

Ubuntu 24.04 LTS Professional Administration

Practical Ubuntu skills for real systems, real support work, and real operational confidence in 2 days

FA-0446 · 2 days

Software Development · DevOps, Cloud & Infrastructure · Cybersecurity

Introduction

Ubuntu 24.04 LTS remains one of the most important Linux platforms for desktops, servers, cloud workloads, development environments, cybersecurity labs, and enterprise infrastructure. This 2-day course focuses on Ubuntu 24.04 LTS while also giving learners informed awareness of newer Ubuntu directions, including Ubuntu 25.10's Rust-based tooling changes and Ubuntu 26.04 LTS updates. Ubuntu 24.04 LTS receives standard security maintenance until 31 May 2029, while Ubuntu Pro can extend coverage further.

The course will be delivered by an instructor with over 30 years of industry experience, using real industry-demanded content rather than purely academic material. Security coverage will include Ubuntu hardening basics and a brief, accurate review of recent issues such as CVE-2026-3888, a snapd local privilege escalation affecting default Ubuntu 24.04 LTS and 25.10 installations before patching.

Learning outcomes

By the end of this course, participants will be able to:

- Understand Ubuntu 24.04 LTS architecture, editions, lifecycle, and release model
- Install, configure, update, and manage Ubuntu Desktop and Server systems
- Navigate the Linux filesystem and command-line environment confidently
- Manage users, groups, permissions, packages, services, logs, disks, and networking
- Apply practical security hardening and patch-management practices

- Understand Ubuntu's newer release direction, including Rust-based coreutils and sudo-rs adoption in Ubuntu 25.10 and follow-up work for Ubuntu 26.04 LTS
- Troubleshoot common Ubuntu problems using industry-style workflows

Prerequisites

- Basic computer usage skills
- Familiarity with operating system concepts
- Basic understanding of files, folders, networks, and software installation
- No prior Linux experience required
- Administrator access to a lab machine, virtual machine, or cloud instance is recommended

Training outline

1. Ubuntu 24.04 LTS Overview and Positioning

Ubuntu as a Linux distribution

1. Debian relationship
2. Canonical ecosystem
3. Community and enterprise adoption
4. Desktop, Server, Cloud, Core, and WSL usage

Ubuntu 24.04 LTS Noble Numbat

1. LTS release purpose
2. Support lifecycle
3. Standard security maintenance
4. Ubuntu Pro and extended security maintenance
5. Point releases and hardware enablement

Ubuntu release model

1. LTS releases
2. Interim releases
3. Version numbering
4. Code names

5. Upgrade paths
6. Release support expectations

Newer Ubuntu versions awareness

1. Ubuntu 24.10 overview
2. Ubuntu 25.10 overview
3. Ubuntu 26.04 LTS overview
4. Desktop and server direction
5. Kernel and GNOME evolution
6. Enterprise relevance of LTS releases

2. Ubuntu Installation and Environment Preparation

Installation planning

1. Desktop versus Server installation
2. Physical machine installation
3. Virtual machine installation
4. Cloud instance deployment
5. WSL usage awareness

Hardware and system requirements

1. CPU considerations
2. Memory considerations
3. Storage considerations
4. Network requirements
5. UEFI and BIOS awareness

Installation media preparation

1. ISO download sources
2. ISO verification concepts
3. Bootable USB creation
4. Virtual ISO mounting

Ubuntu installer workflow

1. Language and keyboard selection
2. Disk layout selection
3. User account creation
4. Network configuration
5. Minimal and full installation options
6. Third-party drivers and firmware

Post-installation checks

1. System login
2. Desktop orientation
3. Terminal access
4. System information verification
5. Update validation

3. Linux Command-Line Fundamentals

Shell environment

1. Bash basics
2. Terminal usage
3. Command syntax
4. Command options and arguments
5. Command history
6. Tab completion

Filesystem navigation

1. Root filesystem
2. Home directories
3. Absolute and relative paths
4. Directory listing
5. Hidden files
6. Working directory management

File and directory operations

1. File creation
2. Directory creation
3. Copying files
4. Moving files
5. Renaming files
6. Removing files safely
7. Viewing file contents

