

Soft-Train



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Technology Works*

Red Hat Enterprise Linux 5 Administration (5 Days) ST34006

COURSE GOAL: To provide the student with a thorough understanding of Red Hat Linux Installation and Administration.

PREREQUISITES: A basic understanding of networks and Red Hat Linux.

LEARNING OBJECTIVES:

Upon completion of this course the student will be able to:

- Install Red Hat Linux using the best method for the environment.
- Understand the requirements to complete the installation after the software is loaded
- Be able to retrieve Operating Systems updates using a variety of methods
- Understand the Linux Concept
- Work with RPM and other software
- Analyze and Manage Storage along with hardware.
- Manage Users and Groups
- Manage Backup and Recovery
- Understand how to automate tasks using scripts
- Monitor Systems Resources using Linux Tools
- Understand how to monitor and tune the Linux kernel as well as applications running in the Linux environment

KEY TOPICS:

I. Installing Red Hat Linux

- A. Choosing an Installation Method
- B. Creating the Installation Source
- C. Starting the Installation
- D. Performing the Installation
- E. Installing with Kickstart
- F. Installing with PXE
- G. Performing an Upgrade
- H. Red Hat Network Provisioning

II. Post Installation Configuration

- A. Red Hat Setup Agent
- B. Logging in for the First Time
- C. Network Configuration
- D. Printer Configuration
- E. Adding Boot Parameters

III. Operating System Updates

- A. Navigating through the RHN Website
- B. Assigning Users for the RHN Website
- C. Subscribing to RHN Channels
- D. Performing Actions on Individual Systems from the RHN Website
- E. Using System Groups on the RHN Website
- F. Retrieving Software from RHN with YUM

IV. Understanding Linux Concepts

- A. Learning the Desktop
- B. Filesystem Hierarchy System
- C. Shell Basics

- D. Becoming the Root User
- E. Manual Pages
- F. Editing Text Files
- G. File Permissions
- H. Initialization Scripts
- I. Run Levels

V. Working with RPM Software

- A. Understanding How RPM Works
- B. Finding the Software
- C. Installing Software
- D. Updating Software
- E. Removing Software
- F. Verifying Software Files
- G. Querying Package Files
- H. Building RPM Packages

VI. Analyzing Hardware

- A. Listing Devices
- B. Detecting Hardware
- C. Gathering Information from the BIOS
- D. Listing and Configuring Kernel Modules
- E. HAL

VII. Managing Storage

- A. Understanding Partitioning
- B. Understanding LVM
- C. Understanding RAID
- D. Understanding Clustering and GFS
- E. Using Access Control Lists
- F. Using Disk Quotas

VIII. 64 Bit, Multi Core, and Hyper-Threading Technology Processors

- A. 64-Bit Processors
- B. Multi-Core Processors
- C. Processors with Hyper-Threading Technology

IX. Managing Users and Groups

- A. What are Users and Groups
- B. Managing Users
- C. Managing Groups
- D. How It All Works
- E. Best Practices

X. Techniques for Backup and Recovery

- A. Writing a Backup Plan
- B. Using Amanda for Backups
- C. Other Linux Backup Utilities
- D. Recovery and Repair

XI. Automating Tasks with Scripts

- A. Writing Scripts with Bash
- B. Executing Commands in a Bash Script
- C. Additional Scripting Languages
- D. Writing Scripts with Python
- E. Scheduling Tasks with CRON

XII. Identity Management

- A. Understanding PAM
- B. Enabling NIS
- C. Enabling LDAP
- D. Enabling Kerberos
- E. Enabling SMB or Winbind Authentication
- F. Enabling with Authentication Tool

XIII. Network File Sharing

- A. Network File System
- B. NFS and SELinux
- C. Allowing NFS Connections
- D. Samba File Sharing
- E. Samaba and SELinux

XIV. Granting Network Connectivity with DHCP

- A. Allowing Connections
- B. Configuring the Server
- C. Starting and Stopping the Server
- D. Logging Connections

XV. Creating a Web Server with the Apache HTTP Server

- A. Apache HTTP Server and SELinux
- B. Allowing Connections
- C. Configuring the Server
- D. Logging Connections
- E. Starting and Stopping the Server

XVI. Host Name Resolution with BIND

- A. Understanding DNS Concepts
- B. Allowing Connections
- C. Configuring BIND
- D. Configuring BIND Graphically
- E. Logging Connections

XVII. Securing Remote Logins with OpenSSH

- A. Allowing Connections
- B. Configuring the Server
- C. Connecting from the Client
- D. Logging Connections

XVIII. Setting Up an E-Mail Server with Sendmail

- A. Understanding E-Mail Concepts
- B. Configuring Sendmail
- C. Using POP and IMAP
- D. Logging Sendmail Connections
- E. Allowing E-Mail Connections

XIX. Expanding Other Common Network Services

- A. The xinetd Super Server
- B. Transferring Files with FTP
- C. Keeping Accurate Time with NTP
- D. Creating a Network Printer with CUPS

XX. Monitoring System Resources

- A. Reporting Filesystem Usage
- B. Reporting Disk Performance
- C. Reporting System Processes
- D. Reporting on the System Processors
- E. Reporting Memory Usage
- F. Reporting on the Network Subsystem
- G. Generating a System Report
- H. Locating Log Files
- I. Viewing Log Files with Logwatch

XXI. Monitoring and Tuning the Kernel

- A. Using the /proc directory
- B. Optimizing Virtual Memory
- C. Managing Memory with NUMA
- D. Using AltSysReq to Execute System Requests
- E. Saving Kernel Dumps for Analysis
- F. Setting SMP IRQ Affinity
- G. Enabling NMI Watchdog for Locked Systems

XXII. Monitoring and Tuning Applications

- A. OProfile
- B. Setting Up OProfile
- C. Setting Up Events to Monitor

- D. Valgrind
- E. Additional Programs to Consider

XXIII. Protecting Against Intruders with Security-Enhanced Linux

- A. Selecting an SELinux Mode
- B. Selecting and Customizing the SELinux Policy
- C. Utilizing the SELinux Troubleshooting Tool
- D. Working with Security Contexts

XXIV. Configuring a Firewall

- A. Selecting a Table and Command for IPTables
- B. Selecting IPTables Options
- C. Using IPTables Match Extensions
- D. Using IPTables Target Extensions
- E. Starting and Stopping IPTables Service
- F. Saving the IPTables Rules
- G. IPTables Examples
- H. Enabling the Default Firewall

XXV. Linux Auditing System

- A. Configuring the Audit Daemon
- B. Writing Audit Rules and Watches
- C. Starting and Stopping the Daemon
- D. Analyzing the Records
- E. Tracing a Process with Audit