

Linux System Administration

Duration: 40 Hours | Price: INR 6000 **SAVE NOW! INR 5000 Until December 1, 2011**

Students Will Learn

- Installation and Configuration
- Managing Software and Hardware
- Managing Users and Groups
- File Systems and File Security
- Network Configuration
- Apache Web Server
- NFS, DHCP, and DNS
- Samba File Sharing
- X/Motif Installation and Config

Course Description: This hand on Linux administration course teaches students how to install, maintain, configure and tune a Linux system in a networked environment. Students will not only learn to perform basic administrative tasks such as adding and managing users, creating and maintaining file systems, maintaining shell and Perl scripts, and imposing a security policy, but will also learn to perform more advanced tasks including rebuilding the kernel, installing and supporting the X Window System, and installing and supporting network facilities such as NFS, DNS and DHCP. Students will also learn how to install and configure the Samba file sharing package and the Apache web server.

The course includes comprehensive hands on practice installing and configuring SuSE 10.1 and RedHat Fedora Core 6. Labs include adding and deleting users, backing up and restoring the system, rebuilding the kernel, automating the scheduling of tasks, maintaining file systems, managing remote access, and installing and tuning Samba and Apache, as well as working with modern system logging utilities such as syslog-ng. Class participants will also discuss common security issues, and be introduced to several tools, such as PAM modules, that can help secure the operating environment. Upon completion of this course, students will be prepared to competently maintain a Linux system in a networked business environment.

Course Prerequisites: Students should be experienced UNIX or Linux users. Knowledge of the Linux file system and commands equivalent to attendance in the UNIX/Linux Fundamentals course is required.

Linux System Administration Course Overview

System Administration Overview

- UNIX, Linux and Open Source
- Duties of the System Administrator
- Superusers and the Root Login
- Sharing Superuser Privileges with Others (su and sudo Commands)
- TCP/IP Networking Fundamentals
- Online Help

Booting and Shutting Down Linux

- Boot Sequence
- System Startup and Shutdown Scripts
- The /etc/inittab File
- Run Levels
- chkconfig Command
- Shutdown Commands
- Handling Power Failures

Managing Software and Devices

- Identifying Software Packages
- Using rpm to Manage Software
- Using Debian Software Commands
- Installing and Removing Software
- Identifying Devices
- Displaying Device and System Information (PCI, USB)
- Plug and Play Devices
- Device Configuration Tools

Managing Users and Groups

- Setting Policies
- User File Management
- The /etc/passwd file
- The /etc/shadow file
- The /etc/group file
- Adding Users
- Modifying User Accounts
- Deleting User Accounts
- Working with Groups
- Setting User Environments
- Global Restart Control Files
- User Restart Control Files
- X Windows Environment Files

Installation and Configuration

- Planning: Hardware and Software Considerations
- Site Planning
- Installation Methods and Types
- Installation Classes
- Partitions
- File System Overview
- Swap Partition Considerations
- Other Partition Considerations
- Linux Loaders: LILO, MILO, SILO, GRUB
- Software Package Selection
- Adding and Configuring Peripherals
- Printers
- Modems
- Graphics Controllers
- Basic Networking Configuration
- The Emergency Boot Disk

X Window System Administration

- X Window System Introduction
- Installation and Upgrading X Windows
- Configuring XFree86
- Utilities for Configuring X Windows
- Configuring the Graphics Driver and Mouse
- Selecting and Installing a Window Manager
- Desktop Environments
- Motif Development Kit Installation

The Linux File System

- Conventional Directory Structure
- Mounting a File System
- The /etc/fstab File
- Special Files (Device Files)
- Inodes
- Hard File Links
- Soft File Links
- Creating New File Systems with mkfs
- The lost+found Directory
- Repairing File Systems with fsck
- The Journaling Attribute
- File and Disk Management Tools

Linux File Security

- File Permissions
- Directory Permissions
- Octal Representation
- Changing Permissions
- Setting Default Permissions
- SUID Bit
- SGID Bit
- Setting the Sticky Bit

Shell and Perl Scripting

- Shell Script Fundamentals
- Bourne Shell Syntax Overview
- Shell Script Examples
- Fundamentals of Perl
- Using Perl for Administration
- Perl Script Examples

System Backups

- Backup Concepts and Strategies
- User Backups with tar and cpio
- System Backup Options
- The restore Command
- Rescuing Disks

Troubleshooting the System

- Common Problems and Symptoms
- Troubleshooting Steps
- Repairing General Boot Problems
- Repairing LILO Problems
- Repairing the GRUB Boot Loader
- Memory Allocation
- Hard Drive Problems
- Repairing Corrupted Shared Libraries
- System Logs
- syslogd
- Configuring the syslogd Daemon

The Apache Web Server

- What is Apache?
- Configuring the Apache Web Server
- Common Directives
- Apache Virtual Hosting

Working with the Linux Kernel

- Linux Kernel Components
- Classes of Kernels
- Applying Kernel Update Patches
- Kernel Configuration Options
- The Kernel Configuration Tool
- Recompiling the Kernel

Controlling Processes

- Characteristics of Processes
- Parent-Child Relationships
- Examining Running Processes
- Background Processes
- Controlling Processes
- Signaling Processes
- Killing Processes
- Automating Processes
- cron and crontab
- at and batch
- System Processes (Daemons)

Basic Networking

- TCP/IP Fundamentals
- Review of Internet Addressing
- Network Services Overview
- Commonly Available Services
- Fundamental Network Configuration Files
- Network Control Scripts and Daemons
- Enabling Services Using xinetd

NFS, NIS, DHCP, and DNS

- Network File System (NFS)
- How to Configure the NFS Server
- Exporting NFS Shares
- How to Configure the NFS Client
- Purpose of NIS
- How to Configure NIS
- Implementing the Dynamic Host Configuration Protocol (DHCP)
- DHCP Configuration with Fixed and Leased Addresses
- Purpose of DNS
- Working with DNS
- How to Configure DNS
- The rndc.conf File
- Zone Files
- Running the named Daemon
- Networking Commands: telnet, ftp, rsh, rlogin, rcp

Introduction to System Security

- Security Overview
- Maintaining System Security
- Server Access
- Common System Hacking Options
- Physical Security
- Network Security
- Security Tools
- Preventing Break-Ins
- PAM Security Modules
- Scanning the System
- Maintaining File Integrity
- Installing and Configuring tripwire
- Security Scanning Using nessus
- Securing Linux Using LIDS
- Hardening the System Using Bastille
- Using Firewalls
- Packet Filtering with iptables
- Masquerading with iptables

- Installing and Configuring Secure Shell (ssh)
- The Apache web server

The Samba File Sharing Facility

- Using Samba to Connect Homogeneous File Systems (Linux-to-Linux)
- Using Samba to Connect Heterogeneous File Systems (Linux-to-Windows)
- Configuring Samba
- Using the smbclient Command
- Mounting SMB Shares

Student Testimonials

"The instructor did an excellent job with the class. It was very informational and enjoyable. He did a good job mixing in real world views to support the lessons."

– **VIDHYA SAGAR**

"I would like to thank SPIRO for doing a great job organizing this course. The instructor was amazing and really knew his material. I would most definitely consider attending another SPIRO course."

– **JANARATH**

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