LINUX-6 Curriculum

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Rh124 Red Hat System Administration I

Red Hat System Administration I (RH124) is designed for IT professionals who are new to Linux and require core Red Hat Enterprise Linux skills. Focused on administration tasks that will be encountered in the workplace, this course will actively engage students in task-focused activities, lab-based knowledge checks, and facilitative discussions to ensure maximum skill transfer and retention. In addition, GUI-based tools will be featured to build on the students' existing technical knowledge, while key command line concepts will be introduced to provide a foundation for students planning to become fulltime Linux system administrators. By the end of the five-day course, students will be able to perform installation, establish network connectivity, manage physical storage, and perform basic security administration.

Course Outline

Unit 1: Get Started with the GNOME Graphical Desktop

Objective: Get started with GNOME and edit text files with gedit

Unit 2: Manage Files Graphically with Nautilus

Objective: Manage files graphically and access remote systems with Nautilus

Unit 3: Get Help in a Graphical Environment

Objective: Access documentation, both locally and online

Unit 4: Configure Local Services

Objective: Configure the date and time and configure a printer

Unit 5: Manage Physical Storage I

Objective: Understand basic disk concepts and manage system disks

LINUX-6

Unit 6: Manage Logical Volumes

Objective: Understand logical volume concepts and manage logical volumes

Unit 7: Monitor System Resources

Objective: Manage CPU, memory, and disk utilization

Unit 8: Manage System Software

Objective: Manage system software locally and using Red Hat Network (RHN)

Unit 9: Get Started with Bash

Objective: Understand basic shell concepts, execute simple commands, and use basic job control techniques

Unit 10: Get Help in a Textual Environment

Objective: Use man and info pages and find documentation in /usr/share/doc

Unit 11: Establish Network Connectivity

Objective: Understand basic network concepts; configure, manage, and test network settings

Unit 12: Administer Users and Groups

Objective: Manage users and groups

Unit 13: Manage Files from the Command Line

Objective: Understand Linux filesystem hierarchy and pathnames; manage files from the command line

Unit 14: Secure Linux File Access

Objective: Understand Linux file access mechanisms; manage file access from the GUI and the command line

Unit 15: Administer Remote Systems

Objective: Share and connect to a desktop; use SSH and rsync

Unit 16: Configure General Services

Objective: Manage services; configure SSH and remote desktops

Unit 17: Manage Physical Storage II

Objective: Manage filesystem attributes and swap space

Unit 18: Install Linux Graphically

Objective: Install Red Hat Enterprise Linux and configure the system with firstboot

Unit 19: Manage Virtual Machines

Objective: Understand basic virtualization concepts; install and manage virtual machines

Unit 20: Control the Boot Process

Objective: Understand runlevels and manage GRUB

LINUX-6

Unit 21: Deploy File Sharing Services

Objective: Deploy an FTP server and a web server

Unit 22: Secure Network Services

Objective: Manage a firewall; understand SELinux concepts and manage SELinux

Unit 23: Comprehensive Review

Objective: Get a hands-on review of the concepts covered in this course

RH135 - Red Hat System Administration II

Red Hat System Administration II (RH135) is designed for IT professionals working to become full-time enterprise Linux system administrators. The course is a follow-up to System Administration I and continues to utilize today's best-of-breed, contemporary teaching methodology. Students will be actively engaged in task-focused activities, lab based knowledge checks, and facilitative discussions to ensure maximum skills transfer and retention. Building on the foundation of command line skills covered in System Administration I, students will dive deeper into Red Hat Enterprise Linux to broaden their "tool kits" of administration skills. By the end of this five-day course, students will be able to administer and troubleshoot file systems and partitioning, logical volume management, access control, package management. Students who attend Red Hat System Administration I & II will be fully prepared to take the Red Hat Certified System Administration (RHCSA) exam.

Course Outline

Unit 1: Automated Installations of Red Hat Enterprise Linux

Objectives: Create and manage kickstart configuration files; perform installations using kickstart

Unit 2: Accessing the Command Line

Objectives: Access the command line locally and remotely; gain administrative privileges from the command line

Unit 3: Intermediate Command Line Tools

Objectives: Use softlinks, hardlinks, archives and compression, and vim.

