



LINUX LEVEL 4 – LINUX NETWORK SERVER ADMINISTRATION

Five days

Course Description: This five-day course helps the experienced Linux administrator develop advanced skills in configuring and managing a secure Linux network server. Students learn how to use the RPM system to create their own RPMs both for packaging your own software for standardized distribution, and for rebuilding existing packages from source RPMs. They will gain hands-on experience configuring and running essential network services, including DNS, NIS, DHCP, FTP, SSH, NTP, Samba, HTTP, Email, and LDAP. Finally, this course introduces important Linux security components, such as cryptography, Kerberos, SELinux, and network security.

Audience: Experienced Linux system administrators needing to set up or manage secure, enterprise-level network servers.

Prerequisites: Linux Level 3 or equivalent experience.

Outline

REBUILDING PACKAGES

- The Red Hat Package Manager
- Why Create Your Own RPMs
- Building RPMs
- Packaging Open Source Software
- The Build Process
- Spec File
- Spec File: Preamble (Header) Section
- Spec File: %Prep Section
- Spec File: %build Section
- Spec File: %install Section
- Spec File: %clean Section
- Spec File: Scriptlets Section
- Spec File: %files Section
- Spec File: %changelog Section
- rpmbuild
- Signing RPM Packages - GnuPG
- Testing
- Custom RPM Guidelines

KERBEROS

- Kerberos Principles
- Initial Kerberos Authentication
- Ticket Authentication
- Basic Realm Configuration

- Installing a Master Key Distribution Center
- DNS and Kerberos
- kdc.conf
- kadm5.acl
- kadmin
- Application Servers
- Kerberos Clients
- Troubleshooting Kerberized Services
- Kerberos Security
- Preauthentication
- Ticket Validation
- Trusting Other Realms
- Kerberos Encryption
- Kerberos Service Profile

NETWORK TIME PROTOCOL

- What is NTP?
- NTP Design Structure
- Configuring a NTP Client
- Configuring a NTP Server
- Using NTP in an Enclosed Network
- Specifying Restrictions

SAMBA

- Samba Configuration

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- Sharing Files and Directories with Samba
- Sharing Printers with Samba
- Verifying the Configuration File
- Samba accounts
- Starting Samba
- Using the smbclient command
- Mounting Samba Shares

APACHE

- What is Apache?
- Configuring Apache
- The Main Tab
- The Virtual Hosts Tab
- Configuring Virtual Hosts
- Server Settings
- Performance Tuning
- Starting and Stopping the httpd Daemon
- Administering Squid

EMAIL SERVICES

- Mail Configuration
- Mail Protocols
- IMAP/POP3 Configuration
- Mail servers
- Mail User Agent Configuration
- Configuration of Sendmail
- Configuration of PostFix

DNS & BIND

- DNS Overview
- Introduction to BIND
- BIND's Primary Configuration File
- Zone Files
- Using rndc
- Using the GUI-based Tool

DHCP

- Introduction to DHCP
- Setup the DHCP Server
- Syntax of the /etc/dhcpd.conf File

- Global Settings
- Declaring a Subnet
- Shared Networks
- Using allow and deny
- Address Pools
- Additional Settings
- The /var/lib/dhcp/dhcpd.leases File
- Starting dhcpd
- Setting up a DHCP Client

FTP SERVICES

- Setting up a VSFTP Server
- Setting up Anonymous Upload
- FTP Security
- Limiting Access to the VSFTP Server
- Modifying the Banner
- FTP Logging

CRYPTOGRAPHY

- Symmetric Cryptography
- Asymmetric Cryptography
- Network Security
- Cryptographic Tools
- Using OpenSSL
- Cryptographic Hashes
- Using Asymmetric Encryption
- Key Distribution
- Digital Certificates
- Transport Layer Security
- TLS/SSL Handshake
- Creating a RSA Private Key
- Creating a Certificate Signing Request
- Establishing a Certificate Authority
- Managing Certificate Expiration
- Managing a Certificate Revocation List

SECURE SHELL

- Remote Access Weaknesses



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- Overview of the Secure Shell
- Configuring the Secure Shell
- User or Group Level Access Control
- Using StrictModes
- Features and Functionality of SSH
- Authentication Methods
- Additional SSH Notes
- Using the Secure Shell Client Commands
- Setting SELinux Functionality during Installation
- Setting SELinux Functionality after Installation
- The RHEL SELinux policy

SECURING SERVICES

- Sever vulnerabilities
- Securing portmap
- NFS Security
- BIND security
- X Window Server
- The /etc/services file
- Disabling unneeded services
- Kernel network parameters

NIS

- What is NIS?
- Configuring a NIS Server
- Setting up a NIS Client
- NIS Server Configuration
- Configuring NIS Slave Servers

LDAP

- What is LDAP?
- LDAP terms
- LDAP structure
- Setting up a LDAP server
- Migration tools
- Using the ldapsearch command
- Additional LDAP tools
- Additional LDAP configuration

SELINUX

- What is SELinux?

APPENDIX A - PREPARING FOR CERTIFICATION EXAMS

APPENDIX B - PREPARING FOR RHCE AND RHCT EXAMS

APPENDIX C - PREPARING FOR THE LPI EXAMS

APPENDIX D - PREPARING FOR THE LINUX+ EXAM