



# Chapter 5: File Manipulation Commands



# Essential File Management Commands

- ls - list files in a directory
- cp – copy files and directories
- mv – move and/or rename files and directories
- rm – remove files and directories
- mkdir – make new directories
- rmdir – remove empty directories



# The Is Command

- Lists files in a directory
- Defaults to current directory
- Common options:
  - -a shows all files, including hidden files
  - -S sorts output by file size
  - -t sorts by time stamp
  - -r reverses the sort
  - -R shows files recursively
  - -d displays directories, not their contents



# ls -l

- The -l (long) option displays a long, detailed listing
- Output includes:
  - File type and permissions
  - Hard link count
  - User owner
  - Group owner
  - File size
  - Timestamp
  - File name



# The file Command

- Displays what type of data the file contains
- Important because:
  - many Linux commands require data that is text-based, not binary
  - unknowingly opening or viewing a binary file may cause a terminal or window to “hang” forcing a reset



# The touch Command

- The `touch` command performs one of two actions:
  - 1) Updates the timestamp of an existing file.
    - \* Defaults to updating modification timestamp
    - \* `-a` will update access timestamp
    - \* `-c` will update attribute change timestamp
  - 2) Creates a new file(s) if the file name argument(s) doesn't/don't already exist
- Some applications require a file(s) to exist before they can be written to
- Great to create files to experiment with



# The stat Command

- The `stat` command will display information about a file, including all three timestamps

```
$ stat test/alpha.txt
```

```
File: 'test/alpha.txt'
```

```
Size: 390 Blocks: 8 IO Block: 4096 regular file
```

```
Device: 58h/88d Inode: 13987 Links: 1
```

```
Access: (0644/-rw-r--r--) Uid: ( 1001/sysadmin) Gid: ( 1001/sysadmin)
```

```
Access: 2014-09-23 13:52:03.070012387 +0000
```

```
Modify: 2014-09-18 22:25:18.000000000 +0000
```

```
Change: 2014-09-23 13:52:03.070012387 +0000 Birth: -
```



# The cp Command

- The `cp` command will copy a file  

```
$cp old_file new_file
```
- To copy multiple files:  

```
$cp /data/* ~
```
- Use the `-v` option to verify files that are copied
- To copy a directory, use the `-r` option



# The mv Command

- The `mv` command will move a file  

```
$mv old_file new_file
```
- To move multiple files:  

```
$mv /data/* ~
```
- To move a directory requires no special option



# The rm Command

- The `rm` command will permanently delete a file:

```
$rm my_file
```

- Use the `-i` (interactive) option with wildcards to avoid accidentally removing files:

```
$rm -i *.txt
```

- Use the `-r` (recursive) option to delete directories

```
$rm -r my_dir
```



# The `mkdir` and `rmdir` Commands

- The `mkdir` command will create a directory  

```
$mkdir mydir
```
- Use the `-p` option to create entire path:  

```
$mkdir mydir/data
```
- The `rmdir` command will delete an empty directory  

```
$rmdir mydir
```