Text processing basics

1. cat
2. less
3. head
4. tail
5. grep
6. wc
7. sort
8. cut

Input and output handling

1. Standard input
2. Standard output
3. Standard error
4. Redirection
5. Pipes
6. Command chaining

4. Ubuntu Filesystem Structure

Linux filesystem hierarchy

1. /
2. /home
3. /etc

4. /var
5. /usr
6. /opt
7. /tmp
8. /boot
9. /dev
10. /proc
11. /sys

Configuration file locations

1. System configuration files
2. User configuration files
3. Service configuration files
4. Network configuration files

Log file locations

1. System logs
2. Authentication logs
3. Kernel logs
4. Application logs
5. Journal logs

Temporary and runtime directories

1. /tmp
2. /run
3. /var/tmp
4. Cleanup behavior
5. Security implications

5. User, Group, and Permission Management

Linux identity model

1. Users

2. Groups
3. User IDs
4. Group IDs
5. System accounts
6. Service accounts

User management

1. Creating users
2. Modifying users
3. Disabling users
4. Removing users
5. Password management
6. Account expiration

Group management

1. Creating groups
2. Adding users to groups
3. Removing users from groups
4. Administrative groups
5. sudo group usage

File permissions

1. Read permission
2. Write permission
3. Execute permission
4. Owner permissions
5. Group permissions
6. Other permissions

Advanced permission concepts

1. chmod
2. chown
3. chgrp

4. umask
5. setuid
6. setgid
7. sticky bit

Privilege escalation

1. sudo concepts
2. sudoers configuration
3. Least privilege
4. Administrative auditing
5. Risk of unrestricted sudo access

6. Software and Package Management

Ubuntu package ecosystem

1. Debian packages
2. APT repositories
3. Snap packages
4. Flatpak awareness
5. Source packages awareness

APT package management

1. apt update
2. apt upgrade
3. apt install
4. apt remove
5. apt purge
6. apt autoremove
7. apt search
8. apt show

Repository management

1. Official repositories

2. Universe and multiverse awareness
3. PPAs
4. Repository signing
5. Package trust considerations

Snap package management

1. Snap architecture
2. snap install
3. snap remove
4. snap refresh
5. Snap confinement
6. Snap service awareness

Update management

1. Security updates
2. Regular updates
3. Kernel updates
4. Reboot requirements
5. Unattended upgrades
6. Update troubleshooting

7. Systemd and Service Management

systemd fundamentals

1. Init system role
2. Units
3. Targets
4. Services
5. Timers
6. Sockets

Service operations

1. Starting services

2. Stopping services
3. Restarting services
4. Reloading services
5. Enabling services
6. Disabling services
7. Checking service status

Boot process overview

1. Firmware stage
2. Bootloader stage
3. Kernel stage
4. initramfs stage
5. systemd stage
6. Login stage

Log inspection with journalctl

1. Service logs
2. Boot logs
3. Kernel logs
4. Time-based filtering
5. Follow mode
6. Persistent journal awareness

Scheduled tasks

1. cron
2. systemd timers
3. User timers
4. System timers
5. Operational scheduling practices

8. Networking Fundamentals on Ubuntu

Network concepts

1. IP addressing
2. Subnet masks
3. Gateways
4. DNS
5. DHCP
6. Static addressing

Network inspection

1. ip command
2. hostnamectl
3. resolvectl
4. ss
5. ping
6. traceroute
7. curl

Ubuntu network configuration

1. NetworkManager
2. Netplan
3. YAML configuration
4. Desktop networking
5. Server networking

Remote access

1. OpenSSH server
2. SSH client usage
3. Key-based authentication
4. Password authentication control
5. Secure SSH configuration

Firewall basics

1. ufw concepts
2. Default policies
3. Allow rules
4. Deny rules
5. Service-based rules
6. Firewall status verification

9. Storage and Disk Management

Disk and partition concepts

1. Block devices
2. Partitions
3. Filesystems
4. Mount points
5. UUIDs

Disk inspection

1. lsblk
2. df
3. du
4. blkid
5. fdisk awareness
6. parted awareness

Filesystem management

1. ext4
2. xfs awareness
3. swap
4. Mounting filesystems
5. /etc/fstab
6. Filesystem checks

Logical Volume Manager awareness

1. Physical volumes
2. Volume groups
3. Logical volumes
4. Resizing concepts
5. Snapshot concepts

Backup and recovery basics

1. File-level backups
2. Configuration backups
3. Archive creation
4. Restore validation
5. Recovery planning

10. Process and Resource Management

Process concepts

1. Process IDs
2. Parent and child processes
3. Foreground processes
4. Background processes
5. Daemons

Process monitoring

1. ps
2. top
3. htop
4. pidof
5. pgrep
6. kill
7. pkill

Resource monitoring

1. CPU usage
2. Memory usage
3. Disk usage
4. I/O awareness
5. Network usage

Performance troubleshooting

1. High CPU investigation
2. Memory pressure
3. Disk space exhaustion
4. Service failure analysis
5. Boot performance awareness

