

# CompTIA Linux+

Exam XK0-004



## Course Description

### Overview:

For many years, Linux has dominated the server install base in the business world—and it will continue to do so in the foreseeable future. Linux's popularity has led to a greater need for information technology (IT) professionals who can manage servers that run some form of the Linux kernel. *The Official CompTIA® Linux+®* courseware builds on your existing experience with systems operations and administration to provide you with the knowledge and skills required to configure, manage, operate, and troubleshoot a Linux environment by using security best practices, scripting, and automation.

### Course Objectives:

In this course, you will configure, operate, and troubleshoot Linux systems.

You will:

- Perform basic Linux tasks.
- Manage users and groups.
- Manage permissions and ownership.
- Manage storage.
- Manage files and directories.
- Manage kernel modules.
- Manage the Linux boot process.
- Manage system components.
- Manage devices.
- Manage networking.
- Manage packages and software.
- Secure Linux systems.
- Write and execute Bash shell scripts.
- Automate tasks.
- Plan and perform a Linux installation.

### Target Student:

This course is designed for IT professionals whose primary job responsibility is the management of servers and other devices running the Linux operating system. A typical student in this course should have at least nine months of hands-on Linux experience and at least one and a half years of IT experience in other computing environments. The target student should wish to expand their skillset to support their career in Linux system administration and operation.

This course is also designed for students who are seeking the CompTIA Linux+ certification and who want to prepare for Exam XK0-004. The Linux+ certification can validate the student's understanding and skill in configuring, monitoring, and supporting Linux systems.

### Prerequisites:

To ensure your success in this course, you should have at least foundational experience with general systems administration procedures, some hands-on exposure to one or more Linux distributions, as well as knowledge of computing hardware and basic networking and cybersecurity concepts.

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You can obtain this level of skills and knowledge by taking the following official CompTIA courses:

- The Official CompTIA® A+® Core 1 and 2 Student Guide (Exams 220-1001 and 220-1002)
- The Official CompTIA® Network+® Student Guide (Exam N10-007)
- The Official CompTIA® Security+® Student Guide (Exam SY0-501)

## Course Content

### Lesson 1: Performing Basic Linux Tasks

Topic A: Identify the Linux Design Philosophy

Topic B: Enter Shell Commands

Topic C: Get Help with Linux

### Lesson 2: Managing Users and Groups

Topic A: Assume Superuser Privileges

Topic B: Create, Modify, and Delete Users

Topic C: Create, Modify, and Delete Groups

Topic D: Query Users and Groups

Topic E: Configure Account Profiles

### Lesson 3: Managing Permissions and Ownership

Topic A: Modify File and Directory Permissions

Topic B: Modify File and Directory Ownership

Topic C: Configure Special Permissions and Attributes

Topic D: Troubleshoot Permissions Issues

### Lesson 4: Managing Storage

Topic A: Create Partitions

Topic B: Manage Logical Volumes

Topic C: Mount File Systems

Topic D: Manage File Systems

Topic E: Navigate the Linux Directory Structure

Topic F: Troubleshoot Storage Issues

### Lesson 5: Managing Files and Directories

Topic A: Create and Edit Text Files

Topic B: Search for Files

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Topic C: Perform Operations on Files and Directories

Topic D: Process Text Files

Topic E: Manipulate File Output

## **Lesson 6: Managing Kernel Modules**

Topic A: Explore the Linux Kernel

Topic B: Install and Configure Kernel Modules

Topic C: Monitor Kernel Modules

## **Lesson 7: Managing the Linux Boot Process**

Topic A: Configure Linux Boot Components

Topic B: Configure GRUB 2

## **Lesson 8: Managing System Components**

Topic A: Configure Localization Options

Topic B: Configure GUIs

Topic C: Manage Services

Topic D: Troubleshoot Process Issues

Topic E: Troubleshoot CPU and Memory Issues

## **Lesson 9: Managing Devices**

Topic A: Identify the Types of Linux Devices

Topic B: Configure Devices

Topic C: Monitor Devices

Topic D: Troubleshoot Hardware Issues

## **Lesson 10: Managing Networking**

Topic A: Identify TCP/IP Fundamentals

Topic B: Identify Linux Server Roles

Topic C: Connect to a Network

Topic D: Configure DHCP and DNS Client Services

Topic E: Configure Cloud and Virtualization Technologies

Topic F: Troubleshoot Networking Issues

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## Lesson 11: Managing Packages and Software

Topic A: Identify Package Managers

Topic B: Manage RPM Packages with YUM

Topic C: Manage Debian Packages with APT

Topic D: Configure Repositories

Topic E: Acquire Software

Topic F: Build Software from Source Code

Topic G: Troubleshoot Software Dependency Issues

## Lesson 12: Securing Linux Systems

Topic A: Implement Cybersecurity Best Practices

Topic B: Implement Identity and Access Management Methods

Topic C: Configure SELinux or AppArmor

Topic D: Configure Firewalls

Topic E: Implement Logging Services

Topic F: Back Up, Restore, and Verify Data

## Lesson 13: Working with Bash Scripts

Topic A: Customize the Bash Shell Environment

Topic B: Identify Scripting and Programming Fundamentals

Topic C: Write and Execute a Simple Bash Script

Topic D: Incorporate Control Statements in Bash Scripts

## Lesson 14: Automating Tasks

Topic A: Schedule Jobs

Topic B: Implement Version Control Using Git

Topic C: Identify Orchestration Concepts

## Lesson 15: Installing Linux

Topic A: Prepare for Linux Installation

Topic B: Perform the Installation

## Appendix A: Mapping Course Content to CompTIA® Linux+® (Exam XK0-004)