LINUX-6

Unit 4: Regular Expressions, Pipelines, and I/O Redirection

Objectives: Use regular expressions to search patterns in files and output; redirect and pipe output

Unit 5: Network Configuration and Troubleshooting

Objectives: Configure network settings; troubleshoot network issues

Unit 6: Managing Simple Partitions and Filesystems

Objectives: Create and format simple partitions, swap partitions, and encrypted partitions

Unit 7: Managing Flexible Storage with the Logical Volume Manager (LVM)

Objectives: Implement LVM and LVM snapshots

Unit 8: Access Network File Sharing Services; NFS and CIFS

Objectives: Implement NFS, CIFS and autofs

Unit 9: Managing User Accounts

Objectives: Manage user accounts including password aging

Unit 10: Network User Accounts with LDAP

Objectives: Connect to a central LDAP directory service

Unit 11: Controlling Access to Files

Objectives: Manage group memberships, file permissions, and access control lists (ACL)

Unit 12: Managing SELinux

Objectives: Activate and deactivate SELinux, set file contexts, manage SELinux Booleans, analyze SELinux logs

Unit 13: Installing and Managing Software

Objectives: Manage software and query information with yum; configure client-side yum repository files

Unit 14: Managing Installed Services

Objectives: Managing services; verify connectivity to a service

Unit 15: Analyzing and Storing Logs

Objectives: Managing logs with rsyslog and logrotate

Unit 16: Managing Processes

Objectives: Identify and terminate processes, change the priority of a process, and use cron and at to schedule processes.

LINUX-6

Unit 17: Tuning and Maintaining the Kernel

Objectives: List, load, and remove modules; use kernel arguments.

Unit 18: System Recovery Techniques

Objectives: Understand the boot process and resolve boot problems.

Rh255 - Red Hat System Administration III

Red Hat System Administration III (RH255) is designed for experienced Linux administrators who require networking and security administration skills. With a heavy emphasis on practical, hands-on labs, this course is tightly aligned with experienced Linux administrators' job tasks and the skills required for advancement. Focus is placed on enhancing the students' automation skills to securely configure, deploy and manage network services including DNS, Apache, SMTP, and network file sharing. In addition, this course emphasizes security, including monitoring, packet filtering, access controls, and SELinux. At the completion of this course, students already familiar with the RHCT/RHCSA administration skills will have exposure to all competencies tested by the RHCSA and RHCE exams. This class includes the RHCSA and the RHCE Exams.

Course Outline

Unit 1: Getting Started with the Classroom Environment

Objective: Given a virtualized environment, begin to administrate multiple systems using prerequisite skills

Unit 2: Enhance User Security

Objective: Configure system to use Kerberos to verify credentials and grant privileges via sudo

Unit 3: Bash Scripting and Tools

Objective: Automate system administration tasks utilizing Bash scripts and text-based tools

Unit 4: File Security with GnuPG

Objective: Secure files with GnuPG

Unit 5: Software Management

Objective: Use yum plugins to manage packages; understand the design of packages; build a simple package

Unit 6: Network Monitoring

Objective: Profile running services, then capture and analyze network traffic

LINUX-6

Unit 7: Route Network Traffic

Objective: Configure system to route traffic and customize network parameters with sysctl

Unit 8: Secure Network Traffic

Objective: Secure network traffic through SSH port forwarding and iptables filtering/network address translation (NAT)

Unit 9: NTP Server Configuration

Objective: Configure an NTP server

Unit 10: Filesystems and Logs

Objective: Manage local filesystem integrity; monitor systems over time and system logging

Unit 11: Centralized and Secure Storage

Objective: Access centralized storage (iSCSI) and encrypt filesystems

Unit 12: SSL-encapsulated Web Services

Objective: Understand SSL certificates and deploy an SSL-encapsulated web service

Unit 13: Web Server Additional Configuration

Objective: Configure a web server with virtual hosts, dynamic content, and authenticated directories

Unit 14: Basic SMTP Configuration

Objective: Configure an SMTP server for basic operation (null client, receiving mail, smarthost relay)

Unit 15: Caching-Only DNS Server

Objective: Understand DNS resource records and configure a caching-only name server

Unit 16: File Sharing with NFS

Objective: Configure file sharing between hosts with NFS

Unit 17: File Sharing with CIFS

Objective: Configure file and print sharing between hosts with CIFS

Unit 18: File Sharing with FTP

Objective: Configure file sharing with anonymous FTP

Unit 19: Troubleshooting Boot Process

Objective: Understand the boot process and recover unbootable systems with rescue mode

NOTE: Course outline is subject to change with technology changes and as nature of the underlying job evolves.

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