

Red Hat RHCSA (Linux Server Admin)



Red Hat

SYLLABUS



Rooman Technologies Pvt Ltd
#30, 12th Main, 1st Stage Rajajinagar,
Bangalore – 560010

E-mail: info@rooman.net
Phone: 7022020000



| | |
|---|------------|
| Document Conventions | ix |
| Introduction | xi |
| Red Hat System Administration I | xi |
| Orientation to the Classroom Environment | xii |
| Controlling Your Systems | xiii |
| Internationalization | xiv |
| 1. Getting Started with Red Hat Enterprise Linux | 1 |
| What is Linux? | 2 |
| Quiz: Getting Started with Red Hat Enterprise Linux | 9 |
| Summary | 11 |
| 2. Accessing the Command Line | 13 |
| Accessing the Command Line | 14 |
| Quiz: Accessing the Command Line | 19 |
| Accessing the Command Line Using the Desktop | 23 |
| Guided Exercise: Accessing the Command Line Using the Desktop | 27 |
| Executing Commands Using the Bash Shell | 29 |
| Quiz: Executing Commands Using the Bash Shell | 35 |
| Lab: Accessing the Command Line | 39 |
| Summary | 45 |
| 3. Managing Files From the Command Line | 47 |
| Describing Linux File System Hierarchy Concepts | 48 |
| Quiz: Describing Linux File System Hierarchy Concepts | 51 |
| Specifying Files by Name | 55 |
| Quiz: Specifying Files by Name | 60 |
| Managing Files Using Command-line Tools | 64 |
| Guided Exercise: Managing Files Using Command-line Tools | 70 |
| Making Links Between Files | 75 |
| Guided Exercise: Making Links Between Files | 79 |
| Matching File Names with Shell Expansions | 81 |
| Quiz: Matching File Names with Shell Expansions | 86 |
| Lab: Managing Files from the Command Line | 90 |
| Summary | 100 |
| 4. Getting Help in Red Hat Enterprise Linux | 101 |
| Reading Manual Pages | 102 |
| Guided Exercise: Reading Manual Pages | 106 |
| Reading Info Documentation | 110 |
| Guided Exercise: Reading Info Documentation | 113 |
| Lab: Getting Help in Red Hat Enterprise Linux | 116 |
| Summary | 123 |
| 5. Creating, Viewing, and Editing Text Files | 125 |
| Redirecting Output to a File or Program | 126 |
| Quiz: Redirecting Output to a File or Program | 132 |
| Editing Text Files from the Shell Prompt | 136 |
| Guided Exercise: Editing Text Files from the Shell Prompt | 140 |
| Changing the Shell Environment | 142 |
| Guided Exercise: Changing the Shell Environment | 148 |
| Lab: Creating, Viewing, and Editing Text Files | 151 |
| Summary | 159 |
| 6. Managing Local Users and Groups | 161 |
| Describing User and Group Concepts | 162 |
| Quiz: Describing User and Group Concepts | 165 |



