Red Hat Linux System Administration

Elements of this syllabus are subject to change.

Key Data

Course #:	**RH133**
Number of Days:	**5- days**
Format:	Instructor-Led

Hilton Computer Strategies

6001 Savoy
Suite 207
Houston, TX 77036

713.782.6665
800.324.7415
713.782.0630 fax

www.hiltoncomputer.com

Course Description

For users of Linux (or UNIX) who want to start building skills in systems administration on Red Hat Enterprise Linux, to a level where they can attach and configure a workstation on an existing network. This 4 1/2-day course provides intensive hands-on training on Red Hat Enterprise Linux 3, and includes the RH202 RHCT Certification Lab Exam on the last day. Those who are interested in taking the RH133 course, but who are not interested in RHCT certification or who feel they must defer the RHCT Exam to a later date may wish to consider RH131. Updated for building skills on Red Hat Enterprise Linux 4!

This course includes:

- 5 days intensive training on Red Hat Enterprise Linux 3
- Hands-on labs and exercises
- RHCT Exam on the morning of day 5
- Catered lunch on days 1-4
- One workstation per student!
- Student materials, pre-assessment questionnaire, study aids, handouts
- Red Hat promotional items!
- All other expenses of travel and per diem are the student's responsibility.

Duration:
5-days Instructor-led

Prerequisites

- Red Hat Linux · RH033 Red Hat Linux Essentials or equivalent experience with Red Hat Linux.

To assist you in determining whether you have equivalent experience, take the RH033 Pre-assessment Questionnaire.

Audience
Linux or UNIX users, who understand the basics of Red Hat Linux, that desire further technical training to begin the process of becoming a system administrator.

Course Outline

Unit 1: Hardware, Device Configuration, and InstallationHardware Compatibility and Resources

- CPU and Memory Support
- Filesystem Device Nodes
- System and Hotswappable Bus Support
- Laptops
- Block Devices and Filesystem Schemes
- Red Hat Installer Features
- Red Hat Linux Installation
- Partitioning Hard Drives
- Configuring Software RAID at Installation
- Configuring Flexible Filesystems with LVM
- Network Configuration and Firewall Setup
- Package Selection
- Validating the Installation
- Serial Console Installation
- Noprobe Mode
- Driver Disks
- Post-Install Configuration

Hands-on Lab: Installing Red Hat Linux

Unit 2: Filesystem ManagementCreating and Managing Partitions

- Filesystem Basics and Attributes
- Filesystem Creation
- Ext3: Journaling for Ext2 Filesystems
- The Filesystem Hierarchy
- Mount options and configuration
- Connecting to Network Resources with NFS and SMB/CIFS
- Unmounting Filesystems
- The Auto-Mounter
- Swap partitions
- Filesystem Maintenance
- Determining Filesystem Usage
- Adding a Drive

Hands-on Lab: Creating a New Filesystem, Using autofs and Adding Swap

Unit 3: System Initialization and ServicesThe Boot Sequence

- BIOS Initialization
- The Boot Loader
- Kernel Initialization
- init Initialization
- Run levels
- Daemon Processes
- The rc.sysinit Script
- System V run levels
- The rc.local Script
- Virtual Consoles
- System Shutdown and Reboot
- Controlling Services

Hands-on Lab: Managing Startup

Unit 4: User AdministrationUser Policy Considerations

- The User Account Database
- Adding a New User Account
- Modifying/Deleting Accounts
- Password Aging Policies
- Authentication Configuration
- NIS Configuration
- Group Administration
- Switching Accounts
- File Ownership
- Linux File Permission
- SUID / SGID Executables
- The Sticky Bit and Setgid Access Mode
- Default File Permissions
- User Private Groups
- Filesystem Quota Setup and Administration

Hands-on Lab: User and Group Administration, Creating Quotas, Joining a NIS Domain and Automounting home directories

Unit 5: Network ConfigurationNetwork Device Recognition

- Network Interfaces
- Address Resolution Protocol
- Bringing Network Interfaces Up and Down
- Interface Configuration Files
- Configuration Utilities
- Multiple NICs
- Binding Multiple IP Addresses
- DHCP/BOOTP
- Allowing User Control of Network Interfaces
- Basic IP Routes
- System Default Route
- IP Forwarding
- Global Network Parameters
- Name Resolution
- DNS Client Configuration
- DNS and Network Diagnostics and Troubleshooting

Hands-on Lab: Static Network Settings

Unit 6: System Administration ToolsUsing the Alternatives System

- The Print System User Interface
- CUPS Printing System Configuration
- CUPS Queue Management
- Task Automation With at and cron
- Controlling Access to Task Automation
- crontab format
- System crontab Files
- Using tmpwatch
- Configuring, Maintaining and Monitoring System Logs
- Managing the whatis Database
- System Monitoring and Process Control
- Tape Backups
- Archiving with tar, dump/restore, and cpio
- Remote Backups

Hands-on Lab: System Administration Tools

Unit 7: RPM, Boot Loaders, and KickstartIntroduction to the RPM Package Manager

- Installing and Removing Software with RPM
- Installing Kernel Errata
- RPM Queries and Verification
- RPM Utilities and Features
- Red Hat Network in the Enterprise
- Red Hat Network Registration
- The up2date utility
- Remote Administration
- Boot Loader Components
- GRUB and grub.conf
- Starting the Boot Process
- Multiboot Systems
- Configuring a Red Hat Enterprise Linux Network Installation Server
- Using Kickstart to Automate Installation
- The Kickstart Configuration File

Hands-on Lab: Using Kickstart, RPM, Installing Kernel Errata, Booting Into a Maintenance Runlevel

Unit 8: Kernel Services and ConfigurationKernel Modules and Their Configuration

- The /proc filesystem
- /proc/sys configuration with sysctl
- Software RAID Configuration and Recovery
- Flexible Filesystems with LVM
- Using LVM to Create Snapshot Logical Volumes
- Hands-on Lab: RAID Creation, LVM Creation

Unit 9: The X Window SystemThe X Protocol

- X Security
- xauth with ssh
- X Modularity
- X Extensibility
- Window Managers
- Display Managers
- XFree86 Startup
- X Server Configuration
- The X Font Server

Hands-on Lab: The X Window System

Unit 10: TroubleshootingBasic Troubleshooting Guidelines

- Troubleshooting X
- Troubleshooting Services
- Troubleshooting Networking
- Troubleshooting Boot Problems
- Filesystem Corruption and Recovery
- Recovery Run-levels
- Boot Floppies
- Rescue Environment Utilities
- Rescue Environment Details

Hands-on Lab: System Rescue and Troubleshooting