

LINUX PROFESSIONAL: SYSTEM ADMINISTRATION

Available Dates: **Request Dates**

Class Length: **5 day**

Cost: **\$2,495**

[Email Computer Visions about this class](#)

Class Outline:

Overview:

Linux Professional System Administration will introduce students to the basics of administering a server running the Linux operating system. The objective of this course is to provide students with the instruction necessary to prepare them for the Linux Professional Institute (LPI) Level 1 certification or the Level 1 Sair Linux and GNU certification. We organized each lesson into explanatory topics and step-by-step activities. Topics provide the theory you need to master the Linux operating system; activities allow you to apply this theory to practical hands-on examples.

Course Content:

Lesson 1: Linux History and Operation

Topic 1A: The Evolution of Linux

Task 1A-1: Discussing the History of Linux

Topic 1B: The GNU Movement and the GPL

Task 1B-1: Discussing the Open Source Movement

Topic 1C: Linux Operations as a Server

Task 1C-1: Examining Linux Operations as a Server

Topic 1D: The Architecture and Structure of Linux

Task 1D-1: Reviewing the Architectural Structure of Linux

Lesson 2: Installing and Configuring Linux

Topic 2A: Introduction to Installation and Media Types

Task 2A-1: Creating an Installation Boot Disk with Rawrite

Topic 2B: Performing a Custom Linux Server Installation

Task 2B-1: Performing a Custom Linux Server Installation

Topic 2C: Run Levels and the Startup/Shutdown Sequence

Task 2C-1: Examining Run Levels and the Startup/Shutdown Sequence

Task 2C-2: Examining the Shutdown Process

Topic 2D: Logging In and Out of a Linux System

Task 2D-1: Logging In and Out of a Linux System

Task 2D-2: Securing the root Account Access

Lesson 3: Shells, Commands, and Navigation

Topic 3A: Introduction to Linux Shells, Commands, and Navigation

Task 3A-1: Discussing Linux Shells and Commands

Topic 3B: Navigating the Linux Filesystem

Task 3B-1: Listing Files

Task 3B-2: Copying, Moving, and Deleting Files

Task 3B-3: Changing Directories

Task 3B-4: Navigating the Filesystem

Task 3B-5: Examining Symbolic Links

Topic 3C: Using Shell Variables in Bash

Task 3C-1: Viewing Environment Variables

Task 3C-2: Creating and Assigning a Value to a Variable and then Exporting It

Task 3C-3: Creating Variable Values Containing Spaces

Task 3C-4: Creating a Variable Containing Another Variable

Task 3C-5: Removing Variables

Topic 3D: The Bash Shell

Task 3D-1: Using Shell Metacharacters with Is

Topic 3E: Commands for Obtaining System Information

Task 3E-1: Obtaining System Information

Task 3E-2: Using the find Command

Topic 3F: Examining File Contents

Task 3F-1: Examining the Contents of a File

- Topic 3G: Customizing your Shell Environment
- Task 3G-1: Working with Shell Aliases
- Task 3G-2: Customizing the Command Prompt
- Task 3G-3: Configuring a Directory for Temporary Files
- Task 3G-4: Setting a Default Text Editor
- Topic 3H: Manipulating Commands and Their Input/Output
- Task 3H-1: Piping Commands
- Task 3H-2: Running a Process in the Background
- Task 3H-3: Moving Processes Between the Background and Foreground
- Task 3H-4: Using Virtual Terminals
- Topic 3I: Getting Help
- Task 3I-1: Viewing the System Manual
- Task 3I-2: Using the --help Parameter
- Task 3I-3: Discussing the Linux Documentation Project

Lesson 4: Common Text Editors

- Topic 4A: Using the Emacs Editor
- Task 4A-1: Creating a File Using Emacs
- Task 4A-2: Moving Around a Document in Emacs
- Task 4A-3: Searching for Text in Emacs
- Task 4A-4: Searching for and Replacing Text in Emacs
- Task 4A-5: Editing Multiple Files in Emacs
- Topic 4B: Using the vi Editor
- Task 4B-1: Creating a File Using vi
- Task 4B-2: Moving Around in a Document
- Task 4B-3: Editing an Existing Document
- Task 4B-4: Searching Within a File
- Task 4B-5: Searching and Replacing Text
- Topic 4C: Using the Pico Editor
- Task 4C-1: Creating a File Using Pico
- Task 4C-2: Moving Around a Document in Pico
- Task 4C-3: Searching for Text in Pico
- Task 4C-4: Cutting and Pasting Text in Pico
- Topic 4D: Manipulating Text Files From the Command Line
- Task 4D-1: Examining the Results of Redirection
- Task 4D-2: Creating Files with Cat and Echo
- Task 4D-3: Appending to Files
- Topic 4E: Using Awk
- Task 4E-1: Using Awk to Print Selected Fields
- Task 4E-2: Including Text in Your Output
- Task 4E-3: Searching for Patterns and Displaying the Results
- Task 4E-4: Declaring a New Awk Field Delimiter
- Task 4E-5: Using Awk to Search for Patterns in a Single Field
- Task 4E-6: Including an Awk Command File in Your Awk Statement
- Topic 4F: Using Sed
- Task 4F-1: Using Sed to Delete a Line from a File
- Task 4F-2: Using Grep and Sed to Locate and Change a Text Field

