Linux System Administrator Part One

- 5 Days
- Lecture and Hands-on Labs

Course Overview

Linux System Administrator Part One (RH124) is tailored for IT professionals who are new to Linux, aiming to provide them with foundational system administration skills. By concentrating on core administration tasks and introducing essential command-line concepts and enterprise-level tools, the course sets the groundwork for students aspiring to become full-time Linux system administrators. As the initial installment of a two-course series, RH124 lays the essential groundwork, while the subsequent course, Linux System Administrator Part Two (RH134), further expands on these concepts, guiding participants from basic knowledge to full capability in Linux administration.

This is the course equivalent of Red Hat Administration I.

Review this course online at https://www.alta3.com/courses/rh124

Who Should Attend

- Technical professionals in Linux
- Linux professionals looking to learn about Linux enterprise or cloud systems administration

What You'll Learn

- Explore Linux and the ecosystem surrounding Red Hat Enterprise Linux.
- Execute commands and inspect shell environments.
- Administer, arrange, and safeguard files.
- Oversee user accounts, groups, and their security protocols.
- Supervise and audit systemd services.
- Establish remote connections via web console and SSH.
- Set up network interfaces and configurations.
- Handle software management with DNF.

Outline

Get Started with Red Hat Enterprise Linux

- Introduction to Linux and RHEL
- Differences between RHEL and other Linux distributions
- Basic System Configuration after Installation
- Using Red Hat Subscription Manager

Fundamentals of Command Line Operations

- Introducing bash and Command Line Operations
- Navigating the command line using bash
- Basic file operations (creating, moving, copying, and deleting files)

- 🔰💻 Using man pages for command documentation
- 🟢💬 Understanding file structures and directories in Linux
- 🔰💻 Managing files with cat, less, head, and tail
- 🔰💻 Input/output redirection (> and »), pipelines (|)

Help Systems in Red Hat Enterprise Linux

- 🟢💬 Introducing Help Commands/Operations
- 🔰💻 Using built-in help tools: man, info, and help options (–help)
- 🔰💻 Understanding apropos and whatis
- 🔰💻 Searching command documentation

Text File Management

- 🟢💬 Text Management from the Console
- 🔰💻 Vim: A Modal Text Editor
- 🔰💻 Searching within text files using grep
- 🔰💻 File comparison using diff and cmp
- 🔰💻 Understanding regular expressions for advanced text searching

User and Group Management

- 🟢💬 Linux Users and Groups
- 🔰💻 Adding, modifying, and deleting users with useradd, usermod, and userdel
- 🔰💻 Group management: groupadd, groupmod, and groupdel
- 🔰💻 Managing user passwords and password policies with passwd and chage
- 🔰💻 Switching users and managing user environment files (.bashrc, .profile)
- 🔰💻 Understanding /etc/passwd and /etc/group files

File Permissions and Security

- 🟢💬 Understanding File Permissions, Ownership, and Security
- 🟢💻 File ownership and permissions (using chown, chmod, and chgrp)
- 🟢💻 Understanding permission modes (read, write, execute) and special permissions (SUID, SGID, Sticky bit)
- 🟢💻 Access Control Lists (ACLs) for fine-grained file permissions
- 🟢💻 Managing SELinux for enhanced security

Process Management

- 🟢💬 Managing Processes in Linux
- 🟢💻 Monitoring processes with ps, top, and htop
- 🟢💻 Controlling processes (starting, stopping, and killing) using systemctl and kill
- 🟢💻 Understanding process priorities and resource control (nice and renice)
- 🟢💻 Scheduling tasks using cron and at

Managing Services and Daemons

- 🟢💬 Understanding Services and Daemons
- 🟢💻 Understanding system services and daemons
- 🟢💻 Managing services with systemctl (start, stop, restart, enable, and disable)
- 🟢💻 Viewing service logs using journalctl
- 🟢💻 Managing boot targets and system startup processes

SSH Configuration and Security

- 🟢💬 Secure Shell Network Protocol (SSH)
- 🟢💻 Setting up and configuring SSH server and client
- 🟢💻 Configuring SSH key-based authentication
- 🟢💻 Securing SSH connections (restricting root login, changing default ports)
- 🟢💻 Troubleshooting SSH issues

Log Management

- 🟢💬 Understanding log files and the Linux logging system (`/var/log`)
- 🟢💻 Managing logs with rsyslog and journalctl
- 🟢💻 Rotating logs with logrotate
- 🟢💻 Analyzing logs for system troubleshooting

Networking in Red Hat Enterprise Linux

- 🟢💬 Networking Introduction
- 🟢💻 Configuring network interfaces manually and using NetworkManager
- 🟢💻 Viewing and modifying IP settings using nmcli, ip, and ifconfig
- 🟢💻 Configuring DNS and hostname resolution
- 🟢💻 Basic firewall management using firewalld
- 🟢💻 Network troubleshooting (using ping, traceroute, and netstat)

Package Management

- 🟢💬 Package Management with dnf
- 🟢💻 Installing, removing, and updating software using dnf
- 🟢💻 Managing repositories and understanding Red Hat Package Manager (RPM)
- 🟢💻 Querying and verifying installed packages
- 🟢💻 Understanding software dependencies

File System Management

- 🟢💬 File Management and Partitions
- 🟢💻 Creating, mounting, and unmounting file systems
- 🟢💻 Managing disk partitions with `fdisk` and `parted`
- 🟢💻 Understanding and configuring Logical Volume Management (LVM)
- 🟢💻 Checking and repairing file systems with `fsck`
- 🟢💻 Configuring automatic mounting with `/etc/fstab`

Analyzing and Getting Support

- 🟢💬 Using Red Hat Insights for proactive support
- 🟢💬 Accessing and using Red Hat Knowledgebase
- 🟢💬 Working with support cases using the Red Hat Customer Portal

Prerequisites

- Basic technical skills

Next Courses

RH134