

Linux Shell Scripting (NI203)

32 Hours

Outline

This intensive hands-on course will teach one, proper ways to operate fundamentally the GNU/Linux operating system. The course will introduce the various methods; tools and techniques for easily work in environments built on Linux shell. This course provides intensive hands-on exercises using real world applications.

Target Audience

- Members of the System team that would like to automate their tasks.
- Help Desk/Support team would like to automate their install and tasks.
- Developers who would like to get knowledge in operational systems management.
- QA personal who works on testing OS and its capabilities.

Prerequisites

Before attending this course, students should be familiar with the following topics:

- Linux essentials
- Linux fundamentals
- Linux Advance - can be advantage.
- Regular expressions

Objectives

To provide developer, system administrator, DevOps, QA person to enable create small Linux/Unix OS based programs or applications for automation or system management.

Contents

Day 1:

- Editors - VI:
 - command mode and insert mode
 - start typing
 - replace and delete a character
 - Undo and repeat
 - cut, copy and paste a line
 - cut, copy and paste lines
 - start and end of a line
 - join two lines (J) and more
 - words
 - Save (or not) and exit
 - Searching
 - replace all
 - reading files
 - text buffers
 - multiple files

- Scripting introduction:
 - prerequisites
 - hello world
 - she-bang
 - comment
 - variables
 - sourcing a script
 - troubleshooting a script
 - prevent setuid root spoofing

Day 2:

- Looping and branching
 - test [] (())
 - if then else
 - if then Elif
 - for loop
 - while loop
 - until loop

- Parameters and variables
 - Script parameters
 - Shift through parameters
 - Runtime input
 - Sourcing a config file
 - Get script options with getopt
 - Get shell options with shopt.

- Shell functions
 - Definition Syntax
 - Compound Commands
 - Getting Results
 - Set Different Exit Codes
 - Print the Result
 - Place Results in One or More Variables
 - Function Libraries
 - Using Functions from Libraries
 - Sample Script

Day 3:

- String manipulation:
 - Concatenation
 - Repeat Character to a Given Length
 - Processing Character by Character
 - Reversal
 - Case Conversion
 - Comparing Contents Without Regard to Case
 - Check for Valid Variable Name
 - Insert One String into Another
 - Overlay
 - Trim Unwanted Characters

- File operations and commands:
 - Reading a File

 - External Commands
 - cat
 - head
 - touch.ls
 - cut
 - WC

 - Regular Expressions
 - grep
 - Sed
 - AWK

 - File Name Expansion Options
 - NullGlob
 - Failglob
 - Dotglob
 - Extglob
 - nocaseglob
 - Globstar

- Reserved words and built-in commands:
 - help, Display Information About Built In Commands
 - time, Print Time Taken for Execution of a Command
 - read, Read a Line from an Input Stream
 - Eval, Expand Arguments and Execute Resulting Command
 - Poor Man's Arrays
 - Setting Multiple Variables from One Command
 - Type, Display Information about Commands.
 - Built in, Execute a Built in Command
 - command, Execute a Command or Display Information About Commands
 - PWD, Print the Current Working Directory
 - Unalias, Remove One or More Aliases

Day 4:

- Data processing:
 - Arrays
 - Holes in an Indexed Array
 - Using an Array for Sorting
 - Two-Dimensional Grids
 - Data File Formats
 - Line-Based Records
 - Block File Formats
- Scripting the screen:
 - Teletypewriter vs. Canvas
 - Stretching the Canvas
 - CSI: Command Sequence Introducer
 - Priming the Canvas
 - Moving the Cursor
 - Changing Rendition Modes and Colors
 - Placing a Block of Text on the Screen
 - Scrolling Text
 - Rolling Dice

- Entry-Level Programming
 - Single-Key Entry
 - Function Library, Key-Functions.
 - History in Scripts
 - Sanity Checking
 - Form Entry
 - Reading the Mouse