

Red Hat Enterprise Linux (RHEL) Systems Administration 3

Course Summary

Length: 5 Days

Prerequisite: Red Hat Enterprise Linux Systems Administration 2 (or equal experience)

Recommendation Statement:

For experienced RHEL Administrators who have completed the Red Hat Enterprise Linux Systems Administration 2 course or have equivalent experience.

Course Description:

For students who want to learn to create shell scripts and other enterprise level automation techniques, secure network services, and understand key security features in Red Hat Enterprise Linux.

This course teaches all of the topics that are included in the Red Hat ® RH254 course

Upon completion of this course, you should be able to:

- Enhanced user security
- Bash shell scripting
- File security with GNUPG
- Software management
- Network monitoring
- Network traffic routing
- Securing network traffic
- Configure Link Aggregation and Bridging
- Configure the NTP server
- System monitoring and logs
- Centralized and Secure Storage / Block based storage
- SSL-encapsulated Web Services
- Configure the Apache Web Server
- Configure SMTP
- Caching only DNS server
- Configuring NFS for file sharing
- Configure FTP
- Troubleshoot boot problems
- Understand Linux Containers

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Detailed Course Outline

- 1. Enhanced User Security**
 - a. Kerberos concepts
 - b. Managing tickets and passwords
 - c. SSH key management
 - d. Open SSH and Kerberos
- 2. Bash scripting**
 - a. Positional parameters
 - b. Input/Output
 - c. Comparisons with tests
 - d. Exit status
 - e. Conditionals
 - f. Flow control
 - g. Loops
- 3. File Security with GNUPG**
- 4. Software Management**
 - a. RPM packaging
 - b. Manage RPMs
 - c. Install RPM packages
- 5. Monitor the Network**
 - a. Tune kernel network settings
 - b. Configure routing tables
- 6. Secure Network Traffic**
 - a. Port forwarding
 - b. Netfilter: Stateful packet filter firewall
 - c. iptables
 - d. Common match_specs
 - e. Address translation
 - f. Configure NAT and PAT
 - g. NAT limitations
 - h. Detecting NAT
- 7. Configure an NTP Server**
 - a. Time sync with NTP
 - b. Configure the NTP server
 - c. Configure the NTP client
 - d. NTP commands
- 8. System Monitoring and Logs**
 - a. Filesystem structures
 - b. Monitor disk usage using standard utilities
 - c. File system maintenance
 - d. Troubleshoot file and filesystem problems
 - e. Monitor memory, CPU, I/O, Processes
 - f. Configure and interpret sar
 - g. Configure system logging
 - h. Rsyslog
 - i. Manage log files
- 9. Centralized and Secure Storage**
 - a. SAN Multipathing and best practices
 - b. iSCSI architecture
- 10. SSL Encapsulated Web Services**
 - a. Apache architecture
 - b. Adding modules to Apache
 - c. Apache configuration files
 - d. httpd configuration and server settings
 - e. Encryption Algorithms
 - f. Digital Certificates
 - g. 9.SSL Using mod_ssl.so
- 11. Web Server Additional Configuration**
 - a. Virtual Hosting DNS Implications
 - b. httpd.conf - VirtualHost Configuration

- c. Name-based Virtual Host
- d. Apache Logging
- e. Delegating Administration
- f. Directory Protection
- g. Directory Protection with AllowOverride
- h. Common Uses for .htaccess
- i. Configuring CGI

12. Basic SMTP Configuration

- a. Postfix Features
- b. Postfix Components
- c. Postfix Configuration
- d. master.cf
- e. main.cf
- f. Postfix Map Types
- g. Postfix Pattern Matching
- h. Virtual Domains
- i. Configuration Commands
- j. Management Commands
- k. Postfix, Relaying and SMTP AUTH
- l. SMTP AUTH Server and Relay Control

13. Caching-Only DNS Server 1.Naming Services

- a. The Domain Name Space
- b. Delegation and Zones
- c. Server Roles
- d. Resolving Names
- e. Resolving IP Addresses
- f. Basic BIND Administration
- g. Configuring the Resolver
- h. Testing Resolution
- i. Creating a Site-Wide Cache
- j. SOA - Start of Authority
- k. A & PTR - Address & Pointer Records
- l. NS - Name Server
- m. CNAME & MX - Alias & Mail Host

14. File Sharing with NFS

- a. File Sharing via NFS
- b. NFSv4
- c. NFS Clients
- d. NFS Server Configuration
- e. Implementing NFSv4

15. File Sharing with CIFS

- a. Samba Daemons
- b. Accessing Windows/Samba Shares from Linux
- c. Samba Utilities
- d. Samba Configuration Files
- e. The smb.conf File
- f. Mapping Permissions and ACLs
- g. Mapping Linux Concepts
- h. Mapping Users
- i. Share Authentication
- j. User-Level Access
- k. Samba Account Database
- l. User Share Restrictions

16. File Sharing with FTP

- a. The FTP Protocol
- b. Active Mode FTP
- c. Passive Mode FTP
- d. vsftpd
- e. Anonymous FTP with vsftpd

17. Troubleshooting Boot Process

- a. Booting Linux on PCs
- b. GRUB Configuration

- c. Boot Parameters
- d. Initial ramdisk
- e. /sbin/init
- f. System Init Styles
- g. Linux Runlevels
- h. /etc/inittab
- i. /etc/rc.d/rc.sysinit
- j. Runlevel Implementation
- k. System Configuration Files
- l. Typical SysV Init Script
- m. The /etc/rc.local File
- n. Shutdown and Reboot
- o. Rescue Environment

18. Lab Exercises

- a. Lab exercises will be provided at the completion of each section