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Course Outline

CompTIA Linux+ (X



27 Mar 2024

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1. Course Objective

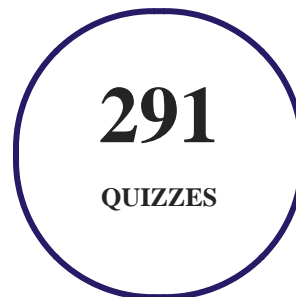
The CompTIA Linux+ XK0-004 Cert Guide comes with various interactive learning resources to help you pass the XK0-004 exam. Lab simulates real-world, hardware, software, and command-line interface environments and can be mapped to any text-book, course, or training. This online assessment engine enables you to access practice tests on any desktop, laptop, tablet, or smartphone device with internet connectivity.

2. Pre-Assessment

Pre-Assessment lets you identify the areas for improvement before you start your prep. It determines what students know about a topic before it is taught and identifies areas for improvement with question assessment before beginning the course.

3. Quizzes

Quizzes test your knowledge on the topics of the exam when you go through the course material. There is no limit to the number of times you can attempt it.



4. flashcards

Flashcards are effective memory-aiding tools that help you learn complex topics easily. The flashcard will help you in memorizing definitions, terminologies, key concepts, and more. There is no limit to the number of times learners can attempt these. Flashcards help master the key concepts.

**236****FLASHCARDS**

5. Glossary of terms

uCertify provides detailed explanations of concepts relevant to the course through Glossary. It contains a list of frequently used terminologies along with its detailed explanation. Glossary defines the key terms.

**241****GLOSSARY OF
TERMS**

6. Expert Instructor-Led Training

uCertify uses the content from the finest publishers and only the IT industry's finest instructors. They have a minimum of 15 years real-world experience and are subject matter experts in their fields. Unlike a live class, you can study at your own pace. This creates a personal learning experience and gives you all the benefit of hands-on training with the flexibility of doing it around your schedule 24/7.

7. ADA Compliant & JAWS Compatible Platform

uCertify course and labs are ADA (Americans with Disability Act) compliant. It is now more accessible to students with features such as:

- Change the font, size, and color of the content of the course
- Text-to-speech, reads the text into spoken words
- Interactive videos, how-tos videos come with transcripts and voice-over
- Interactive transcripts, each word is clickable. Students can clip a specific part of the video by clicking on a word or a portion of the text.

JAWS (Job Access with Speech) is a computer screen reader program for Microsoft Windows that reads the screen either with a text-to-speech output or by a Refreshable Braille display. Student can easily navigate uCertify course using JAWS shortcut keys.

8. State of the Art Educator Tools

uCertify knows the importance of instructors and provide tools to help them do their job effectively. Instructors are able to clone and customize course. Do ability grouping. Create sections. Design grade scale and grade formula. Create and schedule assessments. Educators can also move a student from self-paced to mentor-guided to instructor-led mode in three clicks.

9. Award Winning Learning Platform (LMS)

uCertify has developed an award winning, highly interactive yet simple to use platform. The SIIA CODiE Awards is the only peer-reviewed program to showcase business and education technology's finest products and services. Since 1986, thousands of products, services and solutions have been recognized for achieving excellence. uCertify has won CODiE awards consecutively for last 7 years:

- **2014**
 1. Best Postsecondary Learning Solution
- **2015**
 1. Best Education Solution

2. Best Virtual Learning Solution
3. Best Student Assessment Solution
4. Best Postsecondary Learning Solution
5. Best Career and Workforce Readiness Solution
6. Best Instructional Solution in Other Curriculum Areas
7. Best Corporate Learning/Workforce Development Solution

• **2016**

1. Best Virtual Learning Solution
2. Best Education Cloud-based Solution
3. Best College and Career Readiness Solution
4. Best Corporate / Workforce Learning Solution
5. Best Postsecondary Learning Content Solution
6. Best Postsecondary LMS or Learning Platform
7. Best Learning Relationship Management Solution

• **2017**

1. Best Overall Education Solution
2. Best Student Assessment Solution
3. Best Corporate/Workforce Learning Solution
4. Best Higher Education LMS or Learning Platform

• **2018**

1. Best Higher Education LMS or Learning Platform
2. Best Instructional Solution in Other Curriculum Areas
3. Best Learning Relationship Management Solution

• **2019**

1. Best Virtual Learning Solution
2. Best Content Authoring Development or Curation Solution
3. Best Higher Education Learning Management Solution (LMS)

• **2020**

1. Best College and Career Readiness Solution
2. Best Cross-Curricular Solution
3. Best Virtual Learning Solution

10. Chapter & Lessons

uCertify brings these textbooks to life. It is full of interactive activities that keeps the learner engaged. uCertify brings all available learning resources for a topic in one place so that the learner can efficiently learn without going to multiple places. Challenge questions are also embedded in the chapters so learners can attempt those while they are learning about that particular topic. This helps them grasp the concepts better because they can go over it again right away which improves learning.

