

CompTIA Linux+ (XK0-005)

This CompTIA Linux+ (XK0-005) training covers how to manage, administer and troubleshoot the operations of a Linux system, server or network. Use this course to prepare for the XK0-005 exam, which is needed to earn the Linux+ certification that validates your skills managing and administering Linux systems and networks.

[CBT Nuggets course material](#) →

WEEK 1

Introduction to Linux+

151 min.

Introduction	1
Ubuntu Installation for Windows	1
Rocky Linux Installation for Windows	1
MacOS (Intel) Lab Setup	1
MacOS (Apple Silicon) Lab Setup	1
Cloud Lab Setup	1

Understand Linux Fundamentals

Overview	1
Introduction	1
FHS Basics	1
FHS System Files and Directories	1
The Dev Directory	1
The Proc Directory	1
The Sys Directory	1
FHS User Files and Directories	1
FHS System Binaries and Programs	1

Understand the Linux Boot Process and Hardware

Overview	1
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Partition Tables and Firmware	1
External Hardware	1
Understanding the Boot Process	1
The Bootloader	1
Boot Sources	1
Kernel Panic	1

Understand Package Compilation and Storage Concepts

Overview	1
Introduction	1
Understanding Source Code	1
Compiling from Source on Ubuntu	1
Compiling from Source on Rocky Linux	1
RAID	1
Storage Types	1
FUSE	1

Edit Files on Linux Systems

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Sed	1
Awk	1
Printf	1
Nano	1
Understanding Vim	1
Editing Files with Vim	1

Compress, Backup and Archive Files

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Introduction	1
Compression with Gzip and Bzip2	1
Compression with Xz and Zip	1
Creating Archives with Tar	1
Piping and Redirection	1
Creating Archives with CPIO	1
Creating Backups with dd	1

Understand File and Directory Operations

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Displaying Directories	1
Changing into Directories	1
Making and Removing Directories	1
Touching Files and Concatenation	1
Copying Files and Directories	1
Moving Files and Directories	1

Manage and Transfer Files

Overview	1
Introduction	1
Creating Hard Links and Soft Links	1
Inspecting Metadata	1
Transferring Files with Rsync	1
Transferring Files with SCP	1
Transferring Files with SFTP	1
Making Connections with Netcat	1

Understand Partitions and Monitor Storage

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Lab Preparation	7
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Creating Partitions with Parted	9
Additional Partition Utilities	10
Enumerating Disk Usage	6
Storage Hardware Statistics	5

Create and Mount Filesystems

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EXT Filesystem Basics	1
EXT Tools	1
BTRFS and XFS Filesystems	1
Swapping	1
Mounting	1
Automounting with fstab	1
Mounting with systemctl	1

Understand Logical Volume Management & LUKS

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Introduction	1
LVM Basics	1
Preparing the Disks	1
Initialising the Physical Volume	1
Creating the Volume Group	1
Creating Logical Volumes	1
Exploring LVM Commands	1
LUKS Encryption with Cryptsetup	1

Understanding Network Storage and Shares

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Introduction	1
NFS Basics	1
Creating an NFS Server	1
Creating an NFS Client	1
Persistently Mounting an NFS Share	1
Sharing with SMB	1

SMB Authentication	1
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WEEK 2

Manage and Schedule Services

151 min.

Overview	1
Introduction	1
Systemctl Basics	1
Exploring Systemctl Commands	1
Cron Basics	1
Cron Directories	1
User-Defined Cronjobs	1
Scheduling with At	1

Manage Linux Processes

Overview	1
Introduction	1
Understanding Processes	1
Top	1
Listing Open Files	1
Understanding Process Signals	1
Job Control	1
Managing Process Priorities	1

Manage Network Interfaces

Overview	1
Introduction	1
The "ifconfig" Command	1
Managing the Hostname	1
Understanding ARP	1

Routing	1
Network Manager	1
Exploring the "ip" and "ss" Commands	1

Understand Name Resolution

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Introduction	1
DNS Basics	1
DNS Records	1
The "nsswitch.conf" File	1
Setting DNS Servers	1
DNS Tools	1

Monitor Networks

Overview	1
Introduction	1
Pinging Hosts	1
Traceroute and MTR	1
TCPDump	1
Wireshark	1
Netstat	1
Transferring Data Over The Network	1

