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## Chmod Numeric Permissions Notation UNIX / Linux Command

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Can you provide more information about chmod command octal mode number notation?

The command chmod changes the file mode bits of each given file according to mode, which can be either a symbolic representation of changes to make, or an octal number representing the bit pattern for the new mode bits. chmod never changes the permissions of symbolic links; the chmod system call cannot change their permissions. This is not a problem since the permissions of symbolic links are never used. However, for each symbolic link listed on the command line, chmod changes the permissions of the pointed-to file. In contrast, chmod ignores symbolic links encountered during recursive directory traversals.



[1]

## UNIX / Linux chmod command

A bit mask created by ORing together zero or more of the following:

Octal Mode Number	Description
0400	Allows the owner to read
0200	Allows the owner to write
0100	Allows the owner to execute files and search in the directory
0040	Allows group members to read
0020	Allows group members to write
0010	Allows group members to execute files and search in the directory
0004	Allows everyone or the world to read
0002	Allows everyone or the world to write
0001	Allows everyone or the world to execute files and search in the directory
1000	Sets the sticky bit
2000	Sets the setgid bit
4000	Sets the setuid bit

First digit in the above mode number is used to set setuid, setgid, or sticky bit. Each remain digit set permission for the owner, group, and world as follows:

1. 4 = r (Read)
2. 2 = w (Write)
3. 1 = x (eXecute)

So you end up creating the triplets for your user by adding above digits. For e.g.

- To represent rwx triplet use 4+2+1=7
- To represent rw- triplet use 4+2+0=6
- To represent r-- triplet use 4+0+0=4
- To represent r-x triplet use 4+0+1=5

To only give full permission to user, use it as follows:

```
chmod 0700 file.txt
```

- 0 - Use set setuid, setgid, or sticky bit
- 7 - Full permission for owner (rwx = 4+2+1=7)
- 0 - Remove group permission (--- = 0+0+0=0)
- 0 - Remove world permission (--- = 0+0+0=0)

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