Filename: comptia-linuxxk0004-3-1-1-managing_file_permissions
Show Name: CompTIA Linux+ (XK0-004)
Topic: Managing Permissions and Ownership
Episode Name: Managing File Permissions
Description: In this episode, Zach and Don tackle file permissions in Linux. They explain how permissions are represented in the CLI and then show how they can be modified using utilities like chmod, chown and chgroup. They also explain how default permissions are calculated by defining a umask value.

Managing File Permissions

[?] How do we see what file permissions are set on a file?

Viewing Permissions

```
ls -l
```

Identities

Letter	Identity
u	User
g	Group
o	Others

Permissions

Symbol	Permission
-	None
r	Read
w	Write
x	Execute

[?] Weren't the permissions set with numbers in the past?

Numerical Values

Number	Attribute
4	Read
2	Write
1	Execute

Numerical Notation

Notation	Permissions
0	None
1	Execute
2	Write
3	Write and Execute
4	Read
5	Read and Execute
6	Read and Write
7	Read, Write and Execute

[?] How do we modify the permissions?

- `chmod`
    - Assign/remove permissions
    - Typical default:
        - `rwxr-xr-x`
        - `755`

    - `chmod u+x <file>`
    - `chmod u=rwx,g-rx,o+r <file>`
    - `chmod -R 755 <folder>`

[?] Where do the default permissions come from?

- umask
    - Sets default permissions for new file
    - `/etc/profile` for all users
    - `~/.bashrc` for one user
- Typical Default
    - Typical: `umask 022`
    - Files
        - `rw-rw-r--`
        - `664`
    - Folders
        - `rwxrwxr-x`
        - `775`

[?] Do we use the same numerical notation with umask?

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umask Values

Value	Result
0	Read, Write and Execute
1	Read and Write
2	Read and Execute
3	Read Only
4	Write and Execute
5	Write Only
6	Execute Only
7	no Permissions

[?] How do we define who the owner or group is?

- `chown`
    - Change the owner of a file
    - `chown <user> <file>`
    - `chown <user>:<group> <file>`
- `chgrp`
    - Change the group of a file
    - `chgrp <group> <file>`