Linux Module 3 (Revision Series)

Sem 4 BCA/B.Sc. Computer Science MGU

Shell Script

- Files containing Linux commands, comments & control structures.
- Command that can be executed at shell prompt can be included in a shell program.
- Shell provides very useful powerful features for writing shell programs.
- A shell script is a group of commands, functions, variables or commands that can be executed in a shell.
- Default shell is Bourne Again Shell.

Types of Shell

1. Bourne Shell
2. C Shell
3. Korn Shell
4. GNU Bourne Again Shell
5. TC Shell
6. Restricted Shell
7. A Shell
8. Z Shell

Bourne Shell

- Original Unix shell
- Available on all Unix System
- Preferred shell for shell programming because of it’s compactness & speed
- Executable file extension is sh.
- Stored in /bin/sh directory
- Lacks features for interactive use such as ability to recall previous command.
- Also lacks built-in arithmetic & logical expression handling.
- Non-root user default prompt: $
- Root user default prompt: #

C Shell

- Derives its name from C programming language
- Resembles the C programming language in syntax.
- Executable file extension is csh.
- Stored in /bin/csh directory
- Incorporates the features for interactive use such as command history.
- built-in arithmetic & C like expression syntax.
- Non-root user default prompt: %
- Root user default prompt: #

Korn Shell

- Combines features of both Bourne & C shells.
- Executable file extension is ksh.
- Stored in /bin/ksh directory
- Includes convenient programming features like built in arithmetic & C like arrays, functions & string manipulation facilities
- Faster C shell
- Korn shell's command editor interface enable quick effortless correction of typing error.
- Has easy recall & reuse of the command history
- Non-root user default prompt: $
- Root user default prompt: #

Bourne Again Shell (bash)

- Default shell for most of the Linux system
- Public domain shell written by Free Software Foundation under GNU project.
- Provides features of Korn shell & C shell.
- Stored in /bin/bash directory
- Stores command which we used in a session.
- Non-root user default prompt: x.xx$
- Root user default prompt: x.xx#

TC Shell (Tcsh shell)

- Stands for Tom’s C Shell
- Enhancement of C shell
- We can execute TC shell by typing either csh or tcsh
- Available in public domain
- Provides all features of C shell together with emacs style editing of command line

Restricted Shell

- Used to provide limited access on OS by the user
- Typically used for guest users who need limited rights & permissions

A Shell

- Emulates Bourne shell.
- Suitable for computers having limited memory
- Executable filename for A shell is ash

Z Shell

- Offers features of both Tcsh & Korn shell.
- Executable file extension is zsh
- Provides large number of utilities & extensive documentation
- Has useful features like spelling corrections, theming, etc

Steps to create a shell script

- Create file using vi editor & name script file with extension .sh
- Start the script with #!/bin/bash (interpreter name)
- Write the code
- Save the script file
- To execute the script:
    1. Give execute permission for the file using chmod command chmod u+x filename.sh or chmod 777 filename.sh
    2. Run the script by executing bash filename.sh or ./filename.sh

Comparisons of shells

Feature	Bourne	Korn	C	Tcsh	Bash
Background Processing	Yes	Yes	Yes	Yes	Yes
Command History	No	Yes	Yes	Yes	Yes
I/O Redirection	Yes	Yes	Yes	Yes	Yes
Shell Scripts	Yes	Yes	Yes	Yes	Yes
Command Alias	No	Yes	Yes	Yes	Yes
File name completion	No	Yes	No	Yes	Yes
Command Completion	No	No	No	Yes	Yes
Command line editing	No	Yes	No	Yes	Yes
Job Control	No	Yes	Yes	Yes	Yes