| | |
|---|------------|
| Gaining Superuser Access | 169 |
| Guided Exercise: Gaining Superuser Access | 174 |
| Managing Local User Accounts | 179 |
| Guided Exercise: Managing Local User Accounts | 182 |
| Managing Local Group Accounts | 185 |
| Guided Exercise: Managing Local Group Accounts | 188 |
| Managing User Passwords | 191 |
| Guided Exercise: Managing User Passwords | 195 |
| Lab: Managing Local Users and Groups | 199 |
| Summary | 204 |
| 7. Controlling Access to Files | 205 |
| Interpreting Linux File System Permissions | 206 |
| Quiz: Interpreting Linux File System Permissions | 211 |
| Managing File System Permissions from the Command Line | 215 |
| Guided Exercise: Managing File System Permissions from the Command Line | 219 |
| Managing Default Permissions and File Access | 223 |
| Guided Exercise: Managing Default Permissions and File Access | 227 |
| Lab: Controlling Access to Files | 232 |
| Summary | 238 |
| 8. Monitoring and Managing Linux Processes | 239 |
| Listing Processes | 240 |
| Quiz: Listing Processes | 245 |
| Controlling Jobs | 247 |
| Guided Exercise: Controlling Jobs | 250 |
| Killing Processes | 255 |
| Guided Exercise: Killing Processes | 261 |
| Monitoring Process Activity | 266 |
| Guided Exercise: Monitoring Process Activity | 270 |
| Lab: Monitoring and Managing Linux Processes | 275 |
| Summary | 286 |
| 9. Controlling Services and Daemons | 287 |
| Identifying Automatically Started System Processes | 288 |
| Guided Exercise: Identifying Automatically Started System Processes | 293 |
| Controlling System Services | 297 |
| Guided Exercise: Controlling System Services | 301 |
| Lab: Controlling Services and Daemons | 305 |
| Summary | 309 |
| 10. Configuring and Securing SSH | 311 |
| Accessing the Remote Command Line with SSH | 312 |
| Guided Exercise: Accessing the Remote Command Line | 315 |
| Configuring SSH Key-based Authentication | 319 |
| Guided Exercise: Configuring SSH Key-based Authentication | 323 |
| Customizing OpenSSH Service Configuration | 329 |
| Guided Exercise: Customizing OpenSSH Service Configuration | 331 |
| Lab: Configuring and Securing SSH | 337 |
| Summary | 344 |
| 11. Analyzing and Storing Logs | 345 |
| Describing System Log Architecture | 346 |
| Quiz: Describing System Log Architecture | 348 |
| Reviewing Syslog Files | 352 |
| Guided Exercise: Reviewing Syslog Files | 356 |
| Reviewing System Journal Entries | 359 |



| | |
|---|------------|
| Guided Exercise: Reviewing System Journal Entries | 364 |
| Preserving the System Journal | 368 |
| Guided Exercise: Preserving the System Journal | 371 |
| Maintaining Accurate Time | 374 |
| Guided Exercise: Maintaining Accurate Time | 378 |
| Lab: Analyzing and Storing Logs | 382 |
| Summary | 387 |
| 12. Managing Networking | 389 |
| Describing Networking Concepts | 390 |
| Quiz: Describing Networking Concepts | 401 |
| Validating Network Configuration | 405 |
| Guided Exercise: Validating Network Configuration | 411 |
| Configuring Networking from the Command Line | 414 |
| Guided Exercise: Configuring Networking from the Command Line | 420 |
| Editing Network Configuration Files | 425 |
| Guided Exercise: Editing Network Configuration Files | 428 |
| Configuring Host Names and Name Resolution | 433 |
| Guided Exercise: Configuring Host Names and Name Resolution | 436 |
| Lab: Managing Networking | 440 |
| Summary | 445 |
| 13. Archiving and Transferring Files | 447 |
| Managing Compressed tar Archives | 448 |
| Guided Exercise: Managing Compressed Tar Archives | 454 |
| Transferring Files Between Systems Securely | 457 |
| Guided Exercise: Transferring Files Between Systems Securely | 459 |
| Synchronizing Files Between Systems Securely | 461 |
| Guided Exercise: Synchronizing Files Between Systems Securely | 465 |
| Lab: Archiving and Transferring Files | 467 |
| Summary | 473 |
| 14. Installing and Updating Software Packages | 475 |
| Registering Systems for Red Hat Support | 476 |
| Quiz: Registering Systems for Red Hat Support | 480 |
| Explaining and Investigating RPM Software Packages | 482 |
| Guided Exercise: Explaining and Investigating RPM Software Packages | 487 |
| Installing and Updating Software Packages with Yum | 490 |
| Guided Exercise: Installing and Updating Software Packages with Yum | 497 |
| Enabling Yum Software Repositories | 502 |
| Guided Exercise: Enabling Yum Software Repositories | 505 |
| Managing Package Module Streams | 509 |
| Guided Exercise: Managing Package Module Streams | 515 |
| Lab: Installing and Updating Software Packages | 519 |
| Summary | 526 |
| 15. Accessing Linux File Systems | 527 |
| Identifying File Systems and Devices | 528 |
| Quiz: Identifying File Systems and Devices | 532 |
| Mounting and Unmounting File Systems | 534 |
| Guided Exercise: Mounting and Unmounting File Systems | 538 |
| Locating Files on the System | 541 |
| Guided Exercise: Locating Files on the System | 548 |
| Lab: Accessing Linux File Systems | 551 |
| Summary | 556 |
| 16. Analyzing Servers and Getting Support | 557 |



