab  4096 Aug  8 16:36 newdr
-rw-rw-r-- 1 ibab ibab    0 Aug  8 16:15 newfile
-rw-rw-r-- 1 ibab ibab    0 Aug  8 16:31 nfile
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ umask
0002
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ |
```

(Snap No.9)

Ans :- directory created is **newdr** directorys permission are **drwxrwxr-x** where **d** stands for **Directory**

- 1) First **-rwx** Directory permission for user it is read & write & exicute.
  - 2) Second **-rwx** Directory permission for user it is read & write & exicute.
  - 3) Third **-rwx** Directory permission for user it is read & write & exicute.
- Where as file permission are same **-rw-rw-r--**

**777-002 = 775** as asper output of file paermision of file is **-rwxrwxr-x**

(v) Copy the new file from above to the new directory and list the permissions of the file inside the directory. Is it the same as the file outside the directory? What does this tell you about the copying action?

```
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7/newdr$ ls -l
total 8
-rw-rw-r-- 1 ibab ibab 31 Aug  8 16:53 Lab7
-rw-rw-r-- 1 ibab ibab 31 Aug  8 16:50 mfile
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7/newdr$ cd ..
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ ls -l
total 64
-rw-rw-r-- 1 ibab ibab 56144 Aug  8 15:32 lab7.pdf
-rw-rw-r-- 1 ibab ibab    31 Aug  8 16:50 mfile
drwxrwxr-x 2 ibab ibab  4096 Aug  8 17:12 newdr
-rw-rw-r-- 1 ibab ibab    0 Aug  8 16:15 newfile
-rw-rw-r-- 1 ibab ibab    0 Aug  8 16:31 nfile
ibab@IBAB-MSc-BDB-Comp03:~/Lab/Lab7$ |
```

(Snap No.10)

Ans new file from above to the new directory and list the permissions of the file inside the directory. Is it the same as the file outside the directory the answer is the file information is the same **-rw-rw-r--** no is'nt tell about copying action



(vi) Change the permissions of the directory such that it is only readable and writable executable by the user and the group, and only readable by everyone else. What happens to the permissions of the file inside the directory? Does it inherit the new permissions you just set? What are the new octal values for the directory permissions?

```
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ chmod 774 newdr
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ ls -l
total 68
-rw-rw-r-- 1 ibab ibab 56144 Aug  8 15:32 lab7.pdf
-rw-rw-r-- 1 ibab ibab   31 Aug  8 16:50 mfile
drwxrwxr-- 2 ibab ibab 4096 Aug  8 17:16 newdr
-rw-rw-r-- 1 ibab ibab    0 Aug  8 16:15 newfile
-rw-rw-r-- 1 ibab ibab    0 Aug  8 16:31 nfile
drw-rw-r-- 2 ibab ibab 4096 Aug  8 17:24 nksk
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ |
```

(Snap No.11)

Ans :- yes its inherent new permission for the directory  
the Octal number is **774**

(vii) Move the above-created new file to the new directory under a different name. Does the moving action change the file permissions such that readable writable executable?

```
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ ls -l
total 72
-rw-rw-r-- 1 ibab ibab 56144 Aug  8 15:32 lab7.pdf
-rw-rw-r-- 1 ibab ibab   31 Aug  8 16:50 mfile
drwxrwxr-x 2 ibab ibab 4096 Aug  8 17:47 newdir
drwxrwxr-- 2 ibab ibab 4096 Aug  8 17:16 newdr
-rw-rw-r-- 1 ibab ibab    0 Aug  8 16:15 newfile
-rw-rw-r-- 1 ibab ibab    0 Aug  8 16:31 nfile
drw-rw-r-- 2 ibab ibab 4096 Aug  8 17:24 nksk
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ mv lab7.pdf newdir/labchange.pdf
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7$ cd newdir
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7/newdir$ ls -l
total 56
-rw-rw-r-- 1 ibab ibab 56144 Aug  8 15:32 labchange.pdf
ibab@IBAB-MSc-BDB-Comp03:~/lab/Lab7/newdir$ |
```

(Snap No.12)

No it doesn't change the file permission it remains same after the moving the file in to different directory