

# Linux+ Certification, 2004 Objectives, CompTIA Press Edition + CBT, 2nd Edition

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**Version:** 2

**Course Length:** 5-days (30+ hours)

**Audience:** Students preparing for the CompTIA Linux+ exam.

**Prerequisites:** General experience with Linux

**What's in Linux+ Certification, 2004 Objectives, CompTIA Press Edition + CBT, 2nd Edition:**

This ILT Series course will prepare students for the current CompTIA Linux+ certification exam. It provides a comprehensive guide to common tasks performed by system administrators, including installation, customization, and troubleshooting. Expanded coverage of networking and security are included, which map to the 2004 exam objectives. Comes with MeasureUp exam prep software and a companion CBT program

## Objectives

- Outline the key features of the Linux operating system, list the advantages of using Linux, and explain the common uses of Linux in the industry.
- Install Fedora Core 2; describe common types of central processing units, physical memory, disk drives, mainboards, peripheral devices, video adapter cards, monitors, keyboards, and mice; and obtain the hardware and software information necessary to install Linux.
- Explain the function of the Filesystem Hierarchy Standard, use standard commands to manage files and directories, find files and directories, understand and create linked files, modify file and directory ownership, define and change file and directory permissions, identify the default permissions created on files and directories, and apply special file and directory permissions.
- Install and configure SCSI devices; identify default IRQs, I/O addresses, and DMAs; explain how Plug-and-Play can be used to assign configuration to peripheral devices; explore fault-tolerant disk systems and RAID configurations; outline the steps used to install Linux from source files on a hard disk or network server; create a kickstart file; and troubleshoot the installation process.
- Redirect the input and output of a command; identify, manipulate, create, and export shell variables; edit environment files to create variables; describe the purpose of shell scripts; create and execute shell scripts; use common decision constructs in shell scripts; and use and customize the BASH shell command history feature.
- Outline the major steps necessary to boot a Linux system, configure the LILO and GRUB boot loaders, dual boot Linux with the Windows operating system, understand how the init daemon initializes the system at boot time, and understand runlevels.
- Explain the purpose of the GUI components such as X Windows, window managers, and desktop environments; list the common window managers and desktop environments; configure X Windows by using various utilities; start and stop an X server; and run X applications from the command line.

## Topic-Level Outline

### Unit 1 : Introduction to Linux

*Topic A: \* Linux as an operating system*

- A-1: Discussing operating systems
- A-2: Understanding Linux as an operating system
- A-3: Discussing Linux distributions

*Topic B: \* Common uses for Linux*

- B-1: Linux as an Internet server
- B-2: Linux as a file and print server
- B-3: Linux in business and science
- B-4: Linux as an office workstation

### Unit 2 : Installing a Linux system

*Topic A: \* Installing Linux*

- A-1: Starting the installation
- A-2: Creating hard disk partitions
- A-3: Configuring the boot loader, network, and firewall
- A-4: Choosing system language and time zone
- A-5: Setting the root password
- A-6: Selecting and installing packages
- A-7: Completing the installation

*Topic B: \* Understanding hardware*

- B-1: Discussing central processing units
- B-2: Understanding physical memory
- B-3: Using disk drives
- B-4: Discussing mainboards and peripheral components
- B-5: Discussing video adapters and monitors

*Topic C: \* Gathering pre-installation information*

- C-1: Creating a pre-installation checklist

### Unit 3 : Exploring interfaces and filesystems

*Topic A: \* Linux interfaces*

- A-1: Discussing terminals and shells
- Topic B: \* Basic shell commands*
- B-1: Using shell commands and metacharacters
  - B-2: Getting help
  - B-3: Shutting down the system

*Topic C: \* Files and directories*

- C-1: Logging on and navigating the file structure
- C-2: Examining files and file types
- C-3: Using wildcard metacharacters

*Topic D: \* Displaying the contents of files*

- D-1: Displaying text file contents

D-2: Displaying binary data

*Topic E: \* Searching and editing text files*

- E-1: Using regular expressions in grep and egrep
- E-2: Using the vi editor
- E-3: Exploring vi options
- E-4: Discussing common text editors

### Unit 4 : Filesystem management

*Topic A: \* The Filesystem Hierarchy Standard*

- A-1: Discussing the FHS directory structure
- A-2: Creating new directories
- A-3: Moving files by using the mv command
- A-4: Copying files by using the cp command
- A-5: Using the rm and rmdir commands

*Topic B: \* Searching and linking files*

- B-1: Using find, locate, and which
- B-2: Making and viewing links to files and directories

*Topic C: \* File and directory permissions*

- C-1: Using chown and chgrp
- C-2: Applying and modifying access permissions

*Topic D: \* Default and special permissions*

- D-1: Using the umask variable
- D-2: Viewing and setting special permissions

### Unit 5 : Filesystem administration

*Topic A: \* The /dev directory and device files*

- A-1: Creating and viewing device files
- Topic B: \* Using floppy disks and CD-ROMs*
- B-1: Understanding filesystem types
  - B-2: Working with floppy disks
  - B-3: Working with CD-ROMs
  - B-4: Mounting and ejecting CD-ROMs