Understand Package Management

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Introduction	1
Understanding dpkg	1
Installing Packages with APT	1
Understanding RPM	1

Managing Packages with YUM	1
Package Management with DNF	1
Zypper	1

Packages, System Configurations & Localization

Overview	1
Introduction	1
Examining RPM and DEB Packages	1
Application Containers and Snap	1
Flatpak and AppImage	1
System Updates	1
Updating Configuration Files	1
Localization	1

Configure Kernel Options and System Services

Overview	1
Introduction	1
Kernel Management	1
Network Time Protocol	1
Understanding Logging	1
Systemd Journaling	1

Understand Cryptography and Certificates

Overview	1
Introduction	1
Asymmetric and Symmetric Encryption	1
Working with Encryption	1
Digital Signatures and Hashing	1
Understanding SSL and TLS	1

Understanding Self-Signed Certificates 1

Understand Authentication

Overview 1

Introduction 1

Understanding PAM 1

Common PAM Modules 1

LDAP 1

AAA Servers 1

Tokens 1

MFA, SSO & SSSD 1

Harden Linux Systems

Overview 1

Introduction 1

Security Scanning 1

Insecure Protocols and Secure Boot 1

Enforcing Strong Passwords 1

Harden Kernel Parameters 1

Service Accounts and Unused Packages 1

Implement Identity Management

Overview 1

Introduction 1

Creating and Deleting Users 1

User Modification 1

Groups 1

Modifying Identity Management Files 1

Viewing Account Information 1

Shell Configurations 1

Configure Firewalls

Overview 1

Introduction 1

Understanding iptables 1

Configuring iptables 1

Working with firewalld 1

Exploring ufw & nftables 1

Configure and Execute Remote Connectivity

Overview 1

Introduction 1

Configuring SSH Servers 1

Configuring SSH Clients 1

Authenticating with Keys 1

SSH Tunneling 1

Elevated Privileges 1

Understand Security-Enhanced Linux & Access Control

Overview 1

Introduction 1

Understanding Attributes 1

The Append Attribute 1

Access Control Lists 1

Understanding SELinux 1

Managing SELinux Contexts and Booleans 1

AppArmor 1

Understand Permissions

Overview	1
Introduction	1
Owners, Groups and Others	1
Symbolic Notation	1
Octal Notation	1
SUID and SGID	1
The Sticky Bit	1
The Umask Command	1

Automate Tasks with Shell Scripts

Overview	1
Introduction	1
Bash Scripting Fundamentals	1
Variables	1
Conditional Logic	1
Case Statements	1
Creating Loops	1
Putting It All Together	1

Perform Basic Version Control

Overview	1
Introduction	1
Basic Git Operations	1
Switching Branches	1
Merging and Rebasing	1
Remote Repositories	1

Collaborative Workflows	1
Pull Requests	1
Tagging and Ignoring	1

Understand Infrastructure As Code Technologies

Overview	1
Introduction	1
File Formats for Configuration Management	1
What is Ansible?	1
Ansible Setup	1
Ansible Playbooks	1
Terraform	1
Alternative IAC Tools	1

Understand Container, Cloud and Orchestration Concepts

Overview	1
Introduction	1
Container Basics	1
Managing Containers with Docker	1
Executing Commands and Removing Images	1
Building Custom Images	1
Orchestration and Container Networking	1
CI/CD Pipelines	1

Troubleshoot Network Resource Issues

Overview	1
Introduction	1
Understanding Octets	1
Network Masks	1

Troubleshooting DNS	1
Troubleshooting SSH	1
Troubleshooting Multiple Issues	1
Interface Commands	1

Troubleshoot Storage and CPU Issues

Overview	1
Introduction	1
I/O Issues	1
Capacity Issues	1
Filesystem Issues	1
CPU Issues	1
Memory Issues	1

Use Systemd to Resolve Common Problems

Overview	1
Introduction	1
Describing the Runlevels	1
Managing Runlevels	1
Boot Targets	1
Systemd Services	1
Mounting with Systemd	1

Troubleshoot Device and User Issues

Overview	1
Introduction	1
Managing SSDs	1
Handling RAID Devices	1
Managing Logical Volumes	1

Managing Quotas	1
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