| | |
|--|------------|
| Analyzing and Managing Remote Servers | 558 |
| Guided Exercise: Analyzing and Managing Remote Servers | 572 |
| Getting Help From Red Hat Customer Portal | 576 |
| Guided Exercise: Getting Help from Red Hat Customer Portal | 585 |
| Detecting and Resolving Issues with Red Hat Insights | 587 |
| Quiz: Detecting and Resolving Issues with Red Hat Insights | 595 |
| Summary | 597 |
| 17. Comprehensive Review | 599 |
| Comprehensive Review | 600 |
| Lab: Managing Files from the Command Line | 604 |
| Lab: Managing Users and Groups, Permissions and Processes | 612 |
| Lab: Configuring and Managing a Server | 619 |
| Lab: Managing Networks | 626 |
| Lab: Mounting Filesystems and Finding Files | 633 |

RH124

Red Hat System Administration I

Document Conventions

Introduction

1. Getting Started with Red Hat Enterprise Linux

What is Linux?

Quiz: Getting Started with Red Hat Enterprise Linux

Summary

2. Accessing the Command Line

Accessing the Command Line

Quiz: Accessing the Command Line

Accessing the Command Line Using the Desktop

Guided Exercise: Accessing the Command Line Using the Desktop

Executing Commands Using the Bash Shell

Quiz: Executing Commands Using the Bash Shell

Lab: Accessing the Command Line

Summary

3. Managing Files From the Command Line

Describing Linux File System Hierarchy Concepts

Quiz: Describing Linux File System Hierarchy Concepts

Specifying Files by Name

Quiz: Specifying Files by Name
Managing Files Using Command-line Tools
Guided Exercise: Managing Files Using Command-line Tools
Making Links Between Files
Guided Exercise: Making Links Between Files
Matching File Names with Shell Expansions
Quiz: Matching File Names with Shell Expansions
Lab: Managing Files from the Command Line
Summary

4. Getting Help in Red Hat Enterprise Linux

Reading Manual Pages
Guided Exercise: Reading Manual Pages
Reading Info Documentation
Guided Exercise: Reading Info Documentation
Lab: Getting Help in Red Hat Enterprise Linux
Summary

5. Creating, Viewing, and Editing Text Files

Redirecting Output to a File or Program
Quiz: Redirecting Output to a File or Program
Editing Text Files from the Shell Prompt
Guided Exercise: Editing Text Files from the Shell Prompt
Changing the Shell Environment
Guided Exercise: Changing the Shell Environment
Lab: Creating, Viewing, and Editing Text Files
Summary

6. Managing Local Users and Groups

Describing User and Group Concepts
Quiz: Describing User and Group Concepts
Gaining Superuser Access
Guided Exercise: Gaining Superuser Access
Managing Local User Accounts
Guided Exercise: Managing Local User Accounts
Managing Local Group Accounts
Guided Exercise: Managing Local Group Accounts
Managing User Passwords
Guided Exercise: Managing User Passwords
Lab: Managing Local Users and Groups
Summary

7. Controlling Access to Files

Interpreting Linux File System Permissions
Quiz: Interpreting Linux File System Permissions
Managing File System Permissions from the Command Line
Guided Exercise: Managing File System Permissions from the Command Line
Managing Default Permissions and File Access
Guided Exercise: Managing Default Permissions and File Access
Lab: Controlling Access to Files
Summary