*Topic C: \* Hard disks*

- C-1: Discussing hard drive partitions
- C-2: Partitioning a hard disk by using fdisk
- C-3: Creating and mounting a filesystem

*Topic D: \* Monitoring filesystems*

- D-1: Checking for filesystems errors
- D-2: Establishing disk quotas

### Unit 6 : Advanced installation and troubleshooting

*Topic A: \* Advanced hardware configuration*

- A-1: Discussing SCSI
  - A-2: Discussing resources and Plug-and-Play
  - A-3: Discussing power management
- Topic B: \* Fault-tolerant disk systems*

B-1: Discussing RAID levels

*Topic C: \* Advanced installation methods*

- C-1: Discussing installation methods
- C-2: Discussing Network installation methods
- C-3: Creating a kickstart file

*Topic D: \* Troubleshooting installations*

- D-1: Viewing system information

### Unit 7 : Working with the BASH shell

*Topic A: \* Command input and output*

- A-1: Redirecting Standard Input, Output, and Error
- A-2: Using the pipe metacharacter

*Topic B: \* Shell variables*

- B-1: Discussing shell variables
- B-2: Creating and using aliases

*Topic C: \* Shell scripts*

- C-1: Creating and executing a shell script
- C-2: Using decision constructs in a shell script

*Topic D: \* BASH command history*

- D-1: Using BASH command history
- D-2: Customizing BASH command history

### Unit 8 : System initialization

*Topic A: \* Booting and boot loaders*

- A-1: Discussing the boot process
- A-2: Installing and configuring LILO
- A-3: Configuring GRUB
- A-4: Resizing a Windows partition by using FIPS

*Topic B: \* System initialization*

- B-1: Exploring and changing runlevels
- B-2: Starting fake daemons

### Unit 9 : The X Windows system

*Topic A: \* GUI components*

- A-1: Discussing X Windows
- A-2: Controlling X Windows and environments

*Topic B: \* Configuring X Windows*

- B-1: Using command line tools to configure graphics
- B-2: Configuring gdm

### Unit 10 : Managing system processes

*Topic A: \* Starting, viewing, and killing processes*

- A-1: Discussing processes
- A-2: Using the ps command to view processes
- A-3: Using the kill command to terminate processes

*Topic B: \* Foreground and background processes*

- B-1: Running a process in the background

*Topic C: \* Process priorities and scheduling*

- C-1: Experimenting with scheduling priority
- C-2: Using at and crontab to schedule processes

**Unit 11 : Printer and log file administration**

*Topic A: \* Printer administration*

- A-1: Discussing CUPS
- A-2: Discussing print job management
- A-3: Creating a local printer
- A-4: Managing print jobs

*Topic B: \* Log file administration*

- B-1: Using the logrotate utility

**Unit 12 : User, group, and file administration**

*Topic A: \* Administering users and groups*

- A-1: Creating user accounts
- A-2: Modifying user accounts
- A-3: Locking and unlocking user accounts
- A-4: Removing a user account
- A-5: Creating, using, and deleting groups

*Topic B: \* Administering user files*

- B-1: Finding broken links and orphan files
- B-2: Using file date and time stamps

**Unit 13 : Compression, backup, and software installation**

*Topic A: \* Compression*

- A-1: Compressing and decompressing files

*Topic B: \* System backup*

- B-1: Discussing backup media
- B-2: Using the tar utility
- B-3: Using cpio and dump utilities

*Topic C: \* Software installation*

- C-1: Discussing forms of software distribution
- C-2: Compiling and installing a program from source code
- C-3: Using RPM to query packages
- C-4: Using RPM to install and remove software

**Unit 14 : Troubleshooting and performance monitoring**

*Topic A: \* Troubleshooting*

- A-1: Discussing troubleshooting methodology
- A-2: Resolving hardware problems
- A-3: Resolving software problems
- A-4: Viewing and modifying package dependencies

*Topic B: \* Performance monitoring*

- B-1: Using the mpstat, iostat, and sar commands
- B-2: Using the top, free, and vmstat commands

**Unit 15 : Network Configuration**

*Topic A: \* Networks and TCP/IP*

- A-1: Discussing the TCP/IP protocol
- A-2: Discussing TCP/IP classes and subnetting
- A-3: Configuring a TCP/IP NIC interface

*Topic B: \* Configuring a PPP interface*

- B-1: Discussing the PPP interface

*Topic C: \* Name resolution*

- C-1: Resolving host names by using the /etc/hosts file

*Topic D: \* Using network resources*

- D-1: Using the FTP daemon
- D-2: Enabling the telnet daemon and using a telnet utility
- D-3: Using rlogin and ssh
- D-4: Viewing e-mail with mutt and mail

*Topic E: \* Configuring network services*

- E-1: Discussing xinetd and standalone daemons
- E-2: Configuring Apache
- E-3: Configuring Samba
- E-4: Exporting a directory by using NFS
- E-5: Configuring netfilter/iptables

**Unit 16 : Security**

*Topic A: \* System security*

- A-1: Using su and sudo
- A-2: Examining services using nmap

*Topic B: \* Detecting intrusion*

- B-1: Exploring system security

Appendix A : The GNU Public License

Appendix B : Finding Linux resources on the Internet

Appendix C : Certification exam objectives map