

Linux+

Linux+ is a 5 days instructor led course designed to prepare students for the Linux+ exam by teaching them how to install, configure, and maintain a Linux system in various workstation and server roles. Students learn how to install and navigate a Linux system, customize the login environment, use the VI editor, and manage files, directories and permissions.

Students will also learn how to manage shared libraries and install applications from tar balls, as well as from proprietary package management applications such as the Red Hat Package Manager (RPM). By the end of the course, students will understand networking, printing, shell scripting, the X-Window system, and backup. They will learn to control processes, understand the role of the kernel, manage hard drives and troubleshoot hardware and software problems. From using shell wildcards at a terminal to using cron, students will learn essential Linux skills.

Target Audience

This course is designed for entry-level students, or Microsoft-only systems administrators who wish to manage Linux systems. After successful completion of this course, students will be well prepared for the Linux+ exam.

Prerequisites

None.

Duration

5 days

Topics

Linux Characteristics and Features

- What is Linux?
- Linux Characteristics
- Common Linux Features and Roles
- Common Linux Distributions
- Open Source Licensing

Preparing for Installation

- Planning the Implementation
- Validating Hardware Requirements
- System BIOS and the CMOS
- Standard IRQ Assignments
- ISA and PCI
- Accelerated Graphics Port (AGP)
- Plug-and-Play Device Configuration
- Peripheral Connectors and Cables
- Small Computer Systems Interface (SCSI)
- Monitors and Video Cards
- Mobile System Hardware
- Documenting the Server
- Obtaining Linux Information

Installing Linux

- Linux Hardware Compatibility
- Storage Space and Partition Schemes
- Common Linux Partition Schemes
- Linux, LILO and the 1024 Cylinder Limit
- Reasons for Multiple Partitions
- Partition Naming Schemes
- Installation Media and Types
- Configuring TCP/IP
- Additional Services
- Loadable Kernel Modules
- Linux Commands
- Your Logon Account
- Confirming Installation
- The Linux Kernel Naming Convention

Navigating the System

- The Linux File System Hierarchy
- Understanding the root Directory
- Linux File Name Conventions
- Paths
- Working with Directories Using *ls*
- Basic Access Permissions
- Reading Permissions
- Additional Access Control Bits
- Hard and Symbolic Links
- Finding Files with *find*
- Using *where is* and *locate*
- Multiple Commands and *xargs*

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Using Vi

- Text Editing and Linux
- Vi
- Pico

An Arsenal of Linux Commands

- Linux Command Overview
- Copying, Moving, and Deleting Files
- File Content-Listing Commands
- Simple Text File Utilities
- Miscellaneous Commands
- Starting the X-Window System
- Network Clients
- Pine
- Linuxconf Netconf

Customizing the Linux Logon Environment

- Understanding the Logon Environment
- Virtual Terminals
- Modifying the Search Path
- Your Shell Environment
- Startup Files
- The Linux Manual
- The TexInfo Database

Managing Processes and System Elements

- Linux Processes
- System and Network Daemons
- Process ID and Parent Process ID
- Job Control
- Using *nice* and *renice*
- Monitoring Processes with *ps*
- Using *pstree*
- Managing Processes with Top and Uptime
- Additional Monitoring Applications
- Scheduling Processes with Cron
- Cron Elements
- The *crontab* Command
- Anatomy of a Standard Crontab File
- Starting Cron
- Controlling Access to Cron

Managing the Hard Drive

- Common File System Formats
- The */etc/fstab* File
- The */etc/mstab* File
- Using the *mount* Command
- Mount and Removable Media
- Disk Partitioning and Formatting
- Using the *fdisk* Command
- Fck and File System Integrity
- Using the *hdparm* Command

The Kernel, Modules and LILO

- Locating the Kernel
- Major Kernel Responsibilities
- Why Update the Kernel?
- Kernel Modules
- Customizing the Boot Process
- Using GRUB

Networking with Linux

- Network Topologies
- Network Types
- Network Connectivity Devices
- Static IP Addressing in Linux
- Manual Interface Configuration
- Dynamic Addressing
- Testing Network Connectivity
- Understanding Ports
- Connecting to Linux Daemons
- The Internet daemon and TCPWrappers
- Troubleshooting Connectivity Problems

Linux and Dialup Access

- Dialup Networking Overview
- Modems and Interfaces
- Selecting the Correct Modem
- Serial Paths
- Using Seterial
- PPP Configuration
- The Modem Chat Sequence
- Activating the Interface
- Listing the PPP Interface
- Troubleshooting the Modem
- ISDN and Linux

The X-Window Environment

- What is the X-Window Environment?
- Numbering X-Windows Displays
- Remote X-Window Sessions
- Conducting Remote Logon Sessions
- Using the X-Window Environment
- Troubleshooting X-Window
- Reconfiguring X

User Management

- Adding Users and Groups in Linux
- User Accounts
- Automated Account Creation
- Password Management
- Groups
- System Accounts
- Special User Accounts

Managing Packages and Shared Libraries

- Installing New Packages
- RPM Overview
- The RPM Naming Convention
- Using the RPM Utility
- Maintaining the RPM facility
- Compiling a Source RPM
- Common RPM Errors
- Managing Shared Libraries

Managing Run Levels

- Starting and Stopping Linux
- The Boot Process
- Specifying Init Levels During System Boot
- The Init Process
- Linux Boot Process

I/O Redirection, Variables and Shell Scripts

- Standard Input, Standard Output, and Standard Error
- I/O Redirection
- Interacting with the Shell
- Assigning and Reading Variables
- Shell Scripts
- Subshells
- Shell Scripts and the Search Path
- Finding Patterns with Grep

Understanding Statements Printing in Linux

- Linux Printing Terminology
- GUI-Based Configuration Tools
- Connecting to a Remote Printer
- Choosing the Correct Print Filter
- Printing Documents
- Print Troubleshooting

Achieving and Restoring

- Planning a Backup Strategy
- Selecting a Backup Method
- Choosing a Backup Strategy
- Common Backup Media
- Archiving and Compression
- Using bzip2
- Troubleshooting Backup and Restore
- Errors

Maintaining and Troubleshooting Linux

- Installing Software
- Hardware Updating Best Practices
- Resource Conflicts
- Increasing Swap Space
- Fault Tolerance Options
- Troubleshooting the Linux Boot Process
- Linux System's Physical Environment
- System Security Issues