Linux Mastery: Master the Linux Command Line

Mastering the Linux Terminal (S3)

Open and Close Terminal

- Keyboard- Shortcut: Ctrl + Alt + t (open), Crtl + d (close)

Our First Commands

- cal → calendar
- history → prev command list
    - o !<number>
    - o history -c; history –w → clear history
- clear shortcut: ctrl + l

Terminals, Commands and Shells

- shell interprets the commands(text) from the terminal

Understanding Command structure

- structure: <commandName> <options> <inputs>
    - o commandName:
        - program you want to run in shell path
        - shell paths: echo $PATH
        - program path: which <commandName>
    - o inputs:
        - not always required or optional
    - o options:
        - can be chained together (eg. -abc)
        - long form with -- (eg. -h or --help)
            - can't be chained together
        - options can have inputs too
- commands are case sensitive

Using Linux Manual - Structure

- manual split into 8 sections

User Commands	Commands that can be run from the shell by a normal user (typically no administrative privileges are needed)
System Calls	Programming functions used to make calls to the Linux kernel
C Library Functions	Programming functions that provide interfaces to specific programming libraries.
Devices and Special Files	File system nodes that represent hardware devices or software devices.

File Formats and Conventions	The structure and format of file types or specific configuration files.
Games	Games available on the system
Miscellaneous	Overviews of miscellaneous topics such as protocols, filesystems and so on.
System administration tools and Daemons	Commands that require root or other administrative privileges to use

Using Linux Manual - Man Pages

- man command: man [options] input
    - –k option gives you a list of manpages the searchterm is contained
        - Access: man <section> <searchTerm>
- Synopsis Symbols:

[THING]	THING is optional.
<THING>	THING is mandatory (required)
THING …	THING can be repeated (limitlessly)
THING1 | THING2	Use THING1 OR THING2. Not Both.
THING	THING [Notice the Italics] Replace THING with whatever is appropriate.

Using Linux Manual - Putting it all together

- Not always manpage available
    - help <commandName>

Command Input and Output

- standard input(0): input for commands as data stream
- command arguments: can't be piped or redirected
- standard output(1): by default appears on terminal screen
- standard error(2): appears in terminal when error happens

Redirection - Standard Output

- redirect output with >
    - overwrites the file
    - append output to file with >>

Redirection - Standard Input + Standard Error

- redirect standard error with: 2>
    - append: 2>>
- both: <command> > <file1> 2> <file2>
    - append: <command> >> <file1> 2>> <file2>
- input: <
- you can also redirect to different terminals (tty to get terminal location)
- https://www.gnu.org/software/bash/manual/html_node/Redirections.html

Piping – Fundamentals

- Piping with: |
    - <command1> [options] [inputs] | <command2> [options] [inputs] | …
    - Second command uses output of first command
    - redirection is processed before pipe in default

Piping - Tee Command

- tee - read from standard input and write to standard output and files
- tee [OPTION]... [FILE]...
    - <command1> [options] [inputs] | tee <filename> | <command2> [options] [inputs]

Piping - Xargs Command

- xargs - build and execute command lines from standard input
    - <command1> [options] [inputs] | xargs <command2> [options] [inputs]
    - Command2 inputs are used before xargs inputs

Aliases

- Specify chain of commands, pipes, etc. under a single alias
- Have to be stored in .bash_aliases in home folder
- Structure: alias <aliasName>='<commands, pipes and co.>'