

UNIX and LINUX Systems Basics I

Course Summary

Description

This course serves as an introduction to the UNIX operating system. By providing a detailed look at the UNIX operating environment, it builds a foundation of UNIX system structure and commands designed to develop the student's understanding of UNIX. Following the completion of this course, the student will have a proficiency in the basic commands necessary to exploit the power of the UNIX operating system.

Objectives

At the completion of this course, the student will be able to:

- Understand the history and development of UNIX
- Understand the details of the UNIX file system
- Understand how security is implemented in UNIX
- Understand the UNIX operating system and its features
- Understand how the Korn shell works
- Use the VI editor
- Understand how to use different UNIX utilities

Topics

- UNIX history and overview
- Getting started
- File systems
- File system security
- Additional UNIX commands
- Using the VI editor
- Introduction to the UNIX shell and shell programming
- UNIX Power Tools

Audience

This course is designed for system/application end-users who have little or no experience with the UNIX operating system. This course provides a functional familiarity with basic system tools and commands to those individuals with other operating systems experience.

Prerequisites

There are no prerequisites for this course.

Duration

Three days

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Course Outline

- I. An Introduction to UNIX**
 - A. A brief chronology
 - B. What is UNIX?
 - C. Key UNIX characteristics
 - D. The Structure of UNIX
 - E. Some practical applications
 - F. Some of the variants of UNIX and the UNIX standards
- R. Hard and Symbolic links**
- II. Getting Started**
 - A. Access levels in UNIX
 - B. How to log in
 - C. How to log out
 - D. Passwords
 - E. Password rules
 - F. Switching groups
- III. File Systems**
 - A. Commands, switches and arguments
 - B. Is examples
 - C. Basic command: ls
 - D. The man command
 - E. User Files and User Directories
 - F. Default Directory
 - G. /etc/passwd file format
 - H. Default Group
 - I. /etc/group file format
 - J. Absolute and relative pathnames
 - K. Pathname abbreviations
 - L. File tree navigation
 - M. System directory structure
 - N. File systems and their functions
 - O. The Role of the file system
 - P. File system naming guidelines
 - Q. Basic file commands
 - 1. pwd
 - 2. cd
 - 3. mkdir
 - 4. rmdir
 - 5. cat
 - 6. more
 - 7. tail
 - 8. head
 - 9. cp
 - 10. mv
 - 11. rm

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- S. More file commands
 - 1. du
 - 2. df

IV. File System Security

- A. Detailed output of ls
- B. UNIX File Security: permissions
- C. Working with permissions
- D. Changing permissions with chmod
- E. Examples
- F. UNIX Directory permissions
- G. Octal and mnemonic notation
- H. Default permissions with umask
- I. Changing owner and group with chown and chgrp
- J. Switching groups

V. Additional UNIX Commands

- A. Commands
- B. who
- C. wc
- D. date
- E. file
- F. diff
- G. cmp
- H. touch
- I. whereis
- J. whence
- K. cal
- L. banner

VI. Using the VI Editor

- A. UNIX text editors
- B. Editing text with vi – modes
- C. Insert mode
- D. Scrolling
- E. Editing
- F. Repeating commands
- G. File commands
- H. Creating the ./.exrc file
- I. Regular expressions
- J. Searching for text
- K. Substitution

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Course Outline (cont'd)

VII. Introduction to the Unix Shell and Shell Programming

- A. The UNIX shell
- B. Key features
- C. Different shell flavors
- D. The shell prompt
- E. Intro to shell variables
- F. Creating and using shell variables
- G. The environment and shell variables
- H. Exporting shell variables
- I. Useful shell variables
- J. Understanding shell quote usage
- K. Command line editing
- L. Shell initialization: startup scripts
- M. Shell scripts
- N. Languages: compiled versus scripting
- O. Viewing exit status in the shell
- P. Shell redirection
- Q. Shell pipes
- R. Shell wildcards
- S. Shell aliases
- T. Shell process management
- U. Shell background processes
- V. Shell job control commands
- W. Shell job control: the kill command

VIII. Introduction to the UNIX Power Tools

- A. Power commands
- B. sort
- C. grep
- D. sed
- E. awk
- F. UNIX metacharacters
- G. examples
- H. find
- I. archiving utilities: tar
- J. archiving utilities: cpio
- K. archiving utilities: pax
- L. compressing utilities: compress
- M. compressing utilities: uncompress
- N. compressing utilities: gzip
- O. compressing utilities: gunzip