Lesson 5: Configuring and Using X Windows

- Topic 5A: Introduction to X Windows
- Task 5A-1: Examining X Windows
- Topic 5B: Configuring XFree86
- Task 5B-1: Configuring XFree86
- Topic 5C: Window Managers and Desktop Environments
- Task 5C-1: Using Window Managers
- Task 5C-2: Examining Desktop Environments
- Task 5C-3: Enabling Multiple X Servers

Lesson 6: Linux Printing

- Topic 6A: The Line Printer Daemon (lpd)

Task 6A-1: Creating a Printer Spool using Printtool
Task 6A-2: Editing a Printer Spool Using Printtool
Task 6A-3: Examining the /etc/printcap File
Topic 6B: Printing
Task 6B-1: Printing a File
Task 6B-2: Formatting Text for Printing
Topic 6C: Administering a Linux Printer Queue
Task 6C-1: Viewing the Contents of a Print Queue
Task 6C-2: Cancelling a Print Job
Task 6C-3: Using the lpc Command

Lesson 7: Users and Groups

Topic 7A: Introduction to Users and Groups
Task 7A-1: Discussing Users and Groups
Task 7A-2: Creating Users and Groups
Task 7A-3: Creating Groups
Task 7A-4: Managing Passwords
Topic 7B: Essentials of Effective User, Group, and Password Management
Task 7B-1: Using su
Task 7B-2: Examining the Essentials of Effective Account Management
Task 7B-3: Using urandom

Lesson 8: The Ext2 Filesystem

Topic 8A: Introduction to the Second Extended (Ext2) Filesystem
Task 8A-1: The Ext2 Filesystem
Topic 8B: Partitioning and Formatting
Task 8B-1: Exploring Disk Partitions
Task 8B-2: Formatting a Partition for the Ext2 Filesystem
Topic 8C: Mounting and Configuring Filesystems
Task 8C-1: Mounting and Unmounting Filesystems
Topic 8D: Administering Ext2 Filesystems
Task 8D-1: Using stat to Examining an Inode
Task 8D-2: Using sync to Flush Filesystem Buffers
Task 8D-3: Checking and Repairing an Ext2 Filesystem
Task 8D-4: Understanding Filesystem Fragmentation
Topic 8E: Understanding Permissions
Task 8E-1: Setting Ownership of Files
Task 8E-2: Viewing File Permissions
Task 8E-3: Setting File Permissions
Task 8E-4: Changing the Default Permissions with umask

Lesson 9: The Linux Kernel

Topic 9A: Introduction to the Linux Kernel
Task 9A-1: Discussing the Kernel
Topic 9B: Using Kernel Modules
Task 9B-1: Discussing Monolithic and Modular Kernels
Task 9B-2: Working with Kernel Modules
Task 9B-3: Examining the /etc/modules.conf File
Topic 9C: Compiling the Linux Kernel
Task 9C-1: Downloading and Installing the Kernel Source
Task 9C-2: Configure the Linux Kernel Sources
Task 9C-3: Compiling the Linux Kernel and Linux Kernel Modules
Topic 9D: Installing the Linux Kernel
Task 9D-1: Copying the Kernel and Modules to the System and Creating an Initial Ramdisk
Task 9D-2: Understanding LILO
Task 9D-3: Configuring LILO to Boot the New Kernel

Lesson 10: Shell Scripting

Topic 10A: Introduction to Shell Scripting
Topic 10B: Variables

Task 10B-1: Getting User Input
Task 10B-2: Performing Simple Arithmetic
Topic 10C: Basic Control Structures
Task 10C-1: Using If-Then-Else
Topic 10D: Loops
Task 10D-1: Using For Loops
Task 10D-2: Using While Loops
Topic 10E: Command-line Arguments
Task 10E-1: Getting Arguments from the Command Line

Lesson 11: Linux Software Management

Topic 11A: The Software Life Cycle
Task 11A-1: Using the Internet for Locating Software
Topic 11B: Querying Installation
Task 11B-1: Querying Software
Task 11B-2: Installing a Software Package
Task 11B-3: Upgrading Software Packages
Task 11B-4: Removing a Software Package
Task 11B-5: Building from Source

Lesson 12: Linux System Management

Topic 12A: Choosing a Server
Task 12A-1: Discussing Server Choices
Task 12A-2: Examining Linux Services
Task 12A-3: Starting Jobs and Processes
Topic 12B: The /proc Filesystem
Task 12B-1: Tuning a Linux System for Optimal Performance
Task 12B-2: Using Performance Maintenance Utilities
Topic 12C: The Swap Partition
Task 12C-1: Creating Additional Swap Space
Topic 12D: The sudo Command
Task 12D-1: Configuring sudo
Task 12D-2: Using sudo