

UNIX (Linux) Shell Script (sh, ksh & bash) Beginner's Guide

Duration: 4 days

Develop the skills to effectively program with the Korn shell.

Course Description:

This course is intended to help take you from having a rudimentary knowledge of UNIX shell to being able to automate some tasks under UNIX. There is no system-imposed distinction between typing commands into the shell and writing scripts. The vast majority of the constructs that are discussed in the next 4 days can be used just as easily from the command line as they can from within a script. Once you learn to use these techniques from within scripts you will find uses for them from the command line.

Participants will...

- Understand the basic features and the differences between the various UNIX shells
- Manipulate shell variables to configure your environment
- Create and edit files using the vi editor, Use advanced vi features
- Set execution privileges on scripts
- Understand basic programming constructs
- Create shell variables, Perform shell arithmetic
- Understand the ps command
- Use UNIX job scheduling to automate tasks
- Use conditional logic within scripts
- Execute a series of commands repetitively (loop)
- Put together sets of commands you use in the shell into a script
- Debug your scripts, Use the sed and the awk utility

Who Needs to Attend:

Software developers, power users, system administrators or those who want to increase their productivity in using, or administering their UNIX system or who want to take advantage of Korn shell features when developing software for UNIX systems.

Prerequisites:

Attending an Introductory UNIX course or equivalent experience

Lab Exercises:

1. Redirecting I/O
2. Pipes and Wildcards
3. Job Control and Aliasing
4. Using Variables
5. Editing Text with vi (1) or vedit
6. Searching with Patterns
7. String Substitutions
8. Customizing vi (1)
9. Basic Programming
10. Shell Variables
11. Shell Arithmetic
12. Editing with vi
13. Using the at facility
14. Scheduling
15. Branching
16. Loops
17. Programming with awk(1)

Course Content:

1 INTRODUCTION TO THE UNIX SHELL

- Shell Overview, Shell Options, Shell Features, UNIX variants and shells
- I/O Redirection, Job Control, Background Processing
- Wildcard Characters, Aliases
- Command Line History

2 WORKING WITH SHELL SETTINGS

- Shell Variables, Creating variables and assigning values, Using echo(1) to display variable values, Special Shell Variables, Special Variable Commands
- Viewing current settings, Uses of set(1)

3 EDITING FILES WITH VI

- Controlling Your Login
 - Ksh, bash
 - The ksh(1) ENV variable, Testing your ENV file using exec(1), The sty(1) command
- Using vi(1), vi(1) modes, vi(1) commands, Norming String Substitutions in vi(1), Customizing the vi(1) Environment, ex(1) commands
- Insert Mode, Moving around the file, Modifying text, Colon mode
- Searching and Pattern Matching with Regular Expressions, Regular Expression Meta Characters, Defining a Character Class, Searching with a Character Class
 - The .exrc file

4 THE KORN SHELL AND OTHER UNIX SHELLS

- Features of the Shells
- Bourne Shell (sh), Bourne Again Shell (bash), C Shell (csh), Korn Shell (ksh), ksh88 vs. ksh93, Public Domain Korn Shell (pdksh), The Restricted Shell I
- Login Shell, Changing The Login Shell
- I/O redirection (< > >>), Pipes (|), Wildcards (* ?), Background Processing (&)
- Command Line History, Aliases, Job Control
- UNIX Processes

5 SCRIPT EXECUTION PRIVILEGES

- The x in rwx
- Using chmod(1) To Establish Privileges
- The Impact Of \$PATH On Finding Scripts
- Altering the PATH
- Shell Built-In Commands

6 BASIC PROGRAMMING TECHNIQUES

- Problem Definition
- Problem Breakup
- Component Solution Development
- Program Re-Assembly
- Testing, Testing, Testing
- Embedding Comments In Your Code

7 SHELL VARIABLES

- #
- #! Magic
- Variable Names
- Assigning Values and Attributes
- Attributes
- Functions
- Scoping
- Formatting
- Attribute type setting
- Debugging
- ksh -x scriptname
- Removing User Declared Variables
- Arrays
- Command Substitution
- Quoting
- Built-in variables
- Positional variables

8 STRING OPERATORS

- Background
- Default Values
- Substrings (ksh93 & pdksh)
- Trimming
- Shell arithmetic
- Operators
- Modulus
- Doing Arithmetic
- Built-In Functions

10 ADVANCED EDITING WITH VI

- vi Clones
- Buffers
- Marking Position
- Macros
- Abbreviations
- More vi Options

11 PROCESSES

- The ps(1) command
- ps(1) Options
- Managing Processes
- UNIX Signals
- The kill(1) command
- The killall(1) command
- top(1) and gtop(1) (Linux)
- The nohup(1) command
- Perl Source to signal.pl
- Getting Rid of Pesky Processes
- Pipes and Processes
- Process Priority
- The nice(1) command
- The renice(1) command