

Learning Objectives

After completing this lab, you will be able to:

- Understand the various access permissions a file or directory can have
- View the permissions for all files and directories within a directory
- Modify permissions for a file by user
- Describe the effect of changing permissions on a directory

1.1 View file access permissions

```
theia@theia-rajendraabro:/home
/project$ cd /home/project
wget
https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-LX0117EN-SkillsNetwo
rk/labs/module%201/usdoi.txt
--2025-12-24 10:58:39--
https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-LX0117EN-SkillsNetwo
rk/labs/module%201/usdoi.txt
Resolving cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud
(cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud)... 169.63.118.104,
169.63.118.104
Connecting to cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud
(cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud)|169.63.118.104|:443...
connected.
HTTP request sent, awaiting response... 200 OK
Length: 8121 (7.9K) [text/plain]
Saving to: 'usdoi.txt.1'

usdoi.txt.1  0%    0  --usdoi.txt.1 100%  7.93K  --.-KB/s   in 0s

2025-12-24 10:58:39 (2.43 GB/s) - 'usdoi.txt.1' saved [8121/8121]

theia@theia-rajendraabro:/home
/project$ ls -l usdoi.txt
-rw-r--r-- 1 theia users 8121 Sep 28  2022 usdoi.txt
```

Permission	Symbol
read	r
write	w
execute	x

To see the permissions currently set for a file, run the `ls` command with the `-l` option.

For example, to see the permissions for the file named `usdoi.txt`

1.2 Change file access permissions

The `chmod` or *change mode* command lets you change the permissions set for a file.

Specify which permissions to change with a combination of the following characters:

Option	Description
r, w, x	Permissions: read, write, and execute
u, g, o	User categories: user, group, and all others
+, -	Operations: grant and revoke

change permissions

```
theia@theia-rajendraabro:/home/project$ chmod -r usdoi.txt
```

CHECK with ls-l

```
theia@theia-rajendraabro:/home/project$ ls -l usdoi.txt
--w----- 1 theia users 8121 Sep 28 2022 usdoi.txt
```

To grant read access to *all users* on `usdoi.txt`

```
theia@theia-rajendraabro:/home/project$ chmod +r usdoi.txt
```

changed permissions with `ls-l`

```
theia@theia-rajendraabro:/home/project$ ls -l usdoi.txt
-rw-r--r-- 1 theia users 8121 Sep 28  2022 usdoi.txt
```

to remove the read permission only for 'other' category,

```
theia@theia-rajendraabro:/home/project$ chmod o-r usdoi.txt
```

changed permissions with `ls-l`

```
theia@theia-rajendraabro:/home
/project$ ls -l usdoi.txt
-rw-r----- 1 theia users 8121 Sep 28  2022 usdoi.txt
```

Exercise 2 - Understanding directory access permissions

Directory Permission	Permissible action(s)
<code>r</code>	list directory contents using <code>ls</code> command
<code>w</code>	add/remove files or directories from directory
<code>x</code>	enter directory using <code>cd</code> command

create a new directory called `test`

```
theia@theia-rajendraabro:/home/project$ 00m$ cd /home/project  
mkdir test
```

Permissions(`chmod u+x test,chmod u-w test` to restore)

```
/project$ ls -l  
total 20  
drwxr-sr-x 2 theia users 4096 Dec 24 11:29 test  
-rw-r----- 1 theia users 8121 Sep 28 2022 usdoi.txt  
-rw-r--r-- 1 theia users 8121 Sep 28 2022 usdoi.txt.1
```

2.2 Remove user execute permissions on your `test` directory

```
theia@theia-rajendraabro:/home  
/project$ chmod u-x test
```