

Mastering File Permissions with chmod

As a Unix or Linux user, managing file permissions is crucial to data security and file accessibility. With the help of the 'chmod' command, you can control access rights and read, write, or execute permissions to files and directories. Here are some basic and symbolic mode permissions you should know.



```
SLNIN .SYS 12P 20-Dec-85  VH .SYS 3P 13-Aug-86
XL .SYS 4P 20-Dec-85  LD .SYS 8P 23-Aug-86
SP .SYS 8P 13-Aug-86  NL .SYS 5P 13-Aug-86
RT11SJ.SYS 78P 13-Aug-86  DU .SYS 8P 13-Aug-86
NL .SYS 2P 13-Aug-86  TT .SYS 2P 13-Aug-86
SO .SYS 5P 21-May-85  WLQ2DC.SYS 71P 21-Nov-84
BASIC.SAV 56 24-May-79  BINCOM.SAV 24 20-Dec-85
DATE.SAV 4 20-Dec-85  DIR .SAV 19 20-Dec-85
DUMP.SAV 9 20-Dec-85  DUP .SAV 47 20-Dec-85
TSXMOD.SAV 78 27-Nov-82  FORTA.SAV 206 21-May-85
HARRIS.SAV 41 12-Jun-85  LET .SAV 5 20-Dec-85
START .FSG 2 21-Dec-81  RETNO .OBJ 1519P 16-May-88
ENIA .STN 19P 02-Feb-83  TSXCL.TSX 22 07-Mar-82
STAND .LIN 12P 15-Aug-83  TSXV6 .NSC 1P 04-Sep-85
ENIB .STN 19 11-Feb-83  JREFLP.SAV 30 08-Mar-86
EXFLP.FOR 3 08-Mar-86  RT11FB.SYS 93P 20-Dec-85
AMMOD.SAV 38 18-Apr-83  TSXP23.MEM 1200P 27-Nov-82
DUO .DIR 18 16-Jul-86  DL .DIR 7 16-Jul-86
DIR .DIF 26 16-Jul-86  DEHDFC.OBJ 1 16-Jul-86
DEHDFC.OBJ 1 -BAD-  EVAN .ID 1
114 Files, 5549 Blocks
14433 Free blocks
.08
```

