

This GL124 course is designed to follow an identical set of topics as the Red Hat® RH124 course with the added benefit of very comprehensive lab exercises and detailed lecture material.

The Red Hat Enterprise Linux (RHEL) system administration topics covered in this course along with the GL134 course cover the certification objects of the Red Hat Certified System Administrator (RHCSA) exam.

The topics covered include essential command line tools, installing RHEL, remote administration techniques, managing local storage, system monitoring, basic user and security, administration, connecting to a network and deploying FTP and Web servers.

Prerequisites:

Students must be proficient in general computing skills but not necessarily experienced with Linux or Unix.

Supported Distributions:

Red Hat Enterprise Linux 7

Course Outline:

1. ACCESS THE COMMAND LINE

1. Components of a Distribution
2. Red Hat Linux Products
3. Logging In
4. Running Programs
5. Interacting with Command Line
6. Desktop Environments
7. GNOME
8. got root?
9. Switching User Contexts
10. sudo

LAB TASKS

11. Login and Discovery
12. Switching Users With su

2. MANAGE FILES FROM THE COMMAND LINE

1. Managing Files Graphically
2. Drag and drop with Nautilus
3. Physical Unix File Structure
4. Unix/Linux Filesystem Features
5. Navigating the Filesystem
6. Displaying Directory Contents
7. Directory Manipulation
8. File Manipulation
9. Deleting and Creating Files
10. Filesystem Links

LAB TASKS

11. Navigating Directories and Listing Files
12. Manipulating Files and Directories

3. GET HELP IN A TEXTUAL ENVIRONMENT

1. Gathering Login Session Info
2. Red Hat Online Documentation
3. Getting Help Within the Graphical Desktop
4. Gathering System Info
5. Help from Commands and Documentation
6. Getting Help with man & info

LAB TASKS

7. Help with Commands

4. CREATE, VIEW, AND EDIT TEXT FILES

1. The gedit Text Editor
2. Pico/GNU Nano
3. Pico/Nano Interface
4. Nano configuration
5. Pico/Nano Shortcuts
6. Communication Channels
7. File Redirection
8. Piping Commands Together
9. The Streaming Editor
10. Text Processing with Awk
11. Producing File Statistics

12. Replacing Text Characters
13. Text Sorting
14. Duplicate Removal Utility
15. Extracting Columns of Text
16. Combining Files and Merging Text
17. Comparing File Changes

LAB TASKS

18. Text Editing with Nano
19. Text Processing

5. MANAGE LOCAL LINUX USERS AND GROUPS

1. User and Group Concepts
2. User Administration
3. Modifying Accounts
4. Group Administration
5. User Private Group Scheme
6. Password Aging

LAB TASKS

7. User and Group Administration
8. User Private Groups

6. CONTROL ACCESS TO FILES WITH LINUX FILE SYSTEM PERMISSIONS

1. File Ownership
2. File and Directory Permissions
3. SUID and SGID on files
4. SGID and Sticky Bit on Directories
5. Changing File Permissions

LAB TASKS

6. File and Directory Ownership and Permissions

7. MONITOR AND MANAGE LINUX PROCESSES

1. What is a Process?
2. Process States
3. Viewing Processes
4. System Status - CPU

5. System Status - Memory
6. Signals
7. Tools to Send Signals
8. Managing Processes
9. Tuning Process Scheduling

LAB TASKS

10. Process Management Basics

8. CONTROL SERVICES AND DAEMONS

1. init
2. Linux Runlevels Aliases
3. systemd System and Service Manager
4. systemd Targets
5. Using systemd
6. Legacy Support for SysV init

LAB TASKS

7. Managing Services With Systemd's systemctl

9. CONFIGURE AND SECURE OPENSSSH SERVICE

1. Secure Shell
2. ssh and sshd Configuration
3. Accessing Remote Shells
4. Transferring Files
5. Alternative sftp Clients
6. SSH Key Management
7. ssh-agent

LAB TASKS

8. Introduction to ssh and scp
9. SSH Key-based User Authentication
10. Using ssh-agent

10. ANALYZING AND STORING LOGS

1. System Logging
2. systemd Journal
3. systemd Journal's journactl

4. Secure Logging with Journal's Log Sealing
5. gnome-system-log
6. Syslog-ng
7. Rsyslog
8. /etc/rsyslog.conf
9. Log Management
10. Log Anomaly Detector

LAB TASKS

11. Using the systemd Journal
12. Setting up a Full Debug Logfile
13. Remote Syslog Configuration

11. MANAGE RED HAT ENTERPRISE LINUX NETWORKING

1. IPv4 Fundamentals
2. TCP/UDP Fundamentals
3. Linux Network Interfaces
4. Ethernet Hardware Tools
5. Network Configuration with ip Command
6. Starting and Stopping Interfaces
7. Configuring Routing Tables
8. IP to MAC Address Mapping with ARP
9. DNS Clients
10. DHCP Clients
11. Continual Time Sync with NTP
12. Network Diagnostics
13. NetworkManager

LAB TASKS

14. Network Discovery
15. Basic Client Networking
16. Introduction to Troubleshooting Labs
17. Troubleshooting Practice: Networking

12. ARCHIVE AND COPY FILES BETWEEN SYSTEMS

1. Archives with tar
2. Archives with cpio
3. The gzip Compression Utility

4. The bzip2 Compression Utility
5. The XZ Compression Utility
6. The PKZIP Archiving/Compression format

LAB TASKS

7. Archiving and Compression
8. Using rsync and ssh for Backups

13. INSTALL AND UPDATE SOFTWARE PACKAGES

1. Managing Software
2. RPM Features
3. RPM Architecture
4. RPM Package Files
5. Working With RPMs
6. Querying and Verifying with RPM
7. Managing Software Dependencies
8. Using the Yum command
9. YUM package groups
10. Updating the Kernel RPM
11. Dealing With RPM & Yum Digest Changes
12. YUM Repositories
13. YUM Repository Groups
14. Yum Plugins & RHN Subscription Manager

LAB TASKS

15. Managing Software with RPM
16. Querying the RPM Database
17. Using Yum

14. ACCESS LINUX FILE SYSTEMS

1. Filesystem Creation
2. Mounting Filesystems
3. Mounting Filesystems
4. Filesystem Maintenance
5. Managing an XFS Filesystem
6. Persistent Block Devices
7. Filesystem Structures
8. Determining Disk Usage With df and du

9. Filesystem Table (/etc/fstab)

LAB TASKS

10. Creating and Managing Filesystems

15. MANAGE VIRTUAL MACHINES

1. Introducing libvirt
2. libvirt: Basic Concepts
3. libvirt: Storage Architecture
4. libvirt: Network Architecture
5. libvirt: Graphical Tools
6. libvirt: Command Line Tools
7. virsh: Basics
8. virsh: Common Tasks
9. virt-install
10. Virtual Machine Guest Tools & Drivers
11. libguestfs and guestfish

LAB TASKS

12. Installing a Virtual Machine

16. COMPREHENSIVE REVIEW

1. System Administration I

LAB TASKS

2. Understand And Use Essential Tools
3. Operate Running Systems
4. Users, Groups, and File Permissions