8. Monitoring and Managing Linux Processes

Listing Processes
Quiz: Listing Processes
Controlling Jobs
Guided Exercise: Controlling Jobs

Killing Processes

Guided Exercise: Killing Processes

Monitoring Process Activity

Guided Exercise: Monitoring Process Activity

Lab: Monitoring and Managing Linux Processes

Summary

9. Controlling Services and Daemons

Identifying Automatically Started System Processes

Guided Exercise: Identifying Automatically Started System Processes

Controlling System Services

Guided Exercise: Controlling System Services

Lab: Controlling Services and Daemons

Summary

10. Configuring and Securing SSH

Accessing the Remote Command Line with SSH

Guided Exercise: Accessing the Remote Command Line

Configuring SSH Key-based Authentication

Guided Exercise: Configuring SSH Key-based Authentication

Customizing OpenSSH Service Configuration

Guided Exercise: Customizing OpenSSH Service Configuration

Lab: Configuring and Securing SSH

Summary

11. Analyzing and Storing Logs

Describing System Log Architecture

Quiz: Describing System Log Architecture

Reviewing Syslog Files

Guided Exercise: Reviewing Syslog Files
Reviewing System Journal Entries
Guided Exercise: Reviewing System Journal Entries
Preserving the System Journal
Guided Exercise: Preserving the System Journal
Maintaining Accurate Time
Guided Exercise: Maintaining Accurate Time
Lab: Analyzing and Storing Logs
Summary

12. Managing Networking

Describing Networking Concepts
Quiz: Describing Networking Concepts
Validating Network Configuration
Guided Exercise: Validating Network Configuration
Configuring Networking from the Command Line
Guided Exercise: Configuring Networking from the Command Line
Editing Network Configuration Files
Guided Exercise: Editing Network Configuration Files
Configuring Host Names and Name Resolution
Guided Exercise: Configuring Host Names and Name Resolution
Lab: Managing Networking
Summary

13. Archiving and Transferring Files

Managing Compressed tar Archives
Guided Exercise: Managing Compressed Tar Archives
Transferring Files Between Systems Securely

Guided Exercise: Transferring Files Between Systems Securely
Synchronizing Files Between Systems Securely
Guided Exercise: Synchronizing Files Between Systems Securely
Lab: Archiving and Transferring Files
Summary

14. Installing and Updating Software Packages

Registering Systems for Red Hat Support
Quiz: Registering Systems for Red Hat Support
Explaining and Investigating RPM Software Packages
Guided Exercise: Explaining and Investigating RPM Software Packages
Installing and Updating Software Packages with Yum
Guided Exercise: Installing and Updating Software Packages with Yum
Enabling Yum Software Repositories
Guided Exercise: Enabling Yum Software Repositories
Managing Package Module Streams
Guided Exercise: Managing Package Module Streams
Lab: Installing and Updating Software Packages
Summary

15. Accessing Linux File Systems

Identifying File Systems and Devices
Quiz: Identifying File Systems and Devices
Mounting and Unmounting File Systems
Guided Exercise: Mounting and Unmounting File Systems
Locating Files on the System
Guided Exercise: Locating Files on the System
Lab: Accessing Linux File Systems

Summary

16. Analyzing Servers and Getting Support

Analyzing and Managing Remote Servers

Guided Exercise: Analyzing and Managing Remote Servers

Getting Help From Red Hat Customer Portal

Guided Exercise: Getting Help from Red Hat Customer Portal

Detecting and Resolving Issues with Red Hat Insights

Quiz: Detecting and Resolving Issues with Red Hat Insights

Summary

17. Comprehensive Review

Comprehensive Review

Lab: Managing Files from the Command Line

Lab: Managing Users and Groups, Permissions and Processes

Lab: Configuring and Managing a Server

Lab: Managing Networks

Lab: Mounting Filesystems and Finding Files