Basic Permission Settings

First Digit

Owner's permissions

Second Digit

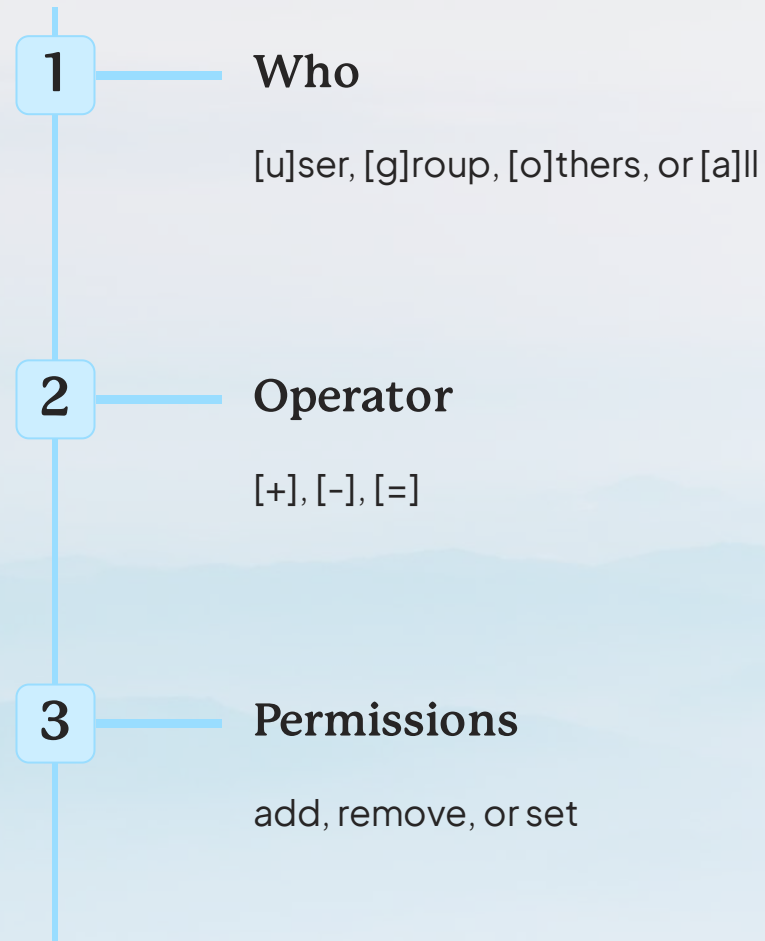
Group's permissions

Third Digit

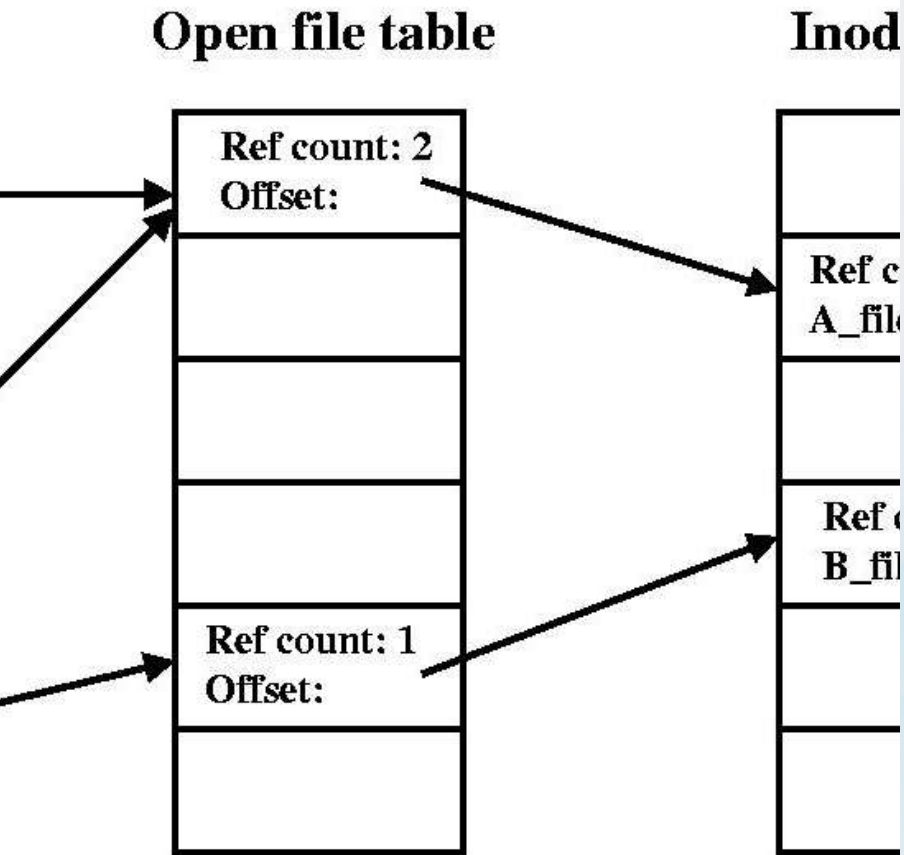
Others' permissions

The first digit corresponds to the owner's permission, the second digit to the group, and the third digit to others. Each digit is a sum of values. The values **4**, **2**, and **1** correspond to read, write, and execute permission, respectively.

Symbolic Mode Permissions



Symbolic mode is an alternative way to modify permissions. The **u** option stands for users, the **g** option for groups, the **o** option for others, and **a** option for all. You can use the operator '+' to add permissions, '-' to remove permissions, and '=' to set permissions. For example, `chmod g+w file.txt` adds write permission to the group.



Managing Processes with ps

The 'ps' command displays information about the processes running on your computer. It can be used to monitor processes, identify resource hogs, and terminate misbehaving applications. Here's how to use 'ps':

1. `$ ps`: Lists all running processes in the current terminal session.
2. `$ ps -ef`: Displays full information about all running processes, including parent-child relationship.
3. `$ ps pid`: Shows information about the process with the ID 'pid', where 'pid' is the process ID.

desc

Advanced ps Options

1 -a

Shows information about all users, not only the current user.

2 -x

Shows information about processes that do not have a terminal

3 -u

Displays additional information such as CPU and memory usage.

4 -e

Displays more extended information about processes.

