

Figure 1: File Permissions in Linux

Linux permissions are a core component of the operating system's security model, controlling who can **read**, **write**, or **execute** files and directories as shown in figure 1. You can modify these permissions using the **chmod** command.

The Three Permissions Groups (Who gets access?)

Class	Meaning
User (u)	Owner of the file
Group (g)	Users in the same group
Other (o)	Everyone else

File Permissions

- ◆ In Linux, file permissions control who can:
 - ◆ Read a file
 - ◆ Write (modify) a file
 - ◆ Execute a file (run it as a program)
- ◆ This is a security system that protects files from unauthorized access
- ◆ Each file or directory has three basic permissions:



Permission	Symbol	Meaning
Read	r	View file contents
Write	W	Modify or delete file
Execute	X	Run the file as a program

How to Check the Permission of Files in Linux

- ◆ To see the permission setting for a file, we can use the **ls -l** command as shown in figure 2, and 3.

```
cbs@yourfullname:~/Desktop$ ls -l
total 16
drwxrwxr-x 3 cbs cbs 4096 Feb 13 23:56 A1
-rw-rw-r-- 1 cbs cbs 0 Feb 14 01:03 cybersecurity
```

Figure 2: The `ls -l` command in Linux is used to display files and directories in long format

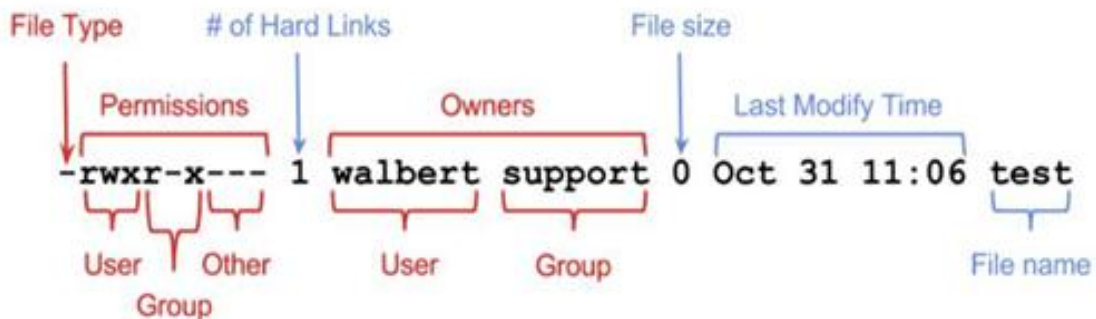


Figure 3: More Information



File Permission: Operation Chart

Operators	Definition
`+`	Add permissions
`-`	Remove permissions
`=`	Set the permissions to the specified values

How to Change Permissions in Linux

Scenario

1. The A1 directory grants the owner and the group full permission, allowing them to read, write, and execute. Other users have read and execute permissions, but do not have write access.
2. The Cybersecurity file allows the owner and the group to read and write, but not to execute. Other users are granted read-only access, without permission to write or execute

```
cbs@yourfullname:~/Desktop$ ls -l
total 16
drwxrwxr-x 3 cbs cbs 4096 Feb 13 23:56 A1
-rw-rw-r-- 1 cbs cbs  0 Feb 14 01:03 cybersecurity
```

Case 1: Remove read permission from the owner of the file.

Case 2: Grant read permission from the Owner of the cybersecurity file

Case 3: Remove read permission from the owner of the file cybersecurity.

Case 4: Add writing and executing permissions from the others of the cybersecurity file.

