UNIX® and Linux® Tools and Utilities - 4 Days

Course 396 Overview

You Will Learn How To
• Build and use Linux/UNIX tools and utilities
• Perform complex search strings using regular expressions
• Explore extended regular expressions with grep, sed and awk
• Employ text filters to manipulate text and data
• Write shell scripts to automate routine tasks
• Process structured data with awk

Who Should Attend
Those who want to maximize the power of their UNIX/Linux system, who have knowledge of UNIX or Linux at the level of Course 428, "UNIX Comprehensive Introduction," or Course 143, "Linux Comprehensive Introduction."

Hands-On Experience Includes:
• Forming powerful regular expressions for searching text
• Combining filters for text processing
• Refining the output of commands with sed
• Performing complex text selection and manipulation with awk
• Automating simple, repetitive tasks using shell scripts
• Writing shell scripts to customize Linux/UNIX tools
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Course 396 Outline

**Linux and UNIX Fundamentals**

- The evolution of Linux and UNIX
  - Exploring the history of UNIX
  - Examining current Linux/UNIX standards

**Reviewing UNIX commands**

- Manipulating files and directories
- Writing shell start-up files

**Uncovering UNIX documentation**

- Utilizing the `man` command
- Investigating other manual page browsers

**Searching Text with Regular Expressions**

- Working with regular expressions
  - Specifying string patterns for filtering operations
  - The meta character set
  - Developing extended regular expressions

**Implementing the grep command**

- Processing files
- Processing command output

**Filtering Text**

- Defining the characteristics of a filter
  - Reading from standard input
  - Writing to standard output and standard error
  - Combining filters into pipelines to perform complex tasks

**Performing tasks with common filters**

- Editing the output of commands with the stream editor `sed`
- Translating characters with `tr`
- Sorting files and command output
- Comparing different versions of files with `diff`
- Using other common filters: `cut` and `uniq`
- Combining filters for complex text processing
- Executing filter commands with `find`

**Programming with Shell Scripts**

- Writing simple shell scripts
- Storing data in shell variables

**Controlling logic flow**

- Making decisions with `if` and `case`

- Quoting shell commands to control substitutions
- Testing file attributes, strings and numbers
- Reading and testing standard input
- Looping with `for` and `while`
- Accessing the shell's built-in variables

**Integrating other shell features**

- Accepting command-line arguments
- Redirecting standard output
- Substituting command output
- Performing arithmetic in shell scripts
- Scanning for command line options

**Working with tools creatively**

- Combining filters with pipelines and command substitution
- Developing scripts incrementally

**Restructuring Data with awk**

- Establishing awk as a flexible search tool
  - Writing useful `awk` one-liners
  - Testing and extracting fields from structured input
  - Performing arithmetic calculations

**Creating long awk scripts**

- Matching patterns with extended regular expressions
- Modifying `awk`'s default behavior with special patterns and built-in variables

**Extending awk capabilities**

- Using `awk`'s control constructs for testing and looping
- Storing data in arrays
- Formatting output using `printf`
- Searching files with multi-line records

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