CompTIA.

The Official CompTIA

Linux+
Student Guide

Exam XK0-004

CompTIA
Linux+
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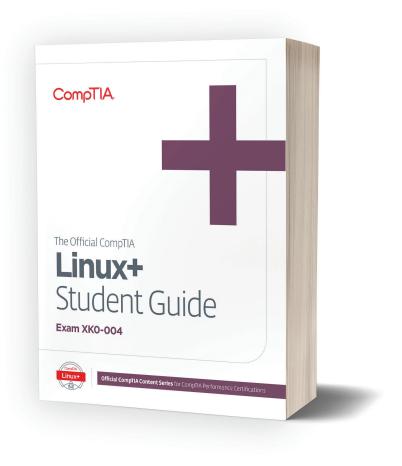**Official CompTIA Content Series** for CompTIA Performance Certifications

Official CompTIA learning resources
for Instructor-Led Training:

CompTIA
Linux+

Official CompTIA learning resources for Instructor-Led Training are designed with the instructor in mind, providing insights and tools for successfully training learners pursuing their CompTIA Linux+ certification.

OVERVIEW

The Official CompTIA Linux+ Instructor and Student Guides (XK0-004) have been developed by CompTIA with input from instructors across the world. Rigorously evaluated by third-party subject matter experts to validate adequate coverage of the Linux+ XK0-004 exam objectives, the Official CompTIA Linux+ Instructor and Student Guides teach the essential skills needed to manage servers and other devices running the Linux operating system and prepares candidates to take the CompTIA Linux+ certification exam.

OFFICIAL LEARNING RESOURCES
- The Official CompTIA Linux+ Instructor Guide (Exam XK0-004) – available in print and eBook
- The Official CompTIA Linux+ Student Guide (Exam XK0-004) – available in print and eBook
- CompTIA Learning Center – Digital Learning Platform – included with purchase of print and eBook
- The Official CompTIA Linux+ CompTIA Labs (Exam XK0-004)

WHY ARE OFFICIAL COMPTIA LEARNING RESOURCES DIFFERENT?

- **For Exam Takers by the Exam Developer** - Official CompTIA learning resources are the only study material exclusively developed by CompTIA.
- **Designed for Instructors by Instructors** - Developed on the principle that "people learn best from other people," the Official CompTIA Linux+ Guides are specifically designed for expert-facilitated delivery. More than 100 instructors were involved in the development of Linux+ Official learning resources.
- **Complete Library** - No other content library covers all exam objectives for all certifications. It provides complete breadth, depth and currency of material unavailable with competitors.

KEY FEATURES AND BENEFITS

- **Robust Assessment -** Practice questions for each lesson and a final assessment covering all lessons, more than 240 questions in total, are available to help students practice and demonstrate what they have learned.
- **Integrate Active Learning -** Each topic has at least one activity, enabling students to practice guidelines and procedures, as well as solidify understanding of the informational material presented in the course. Activities present a job-plausible scenario or job-realistic assignment and then provide step-by-step instructions for how to approach the problem at hand. Activities may also require the student to analyze sample data, engage in structured discussion or analyze case studies.
- **Alignment and Consistency Across Book, Labs and Assessment -** The book, labs and assessment all work together with a similar approach and voice ensuring that instructors and students have a cohesive, "single-sourced" solution for their Linux+ course. Activities within the book inform the classroom labs and the virtual labs designed for the course. Assessment are based on lessons in the book and includes a final cumulative assessment.
- **Engaging Video Program Developed Exclusively for CompTIA by ITProTV -** Videos developed exclusively for CompTIA provide short, engaging demonstrations of key activities in the course. The videos provide an alternative to hands-on demonstrations for virtual environments or for classrooms that do not have access to all equipment mentioned in the course.

LABS

CompTIA Labs, hosted by Learn on Demand Systems, allow students to learn in actual software applications through a remote lab environment. Labs allow students to practice what they are learning using real, hands-on experiences. Students have access to the software environment for 180 days after a CompTIA Labs access key is redeemed, providing a post-class resource for students to practice their skills.

LABS AVAILABLE:

Lesson 1: Performing Basic Linux Tasks
Lesson 2: Managing Users and Groups
Lesson 3: Managing Permissions and Ownership
Lesson 4: Managing Storage
Lesson 5: Managing Files and Directories
Lesson 6: Managing Kernel Modules
Lesson 7: Managing the Linux Boot Process
Lesson 8: Managing System Components
Lesson 9: Managing Devices
Lesson 10: Managing Networking
Lesson 11: Managing Packages and Software
Lesson 12: Securing Linux Systems
Lesson 13: Working with Bash Scripts
Lesson 14: Automating Tasks
Lesson 15: Installing Linux

ENHANCED LEARNING RESOURCES

The Official CompTIA Linux+ Guides include the accompanying resources:

Comprehensive **INSTRUCTOR** resources ensure successful course delivery by providing:	Comprehensive **STUDENT** resources engage students by providing:
• **Course-specific delivery tips** provide the instructor with additional insights to deliver the course successfully • **Facilitator notes** in instructor guide • **Solutions** to activities and discussions • **PowerPoint slides:** A complete set of slides to facilitate the class including lists, tables, diagrams, illustrations, annotated screens and activity summaries • **Presentation Planners** help plan and schedule courses based on different course lengths • **Solutions:** Instructors have solutions to Activities and Discussion Questions embedded within the Instructor Guide.	• **eBook:** An interactive online version of the book, along with secure PDF and downloadable versions • **Files:** Any course files available to download • **Videos:** Brief videos, developed exclusively for CompTIA by ITProTV, provide demonstrations of key activities in the course • **Assessment:** A series of different assessments for each lesson as well an overall self-assessment • **PowerPoint slides** • **Solutions** to activities and discussions • **Strengths and Weaknesses Dashboard:** Students assessments results are aggregated in the Strengths and Weaknesses dashboard to provide an indicator of their overall performance in the course.

EXAM PREP OPTION

CompTIA CertMaster Practice is an online knowledge assessment and remediation tool designed to help learners feel more confident and prepared for the CompTIA exam.

COURSE OVERVIEW

This course is for students who are preparing for CompTIA Linux+ certification exam XK0-004. Linux+ XK0-004 is now developed by CompTIA and offered as a single, performance-based exam.

Linux+ validates the necessary skills of IT professionals with hands-on experience configuring, monitoring, and supporting servers running the Linux OS. It is the right step for all early to mid-career IT professionals utilizing Linux-based systems, whether they are managing infrastructure, cloud workflows, or ensuring the cyber-security of their organization. Linux+ also validates the critical Linux skills needed in cloud and cybersecurity.

JOB ROLES

• **Linux Administrator**
• **Systems Administrator**
• **Network Administrator**
• **Web Administrator**
• **Technical Support Specialist**

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PREREQUISITES

Students should have CompTIA A+, CompTIA Network+ certifications and preferably 9 – 12 months of Linux experience. In this course, students will learn the background knowledge and skills necessary to administer, troubleshoot, install or maintain Linux. Concepts covered include:

• System Configuration
• The Command Line Interface
• Scripting Basics
• Network Settings and Services
• System Security

TABLE OF CONTENTS

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
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

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

PURCHASE EVERYTHING IN ONE PLACE

Official CompTIA learning resources are available on the CompTIA Store at https://store.comptia.org/, which means partners will be able to obtain Official CompTIA learning resources, CompTIA CertMaster products and exam vouchers all in one place. Please contact your CompTIA business development representative for more information.