Bash Programming

(3 Days)

This 3-day Bash Programming training class provides a thorough introduction to bash programming by covering topics like shell variables and functions, the login process, using arrays with loops, and debugging techniques such that by the end of the course, students will be able to take full advantage of the bash shell. This course is intended for Linux or UNIX users, programmers, and system administrators.

Goals

Learn to learn to read, write, and debug shell scripts.

Class Prerequisites

Experience in the following *is required* for this Linux class:

- Knowledge of fundamentals of UNIX or Linux.

Outline

Course Introduction

- Course Objectives
- Course Overview
- Using the Workbook
- Suggested References and Reading

UNIX Processes

- What is a Process?
- Process Structure
- The ps Utility
- Options to the ps Utility
- Background Commands (&)
- Killing Background Processes
- Redirecting the Standard Error

Getting Started

- What is a Shell?
- Running Scripts
- Specifying the Script's Interpreter
- The PATH Environment Variable
- Sub-shells

Variables

- Shell Variables
- The read Command
- The export Command
- The Shell Environment
- Parameter Expansion
- Command Substitution

The Login Process

- The Login Process
- The System Profile Script
- Your .bash_profile Script
- The . Command

Conditional Statements

- The Exit Status of Commands
- Command Line Examples
- The test Command
- The if-then-else Construct
- The elif Construct
- case Statements

Loops

- The for Loop
- The while Loop
- break and continue
- Reading Lines From Files
- Using Arrays with Loops

Special Variables

- $$ - PID of Shell
- Command-Line Arguments
- $# - Number of Arguments
- $* - All Arguments
- The shift Command
- The set Command
- Getting Options

Quoting Mechanisms

- Single vs. Double Quotes
- What is a Here Document?
- Using a Here Document
- Here Document Quoting
- Ignoring Leading Tabs

Functions

- Shell Functions
- Passing Arguments to Functions
- Returning Values from Functions
- Function Declarations

Advanced Programming

- Shell Arithmetic
- The select Statement
- Terminal Independence in Scripts
- The eval Command

Debugging Techniques

- Using echo
- Using Standard Error
- Script Tracing
- Options for Debugging
- Conditional Debugging