



Royal University of Bhutan

LESSON – 12

MANAGING FILE PERMISSION

LEARNING OUTCOMES

- Manage basic permission of file
- Explain permission of file
- Apply read, write and execute permissions to the file

MANAGING FILE PERMISSION

- File Mode or Permission Types:
 - Three types of mode: **read (r)**, **write(w)**, **execute(x)**
 - One additional symbol (-) which is no permission

Permission	Applied to Files	Apply to Directory
Read (r)	Open a file	List contents of directory
Write (w)	Change contents of a file	Create and Delete files and modify permission on file
Execute (x)	Run a program file	Change to the directory

MANAGING FILE PERMISSION

- Applying Read, Write, and Execute Permission:
 - Three sets of read (r), write(w), execute(x) is represented as 9 bits **rw xrwx** which is represented as first **3 bits rw x for user**, **second 3 bits** for **group** and **third 3 bits for other**.

MANAGING FILE PERMISSION

- The 10 bits file permission position

position	1	2-4	5-7	8-10
Function	File type identification	User owner	Group owner	Others
Example	-	rwX	r-X	r - -
Meaning	Regular file	User has full permission	Group has read and execute permission but no write permission	Other has only read permission.

MANAGING FILE PERMISSION

- **CHANGING FILE ACCESS PERMISSION :**

- It allows you to change file[s]
- Command used to change the permission is using chmod command

- **CHANGE MODE: chmod**

```
[root@Server1 ~]#chmod 744 myfile
```

```
[root@Server1 ~]#chmod u+x myfile1
```

```
[root@Server1 ~]#chmod ug+x myfile2
```

```
[root@Server1 ~]#chmod ug+x, o-rwx myfile3
```

MANAGING FILE PERMISSION

- **CHANGING FILE ACCESS PERMISSION :**

- Two methods of changing file permission

- A. Symbolic method**

1. Setting explicit permission
2. Any kind of combination

- A. Numeric method**

MANAGING FILE PERMISSION

1. Setting explicit permission

chmod u=rw first.c:

- Grant the user owner read/write permission.

2. Any kind of combination

chmod u=rw,g=rx,o=x first.c

- Gives the user owner read/write permission, group owner read/execute and others execute permission.

chmod ug=rw, o=x filename

- Give the user owner and group owner read/write permission and others execute permission.

MANAGING FILE PERMISSION

B. Numeric method - Change permission by Numeric method

- It uses a three-digit mode number:
 - First digit = user, Second digit = group, Third digit = other
 - The digit are determined by the octal values as
 - read(r) has $2^2=4$,
 - write(w) has $2^1=2$ and
 - execute(x) has $2^0=1$

which gives total of rwx = 7 (full permission)

Example:

```
chmod 755 /somedir
```

CHANGE PERMISSION BY NUMERIC METHOD

OCTAL	BINARY	Explanation
0	000	- - -
1	001	- - X
2	010	- W -
3	011	- WX
4	100	r - -
5	101	r - x
6	110	r w -
7	111	rwX

● For Example; File permission 777 means

- User owner (rwx)=111=7
- Group owner (rwx)=111=7
- Others (rwx)=111=7

Similarly, File permission 754 means:

- User owner has full permission
- Group owner has 110, read and execute permission only, and
- Others have permission only

ACTIVITY I

- Managing basic permission :
 1. Set the permissions to enable the user and group owners to write files to the directories created in previous activity, and deny all access for all others. [Dir1 to user1 and group1, and Dir2 to user2 and group2]
 2. Switch user to user2 and change directory to Dir1. Use touch emptyfile to create file in this directory. Does this work?
 3. Still in user2, change directory to Dir2 and create emptyfile in it. Does this work?

SUMMARY

- In this lesson, you have learnt that:
 - The permission works in three mode; read, write and execute.
 - The file permission can set in two ways.
 - The file permission can be changed by using chmod command