Learners can do Flashcards, Exercises, Quizzes and Labs related to each chapter. At the end of every lesson, uCertify courses guide the learners on the path they should follow.

Syllabus

Chapter 1: Introduction

- Goals and Methods
- The Linux+ Domains and Objectives
- How This Course Maps to the Exam Objectives
- What's New?
- Who Should Read This Course?
- Strategies for Exam Preparation

Chapter 2: Installing Linux

- Hardware and Linux Installation
- Summary

Chapter 3: Package Installation and Management

- Software in a Linux System
- Installing Software from Source
- Packages and Package Managers
- RPM and YUM Package Management
- Summary
- Review All Key Topics

Chapter 4: Virtualization

- What Is Virtualization?
- Types of Virtualization/Hypervisors
- Bootstrapping VMs
- Template Formats
- Virtualization Storage
- Networking Considerations

- Summary
- Review All Key Topics

Chapter 5: The Boot Process

- The Linux Boot Process
- Boot Loaders and Files
- When Kernels Panic
- Summary
- Review All Key Topics

Chapter 6: Managing System Services

- systemd
- Down Memory Lane with SysVinit
- Summary
- Review All Key Topics

Chapter 7: System Performance

- Managing Processes
- Sending Signals to Processes

- Job Control
- Managing Process Priorities
- Leaving Programs Running After Logout
- Summary
- Review All Key Topics

Chapter 8: File Manipulation

- File and Directory Operations
- Working with Input/Output Streams
- Summary
- Review All Key Topics

Chapter 9: File Processing

- Reading File Contents
- Filters
- A Tour of the vim Editor
- nano, nano
- Summary
- Review All Key Topics

Chapter 10: File Permissions and Escalation

- Working with Permissions
- Manipulating Permissions
- Special File Permissions
- Finding Files by Permission
- Access Control Lists
- Understanding Permission Problems
- Default Permissions
- Changing User Ownership
- Changing Group Ownership
- User Privilege Escalation
- Summary
- Review All Key Topics

Chapter 11: SELinux and AppArmor

- SELinux Configurations
- SELinux Contexts

- AppArmor
- Summary
- Review All Key Topics

Chapter 12: File Compression and Storage

- Archive and Restore Utilities
- Compression Tools
- Backing Up Is Hard to Do
- Off-Site/Off-System Storage
- Integrity Checks
- Summary
- Review All Key Topics

Chapter 13: User and Group Management

- User Account Fundamentals
- Group Accounts
- Adding Users and Groups
- Modifying Users and Groups
- Removing Users and Groups

- The Shadow Suite
- Changing Passwords
- Summary
- Review All Key Topics

Chapter 14: Account Security

- Pluggable Authentication Modules (PAMs)
- Secure Shell
- Terminals PTY/TTY
- Public Key Infrastructure
- Using TCP Wrappers for Securing Services
- Virtual Private Network (VPN) Clients
- Summary
- Review All Key Topics

Chapter 15: Logging Services

- System Logging
- Summary

- Review All Key Topics

Chapter 16: Linux Devices

- Understanding Linux Hardware
- Managing Printers and Printing
- Linux Graphical User Interfaces
- Accessibility Options
- Remote Desktop
- Summary
- Review All Key Topics

Chapter 17: Hardware Troubleshooting

- Storage Monitoring and Configuration
- CPU Monitoring and Configuration
- Memory Monitoring and Configuration
- Troubleshooting Additional Hardware Issues
- Summary
- Review All Key Topics

Chapter 18: Kernel Modules

- Understanding Kernel Modules
- Managing Kernel Modules
- The modprobe Command
- Summary
- Review All Key Topics

Chapter 19: Storage Concepts

- Basic Partitions
- Filesystem Hierarchy
- Device Mapper
- Filesystem Types
- Summary
- Review All Key Topics

Chapter 20: Storage Configuration

- Disk Partitioning Tools
- Managing LVM

- Managing Software RAID
- Creating Filesystems
- Advanced Filesystem Commands
- Mounting and Unmounting
- Space Utilization
- Summary
- Review All Key Topics

