
Fundamentals of UNIX Administration

Course Length: 5 days

Course Description

Overview: The Fundamentals of UNIX Administration course is training for UNIX users who desire to increase their skill set to include basic UNIX System V Release 4 Operating System-based system administration and/or work effectively in a multi-vendor UNIX local or networked environment. It is not a vendor-specific course, but is based on the most popular of the UNIX variants, Solaris by Sun Microsystems.

Prerequisites: To ensure your success, we recommend you have at least six months experience on a UNIX variant operating environment or first take the following course:

- *Fundamentals of Solaris 8 Operating Environment :*

Delivery Method: Instructor-led, group-paced, classroom-delivery learning model with structured and unstructured, hands-on activities.

Performance-Based Objectives

Lesson objectives help students become comfortable with the course, and also provide a means to evaluate learning. Upon successful completion of this course, students will be able to:

- Customize the Korn Shell environment.
- Build shell scripts in the Korn shell.
- Control the UNIX system.
- Manage UNIX user accounts.
- Manage system software in UNIX.
- Manage file systems in UNIX.
- Troubleshoot the UNIX system.
- Configure the UNIX client/server environment.
- Apply security practices to UNIX systems.
- Improve the UNIX system performance.

Course Content

Lesson 1: Customizing the Korn Shell Environment

- Topic 1A: Locating the Korn Shell Initialization File
 - Task 1A-1: Using UNIX Command Syntax
 - Task 1A-2: Locate the Korn Shell Initialization File
- Topic 1B: Using the vi Editor
 - Task 1B-1: Using the vi Editor
- Topic 1C: Modifying the Korn Shell .profile File
 - Task 1C-1: Modifying the Korn Shell with the .profile File
- Topic 1D: Modifying the Korn Shell .kshrc File
 - Task 1D-1: Modify the Korn Shell using the .kshrc File

Lesson 2: Building Shell Scripts in the Korn Shell

- Topic 2A: Defining Shell Scripting Concepts
 - Task 2A-1: Defining Shell Scripting Concepts
- Topic 2B: Using if Statements to Execute Commands
 - Task 2B-1: Using if Statement in a Shell Script
- Topic 2C: Creating a Loop to Execute Commands
 - Task 2C-1: Creating a for Loop
- Topic 2D: Using the sleep Command in the Korn Shell Script
 - Task 2D-1: Using the sleep Command in the Korn Shell Script
- Topic 2E: Combining Statements to Create a Basic ShellScript
 - Task 2E-1: Combining Statements to Create a Shell Script
- Topic 2F: Using the tr Command to Translate Letters
 - Task 2F-1: Using tr Command to Translate Letters
- Topic 2G: Using the case Statement
 - Task 2G-1: Using the Case Statement
- Topic 2H: Creating a Custom Function
 - Task 2H-1: Creating a Custom Function
- Topic 2I: Using the sed and awk Commands
 - Task 2I-1: Creating a Report with awk

Lesson 3: Controlling the UNIX System

- Topic 3A: Becoming the Root User
 - Task 3A-1: Becoming the Root User
- Topic 3B: Signaling a Process
 - Task 3B-1: Signaling a Process to Start
- Topic 3C: Controlling Multiple Processes
 - Task 3C-1: Running Multiple Processes
- Topic 3D: Relocating Files and Directories
 - Task 3D-1: Relocating a Directory
- Topic 3E: Archiving Files and Directories
 - Task 3E-1: Archiving Files with the tar Command
- Topic 3F: Restoring Files and Directories
 - Task 3F-1: Extracting an Archived File

Lesson 4: Managing User Accounts

- Topic 4A: Creating User Accounts
 - Task 4A-1: Creating a User Account
- Topic 4B: Modifying User Account Database
 - Task 4B-1: Modifying User Account Database
- Topic 4C: Deleting User Accounts
 - Task 4C-1: Deleting User Accounts
- Topic 4D: Customizing Initialization Files
 - Task 4D-1: Customizing the Korn Shell Initialization File