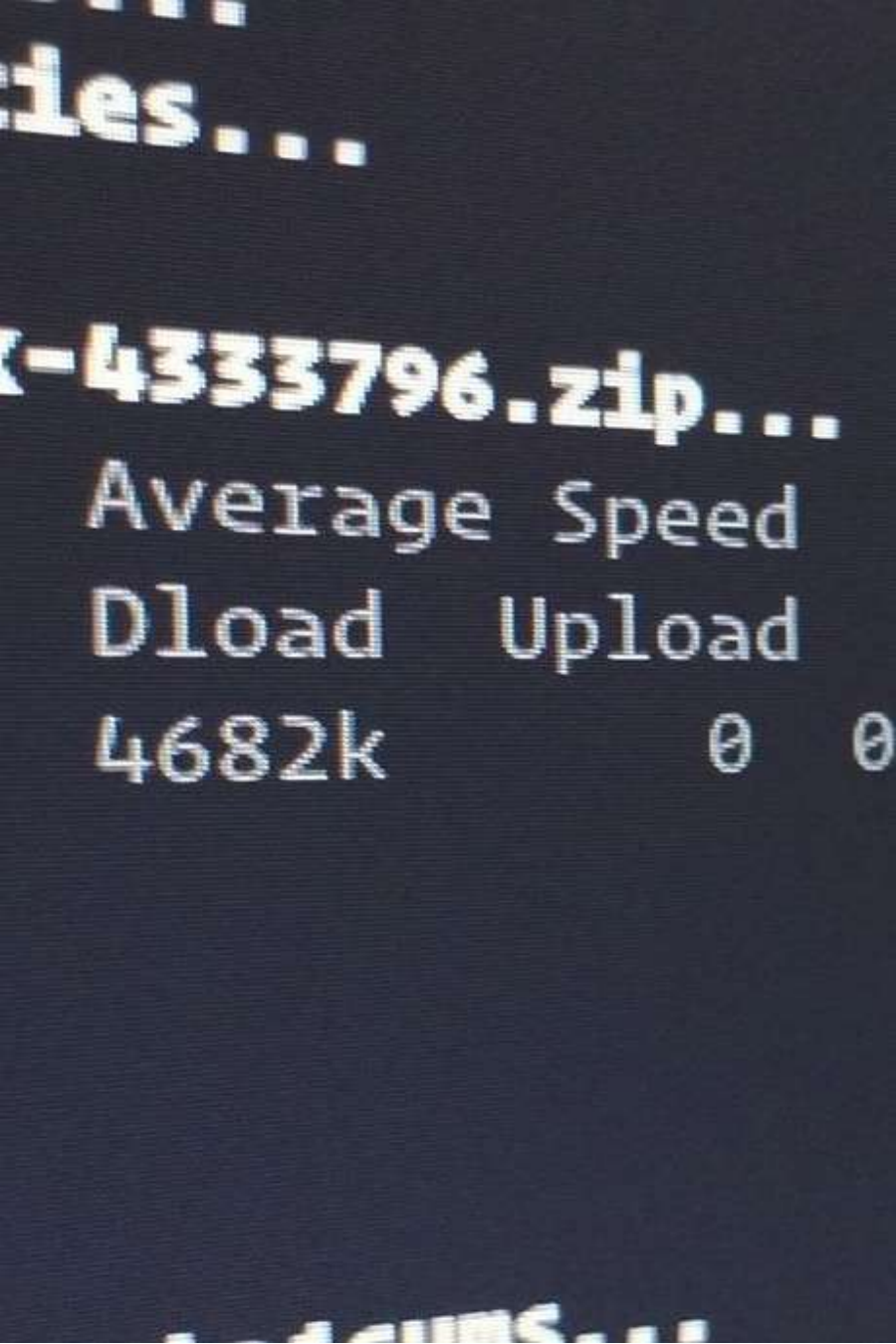
These options allow you to customize the output of 'ps' and retrieve more detailed information.



Monitoring Disk Usage with df

To keep track of the disk space usage on your computer, use the 'df' command. Here are some simple ways you can use 'df':

1. `$ df`: Lists available disk space on all file systems.
2. `$ df -h`: Displays disk space in human-readable format.



Checking Disk Space Usage with du

If you want to find out how much space a particular file or directory is taking up, use the 'du' command. Here's how:

1. `$ du file.txt`: Shows the space occupied by the file 'file.txt'
2. `$ du -h dir`: Shows the size of the 'dir' directory and its contents in human-readable format.
3. `$ du -s dir`: Shows the total size of the 'dir' directory and not the individual files or directories inside it.

Useful Options with du

1 -h

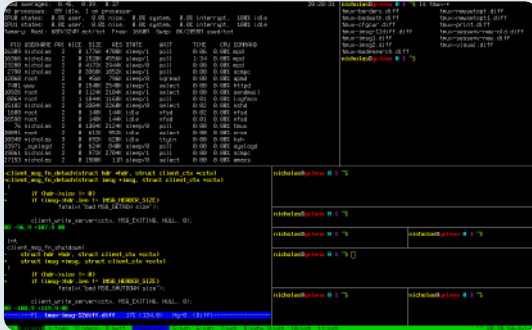
Displays sizes in a human-readable format.

2 -s

Shows the total size of the specified directory instead of the sizes of individual files within it.

These options can make reading 'du' output more straightforward and faster.

Conclusion



Command Line Interface

Mastering Unix commands requires practice.

Paying attention to file permissions, process management, and disk usage is essential for keeping your Unix or Linux system performing at its best. A good understanding of these commands will help you optimize your system, allocate resources more efficiently, and improve security.



Performance Monitoring

Use the right tools to monitor resource usage.



Storage Management

Keep track of your file system space with disk utilities.