

Assignment 7 – Linux file/dir permissions

Question 1: Linux file/dir permissions

In Linux, each file/dir has its access control list (ACL). That's what we know as "permissions".

To check permissions:

- one can use "ls -l file" to see a file's permissions
- one can use "ls -ld dir" to see a dir's permissions

To change permissions:

- set "r-----" by "chmod 0400 dir" (4 in oct-num means '100')
- set "-w-----" by "chmod 0200 dir" (2 in oct-num means '010')
- set "--x-----" by "chmod 0100 dir" (1 in oct-num means '001')

Now, run the following cmds and answer questions below.

```
$ mkdir /tmp/dir1
$ touch /tmp/dir1/file1
$ touch /tmp/dir1/file2
```

Answer the questions below:

1.a (2 points) understanding file's 'w' permission

Run the following cmds:

```
$ chmod 0200 /tmp/dir1/file1
$ echo "cs3650" > /tmp/dir1/file1
$ cat /tmp/dir1/file1
```

What do you see?

Write down the output and explain why in 1–2 sentences.

1.b (2 points) understanding file's 'r' permission

Run the following cmds:

```
// following the above question (1.a)
// now "file1" should contain "cs3650"
$ chmod 0400 /tmp/dir1/file1
$ cat /tmp/dir1/file1
$ echo "cs3650" > /tmp/dir1/file1
```

What do you see?

Write down the output and explain why in 1–2 sentences.

1.c (2 points) understanding file's 'x' permission

Run the following cmds:

```
$ chmod 0600 /tmp/dir1/file2
$ echo "cat /tmp/dir1/file1" > /tmp/dir1/file2
$ /tmp/dir1/file2

// add 'x' to "file2"
$ chmod 0700 /tmp/dir1/file2
$ /tmp/dir1/file2
```

What do you see?

Write down the output and explain why in 1–2 sentences.

1.d (2 points) understanding 'w' of dir

Run the following cmds:

```
$ chmod 0500 /tmp/dir1
$ ls /tmp/dir1
$ touch /tmp/dir1/file3
```

What do you see?

Write down the output and explain why in 1–2 sentences.

1.e (2 points) understanding 'r' of dir

Now, run the following cmds:

```
$ chmod 0300 /tmp/dir1
$ ls /tmp/dir1
$ touch /tmp/dir1/file3
```

What do you see?

Write down the output and explain why in 1–2 sentences.