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- Topic 4E: Controlling User Directory Space Usage
 - Task 4E-1: Establishing a Directory Space Quota
 - Topic 4F: Adding Group Account with Groupadd Command
 - Task 4F-1: Adding a Group Account with Groupadd Command

Lesson 5: Managing System Software

- Topic 5A: Adding Software Packages
 - Task 5A-1: Adding the a2ps Software Package
- Topic 5B: Determining Software Package Status
 - Task 5B-1: Determining SUNWns6 Software Package Status
- Topic 5C: Removing Software Packages
 - Task 5C-1: Removing Software Packages
- Topic 5D: Administering Software Patches to Software Packages
 - Task 5D-1: Locating Software Patches
 - Task 5D-2: Adding a Software Patch
 - Task 5D-3: Removing a Software Patch
- Topic 5E: Upgrading Software Packages at the Command Line
 - Task 5E-1: Upgrading the proftpd Software Package from the CommandLine
 - Task 5E-2: Upgrading Software Packages from a GUI

Lesson 6: Managing File Systems

- Topic 6A: Creating a File System
 - Task 6A-1: Creating a File System with newfs
- Topic 6B: Backing Up the File System
 - Task 6B-1: Scheduling a File System Backup
- Topic 6C: Restoring Data
 - Task 6C-1: Restoring Data
- Topic 6D: Recovering Data
 - Task 6D-1: Recovering Data
- Topic 6E: Creating a File System Backup Strategy
 - Task 6E-1: Creating a File System Backup Strategy

Lesson 7: Troubleshooting the System

- Topic 7A: Using the System Logs to Investigate Problems
 - Task 7A-1: Using the System Logs to Investigate Problems
- Topic 7B: Using Error Messages to Identify When Errors Occur
 - Task 7B-1: Using Error Messages to Identify When Errors Occur
- Topic 7C: Setting Up the Log Configuration Files
 - Task 7C-1: Setting Up a Log Configuration File
- Topic 7D: Running a System Check
 - Task 7D-1: Running a System Check

Lesson 8: Configuring the Client/Server Environment

- Topic 8A: Configuring a TCP/IP Client
 - Task 8A-1: Configuring the TCP/IP Client
- Topic 8B: Editing the Name Service Switch (NSS) File
 - Task 8B-1: Editing the NSS File to Use DNS First
- Topic 8C: Configuring Network File Systems (NFS)
 - Task 8C-1: Configuring NFS to Share
- Topic 8D: Connecting to a Remote Host
 - Task 8D-1: Connecting to a Remote Host
- Topic 8E: Copying Files Using Remote System Administration
 - Task 8E-1: Copying Files Using Remote System Administration
- Topic 8F: Troubleshooting Connectivity Failures
 - Task 8F-1: Troubleshooting Connectivity Failures

Lesson 9: Applying Security Practices to UNIX Systems

- Topic 9A: Authenticating and Authorizing Users for Restricted Shells
 - Task 9A-1: Authenticating and Authorizing Users for Restricted Shells
- Topic 9B: Defining Trusted User Access
 - Task 9B-1: Defining Trusted User Access
- Topic 9C: Defining Trusted Host Access
 - Task 9C-1: Defining Trusted Host Access
- Topic 9D: Selecting a Firewall Architecture Model
 - Task 9D-1: Analyzing the Need for a Firewall
 - Task 9D-2: Identifying Firewall Architecture Models

Lesson 10: Improving System Performance

- Topic 10A: Applying Performance Improvement Process to System Administration
 - Task 10A-1: Applying Performance Improvement Process to System Administration
- Topic 10B: Identifying System Performance Degradation
 - Task 10B-1: Identifying System Performance Degradations
- Topic 10C: Optimizing System Performance
 - Task 10C-1: Optimizing System Performance
- Topic 10D: Optimizing Disk Space
 - Task 10D-1: Optimizing Disk Space
- Topic 10E: Monitoring Network Performance
 - Task 10E-1: Monitoring Network Performance

Appendix A: Linux Process for Lesson 5: Managing System Software

- Adding Software Packages
- Determining Software Package Status
- Removing Software Packages
- Upgrading Software Packages from the Command Line