Default File Permissions

Objectives:

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

1. Describe the default file permissions created automatically by macOS.
2. Describe the function and purpose of the "Shared" folder in a user's home directory.
3. Repair damaged permissions using the Disk Utility.

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

- Home Folder Structure

    - Read access is granted to parts of a user's home folder by default
    - Designed to facilitate sharing data
    - Users should be aware of the default settings
    - [Default Home Folder Permissions][]
    - Permissions of note:

        - Everyone has *read* permissions to a user's home folder (including guest)
        - Everyone has *read* permissions on the Public folder
        - Everyone has *write* permissions on the Drop Box folder, but not *read* permissions
        - All other folders are secured to the user
        - It is important that private documents not be stored in the users root home folder

- The Shared folder

    - A default "Shared" folder is provided to allow users to exchange data
    - /Users/Shared
    - All users have read/write permissions on the folder
    - However, special permissions are applied that prevent one user from deleting another user's data
    - Special permission is referred to as the *Sticky Bit*

        - Special directory flag
        - Indicates files in a directory can only be renamed or deleted by the file owner, or root
        - Used in shared folders with multiple user's data
        - Each user can copy their own data in
        - Each user can read everyone else's data
        - Each user can only delete/rename their own data
        - e.g. /tmp
        - Terminal Commands

            - `chmod -R +t <directory>`
            - `ls -l <directory>`

        - Example without sticky bit:

            - `drwxr-xr-x 2 donpezet staff 68 Feb 15 21:00 temp`

        - Example with sticky bit:

            - `drwxr-xr-t 2 donpezet staff 68 Feb 15 21:00 temp`

- Repairing Permissions

  - File and Folder permissions can become damaged

    - Improper user actions
    - Target mode
    - Backup/Restore
    - Malicious software

  - Permissions can easily be repaired
  - Disk Utility

    - Disk Utility can be used to scan the entire disk and repair permissions wherever they deviate from Apple's best practices
    - `Disk Utility -> Select Volume -> First Aid`

- Removable Media

  - USB sticks, thunderbolt hard drives, etc
  - Move from computer to computer
  - Makes tracking an owner very difficult
  - Owner may not exist on other systems
  - UID of owner may be assigned to another account
  - As a result, permissions are not terribly useful on removable media
  - Apple disables ownership on removable and non-system internal disks by default
  - Can be changed

    1. Select the removable disk
    2. `Command-I`
    3. Check/Uncheck "Ignore ownership on this volume"

  - Effectively kills permissions on the disk
  - Allows all users access to the media

Default Home Folder Permissions

```
rwxr-xr-x   /Users/donpezet
rwxr-----   /Users/donpezet/Desktop
rwxr-----   /Users/donpezet/Documents
rwxr-----   /Users/donpezet/Downloads
rwxr-----   /Users/donpezet/Library
rwxr-----   /Users/donpezet/Movies
rwxr-----   /Users/donpezet/Music
rwxr-----   /Users/donpezet/Pictures
rwxr-xr-x   /Users/donpezet/Public
rwx-wx-wx   /Users/donpezet/Public/Drop Box
```