

Advanced Linux Shell Scripting

Course Summary

Description

This course presents to the Linux / Unix computer professional (user, systems administrator, application/system programmer) the techniques needed to develop advanced shell and reporting type procedures. The techniques shown are applicable to all Linux system variants.

Objectives

After taking this course, students will be able to:

- Use bash shell, Korn shell and awk capabilities to maintain collections of files and manipulate data
- Implement process communication, synchronization, and data sharing
- Create brief comparisons in techniques and performance
- Understand considerations with Perl

Topics

- Review of (Core) Shell Scripting Features
- Advanced Techniques in Shell Scripts
- Advanced Techniques in Korn Shell Scripts
- awk Scripting Features
- Introduction to Perl Scripting

Audience

This course is designed for the Linux / Unix computer professional (user, systems administrator, and application/system programmer).

Prerequisites

This is an advanced Linux / Unix course. It is assumed that participants either have attended a Linux or Unix Essentials course, or have equivalent command line experience with the bash and/or Korn shells.

Duration

Three days

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Course Outline

- I. Review of (Core) Shell Scripting Features**
 - A. Importance of signatures
 - B. Methods of script execution
 - C. Debugging shell scripts
 - D. Variable types
 - 1. Looping statement constructs
 - 2. Decision statements
- II. Advanced Techniques in Shell Scripts**
 - A. Alternative script execution methods
 - B. Defining a trap step debugger
 - C. Here Document data
 - D. Defining and using functions
 - E. Using string pattern expressions
 - F. Indexed array creation and access
 - G. Option processing with getopt
- III. Advanced Techniques in Korn Shell Scripts**
 - A. Availability of variable data
 - B. Defining and using nameref variables
 - C. Active variables (and tied functions)
 - D. Features of Associative arrays
 - E. Direct control of file I/O (exec, read, print)
 - 1. User-defined file descriptors
 - F. Interprocess communication/synchronization
 - 1. Co-processes
 - 2. Reassignment of file descriptor paths
 - G. TCP and UDP port access
 - 1. Attaching to network listener processes
- IV. awk Scripting Features**
 - A. Importance of signatures
 - B. Methods of script execution
 - C. Patterns and actions
 - D. Output formatting
 - E. Defining and using associative arrays
 - F. The getline() function
 - G. awk supplied function features
 - 1. String handling
 - 2. information
 - 3. callouts for system features
 - 4. arithmetic operations
 - H. Defining and using functions
 - 1. Passing arguments to functions
- V. Introduction to Perl Scripting**
 - A. History, versions, ports
 - B. Perl capabilities
 - C. Comparison with shell scripts