Special File Permissions

Objectives:

At the end of this episode, I will be able to:

1. View and modify UNIX-style permissions from the terminal.
2. View and modify macOS ACL permissions from the terminal.
3. Describe the metadata and the AppleDouble metadata file structure.

> Additional resources used during the episode can be obtained using the download link on the overview episode.

- List permissions

    - `ls -l <directory>`

- Modifying Permissions

    - Modify permissions: `chmod <permissions> <directory>`
    - Example #1

        - `chmod g+w ./file.txt`
        - Adds write permissions to the group

    - Example #2

        - `chmod go-r ./file.txt`
        - Removes read permissions from group and other

    - Example #3

        - `chmod -R go+r ./tmp`
        - Adds read access for group and other for ./tmp and all files/folders within it
        - Recursive

    - Example #4

        - `chmod u=rwx,go=rx ./script.sh`
        - Grants read/write/execute permissions to the file owner
        - Grants read/execute permissions to the group and everyone else

    - Example #5

        - `chmod +r ./file.txt`
        - Grants read permissions to everyone for the file

- Changing the owner/group

    - `chown <owner>:<group> file.txt`
    - `chown donpezet:admin secret.txt`
    - To modify a folder and all child objects, use -R
    - `chown -R donpezet:staff /Users/donpezet/Music`

- Access Control Lists

    - View extended permissions (ACLs)

        - `ls -le`

    - Add permissions

        - `chmod +a "username allow read,write" file.txt`

- Remove permissions

    - `chmod -a "username allow read,write" file.txt`

- File Metadata

    - Additional information about a file
    - Some file formats can store it internally

        - PDF
        - MP3
        - MP4
        - PNG
        - GIF

    - Apple can store the metadata externally also
    - Spotlight searches are able to find files based on metadata
    - Use *Get Info* on a file to view its metadata
    - For files stored on a Mac OS Extended Volume the metadata is stored in extended file attributes
    - Use `ls -l@` in the terminal to view them

- AppleDouble Metadata

    - For files stored on FAT/ExFAT Volumes, the metadata is stored in a separate file.
    - Separate file is referred to as AppleDouble Metadata
    - Example

Original File Name	Metadata File Name
File1.txt	._File1.txt
Instrucions.pdf	._Instructions.pdf