Chapter 21: Network Configuration

- Conceptual Overview of Networking
- Managing Interfaces
- Network Configuration Utilities
- Bonding
- Summary
- Review All Key Topics

Chapter 22: Network Troubleshooting

- Key Network Troubleshooting Concepts
- Network Troubleshooting Tools

- Summary
- Review All Key Topics

Chapter 23: Linux Firewalls

- The iptables Command
- Additional Firewall Technologies
- Summary
- Review All Key Topics

Chapter 24: Orchestration

- Automation and Orchestration
- Summary
- Review All Key Topics

Chapter 25: Automate Tasks

- Job Control
- Leaving Programs Running After Logout
- The cron System
- Running ad hoc Jobs

- Summary
- Review All Key Topics

Chapter 26: Manage Localization

- Time Zones
- Character Encoding
- Representing Locales
- Review All Key Topics

Chapter 27: BASH Scripting Essentials

- Basics of Scripting
- Shell Script Commands
- Review All Key Topics

Chapter 28: Git

- Version Control Concepts
- Git Concepts and Features
- Handling Branches
- Executing Diffs

- Merging Files
- Review All Key Topics

Chapter 29: Server Roles

- Server Types
- Server Features
- Summary
- Review All Key Topics

Chapter 30: Security Best Practices

- Host Security Best Practices
- Authentication Security Best Practices
- Service Security Best Practices
- Banners
- Summary
- Review All Key Topics

11. Practice Test

Here's what you get

89PRE-ASSESSMENTS
QUESTIONS**2**

FULL LENGTH TESTS

90POST-ASSESSMENTS
QUESTIONS

Features

Each question comes with detailed remediation explaining not only why an answer option is correct but also why it is incorrect.

Unlimited Practice

Each test can be taken unlimited number of times until the learner feels they are prepared. Learner can review the test and read detailed remediation. Detailed test history is also available.

Each test set comes with learn, test and review modes. In learn mode, learners will attempt a question and will get immediate feedback and complete remediation as they move on to the next question. In test mode, learners can take a timed test simulating the actual exam conditions. In review mode, learners can read through one item at a time without attempting it.

12. Live Labs

The benefits of live-labs are:

- Exam based practical tasks
- Real equipment, absolutely no simulations
- Access to the latest industry technologies
- Available anytime, anywhere on any device
- Break and Reset functionality

- No hardware costs

Lab Tasks

Installing Linux

- Installing CentOS

Package Installation and Management

- Using Red Hat Package Management Tools
- Investigating RPM App Package Issues

Virtualization

- Installing a Virtual Machine
- Looking at VM Tools
- Exploring the Contents of the Anaconda file

The Boot Process

- Booting Linux into Single-User Mode
- Creating an RAM Disk

Managing System Services

- Managing Services with systemctl
- Finding the System Initialization Method

System Performance

- Managing Processes
- Watching Stopped Processes

- Displaying Process Information
- Sending a Job to the Background

File Manipulation

- Creating a Hard Link
- Performing Basic File Management
- Exploring a File System

File Processing

- Using Regular Expressions
- Using Filters
- Using Redirection

File Permissions and Escalation

- Changing Permissions on a File
- Finding Files
- Assigning Additional ACLs to a File
- Investigating File Obstacles

SELinux and AppArmor

- Exploring SELinux

File Compression and Storage

- Using tar for Backups

User and Group Management

- Reviewing Account Settings
- Managing Users and Groups
- Using usermod to Lock an Account

Account Security

- Exploring PAM

Logging Services

- Viewing the System Logs

Linux Devices

- Making an Inventory of System Devices

Hardware Troubleshooting

- Viewing Disk Usage
- Identifying System Hardware

Kernel Modules

- Managing Kernel Modules from the Command Line

Storage Concepts

- Creating a Physical Volume, Volume Group, Logical Volume, and File Systems

Storage Configuration

- Creating Partitions and Filesystems

Network Configuration

- Finding Applications that are Providing TCP Network Services

Network Troubleshooting

- Finding the Network Information
- Understanding Network Configuration on CentOS

Linux Firewalls

- Using Firewallld

Automate Tasks

- Running Scripts in Background Mode

Manage Localization

- Working with Time Zones
- Using the timedatectl Command to Set the System Time

BASH Scripting Essentials

- Creating an Advanced Script
- Making Simple Batch Files
- Redirecting Output

Git

- Using Git

Here's what you get

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LIVE LABS

13. Post-Assessment

After completion of the uCertify course Post-Assessments are given to students and often used in conjunction with a Pre-Assessment to measure their achievement and the effectiveness of the exam.

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