INNOSOFT GULF
Leading Edge IT Training

Advanced Linux System Administration (IN-300)

Course Description

In this Advanced Linux System Administration training, participants will learn:

- Managing Network Services: Using Kickstart; managing SELinux; configuring firewalls, remote mounts, FTP, and time services
- System Configuration/Management: External authentication/authorization, iSCSI SANs, performance reporting, optimization, logging, routing/advanced networking, and Bash scripting
- System Security: Configuring firewalls, advanced Apache services, DNS, MariaDB, NFS, Samba, SMTP, SSH, and time synchronization

Duration

5 days

Audience

- Anyone wanting to get RHCE certified
- Skilled Linux administrators that either already have a lot of experience with previous versions of Red Hat Enterprise Linux, or are holding a current RHCSA or RHCE certificate on previous versions of Red Hat.
- Those working towards an RHCE certificate, particularly if their RHCSA certificate was on RHEL 6.x

Prerequisities

- The ideal target student has passed the Red Hat Certified System Administrator Exam and has experience working in a Linux environment.

Course Topics

Unit 1 - Using Kickstart

- Understanding Kickstart Usage
- Creating a Kickstart File
- Using the Kickstart File for Automatic Installations
- Using Kickstart Files in Fully Automated Datacenters

Unit 2 - Managing SELinux

- Understanding the Need for SELinux lo
- Understanding SELinux Modes and Policy
- Understanding SELinux Labels and Booleans
- Using File System Labels
- Understanding semanage fcontext and chcon Differences
- Using Booleans
- Configuring SELinux for Apache

Unit 3 - Configuring a Firewall

- Understanding Firewall Configuration
- Using Firewalls

Unit 4 - Configuring Remote Mounts and FTP

- Understanding FTP Configuration
- Configuring an FTP Server for Anonymous Downloads

Unit 5 - Configuring Time Services

- Understanding Time on Linux
- Setting Up a Chrony Time Server

Unit 6 - Configuring External Authentication and Authorization

- Understanding Red Hat Identity Management
- Using authconfig to set up External Authentication
- Configuring a System to Authenticate Using Kerberos
- Understanding authconfig Configuration Files

Unit 7 - Configuring an iSCSI SAN

- Understanding iSCSI Target and Initiator
- Setting up an iSCSI Target
- Connecting the iSCSI Initiator to an iSCSI SAN
- Verifying the iSCSI Connection

Unit 8 - System Performance Reporting

- Understanding System Performance Parameters
- Understanding top
- Understanding iostat
- Understanding vmstat
- Understanding sar Components
- Setting up sar
- Analyzing sar Data

Unit 9 - System Optimization Basics

- Understanding the /proc Contents
- Analyzing the /proc File System
- Optimizing Through /proc
- Introducing sysctl
- Using sysctl
- Modifying Network Behavior Through /proc and sysctl

Unit 10 - Configuring Advanced Log Features

- Understanding Logging in RHEL7

- Connecting Journald to Rsyslog
- Setting up Remote Logging

Unit 11 - Configuring Routing and Advanced Networking

- Networking Basics Resumed
- Understanding Routing
- Setting up Static Routing
- Understanding Network Bridges
- Setting up Network Bridges
- Understanding Network Bonds and Teams
- Configuring Network Teams
- Configuring IPv6

Unit 12 - An Introduction to Bash Shell Scripting

- Understanding Shell Scripting Core Elements
- Using Variables
- Using Positional Parameters
- Understanding if then else
- Understanding for
- Understanding while and until
- Understanding case

Unit 13 - Advanced Firewall Configuration

- Understanding Firewalls Operation
- Configuring Firewalls Services and Zones
- Creating Services Files
- Configuring Rich Firewall Rules
- Understanding NAT and Port Forwarding
- Configuring NAT
- Configuring Port Forwarding

Unit 14 - Managing Advanced Apache Services

- Setting up Authenticated Web Servers
- Configuring Apache for LDAP Authentication
- Enabling CGI Scripts
- Understanding TLS Protected Web Sites
- Setting up TLS Protected Web Sites

Unit 15 - Configuring DNS Server

- Understanding DNS
- Understanding Different DNS Server Modes
- Analyzing DNS Output with dig
- Setting up a Cache-only DNS Nameserver
- Opening the Firewall for DNS
- Working with Cache Dumps

Unit 16 - Configuring a MariaDB Database

- Understanding Relational Databases
- Creating a Base MariaDB Configuration
- Creating Databases and Tables
- Managing Users and Permissions
- Backing up the Database

Unit 17 - Configuring NFS File Sharing

- Understanding NFSv4 Features
- Configuring NFS Exports Suitable for Group Collaboration
- Mounting NFS Shares
- Using Kerberos to Control Access to NFS Network Shares–Part 1
- Using Kerberos to Control Access to NFS Network Shares–Part 2
- Opening the Firewall for NFS
- Understanding showmount and NFSv4
- Understanding NFS SELinux Configuration

Unit 18 - Configuring Samba File Services

- Accessing SMB Shares
- Samba Server Configuration Overview
- Creating the SMB Share: Linux Tasks
- Creating the SMB Share: smb.conf Tasks
- Tuning the Share for Access Restrictions
- Verifying the Configuration
- Using Samba-Related SELinux Settings
- Opening the Firewall for SMB Traffic

Unit 19 - Setting Up an SMTP Server

- Understanding Server Roles in Email
- Understanding Postfix Configuration
- Configuring Postfix for Mail Reception
- Configuring Postfix for Relaying Mail
- Demonstration: Monitoring a Working Mail Configuration
- Understanding Postfix Maps

Unit 20 - Managing SSH

- Understanding Secure SSH Authentication
- Configuring Key-based Authentication
- Understanding Important SSH Options
- Tuning SSH Client Options
- Understanding the Use of SSH Tunnels
- Creating SSH Tunnels

Unit 21 - Managing Time Services

- Understanding RHEL7 Time Services
- Configuring NTP Peers