11. Ubuntu Desktop Administration

GNOME desktop environment

1. Desktop layout
2. Settings application
3. Application launcher
4. Workspaces
5. Accessibility settings

Desktop software management

1. App Center
2. Snap applications
3. APT applications
4. Local package installation awareness

User experience configuration

1. Display settings
2. Keyboard settings

3. Mouse and touchpad settings
4. Power settings
5. Default applications

Drivers and hardware

1. Additional Drivers tool
2. Graphics driver awareness
3. Printer setup
4. Bluetooth configuration
5. Firmware updates

Desktop support workflow

1. User profile issues
2. Login problems
3. Display problems
4. Application crashes
5. Update-related issues

12. Ubuntu Server Administration

Server installation characteristics

1. Minimal server environment
2. Headless administration
3. SSH-first management
4. Package selection

Server role preparation

1. Web server awareness
2. Database server awareness
3. File server awareness
4. Container host awareness
5. Monitoring host awareness

Server security baseline

1. Minimal packages
2. Controlled services
3. Firewall rules
4. SSH hardening
5. Log review

Server maintenance

1. Patch windows
2. Reboot planning
3. Service dependency checks
4. Backup validation
5. Documentation practices

13. Ubuntu Security Fundamentals

Security model

1. Users and privileges
2. File permissions
3. sudo control
4. Service exposure
5. Patch management

Authentication security

1. Strong passwords
2. SSH keys
3. MFA awareness
4. Account locking
5. Administrative access review

System hardening

1. Removing unused services

2. Restricting remote access
3. Enabling firewall policies
4. Applying updates
5. Reviewing logs

AppArmor awareness

1. Mandatory access control
2. AppArmor profiles
3. Enforce mode
4. Complain mode
5. Profile troubleshooting

Unprivileged user namespace security

1. User namespace purpose
2. Container and sandbox use cases
3. Attack surface considerations
4. Ubuntu 23.10 and 24.04 AppArmor restrictions
5. Operational compatibility concerns

Vulnerability awareness

1. CVE terminology
2. CVSS awareness
3. Ubuntu Security Notices
4. Patch prioritization
5. Vulnerability verification

Recent vulnerability briefing

1. CVE-2026-3888 overview
2. snapd and snap-confine role
3. systemd-tmpfiles interaction
4. Local privilege escalation risk
5. Affected Ubuntu versions
6. Patch and hardening importance

7. Why local access still matters

Security operations

1. Update discipline
2. Least privilege administration
3. Log monitoring
4. Backup readiness
5. Incident response awareness

14. Ubuntu 24.04 LTS Updates, Changes, and Practical Relevance

24.04 LTS platform updates

1. Kernel updates
2. GNOME desktop updates
3. Installer improvements
4. Security improvements
5. Developer tooling improvements

24.04 point release awareness

1. 24.04.1
2. 24.04.2
3. 24.04.3
4. 24.04.4
5. Hardware enablement considerations

Enterprise usage considerations

1. Stability preference
2. Long-term support
3. Compliance expectations
4. Patch management
5. Support planning

15. Awareness of Rust-Based Ubuntu Changes

Ubuntu oxidization direction

1. Rust adoption rationale
2. Memory safety motivation
3. Compatibility concerns
4. Operational testing through interim releases

Ubuntu 25.10 Rust changes

1. rust-coreutils
2. sudo-rs
3. GNU coreutils compatibility considerations
4. Interim release testing value
5. Reported breakage and remediation awareness

Ubuntu 26.04 LTS Rust status awareness

1. utils-coreutils progress
2. Security audit activity
3. Remediation status
4. LTS readiness considerations
5. Administrative caution during upgrades

Practical administrator impact

1. Script compatibility
2. Automation testing
3. Package behavior validation
4. Change-management discipline
5. Preference for tested LTS environments

16. Troubleshooting and Operational Support

Troubleshooting methodology

1. Problem definition
2. Scope identification
3. Recent change review
4. Log inspection
5. Hypothesis testing
6. Resolution documentation

Boot troubleshooting

1. Bootloader issues
2. Kernel selection
3. Recovery mode
4. Filesystem issues
5. Failed services

Network troubleshooting

1. IP configuration issues
2. DNS issues
3. Gateway issues
4. Firewall issues
5. SSH connectivity issues

Package troubleshooting

1. Broken packages
2. Repository errors
3. Dependency conflicts
4. Failed upgrades
5. Snap refresh issues

Permission troubleshooting

1. Ownership problems
2. Access denied errors
3. sudo problems
4. Group membership issues
5. Service account issues

Service troubleshooting

1. Failed units
2. Configuration errors
3. Port conflicts
4. Log-based diagnosis
5. Restart and recovery workflows

17. Practical Administration Workflow

Daily administrator tasks

1. Login checks
2. Update checks
3. Disk usage checks
4. Service health checks
5. Log review

Weekly administrator tasks

1. Patch review
2. Backup verification
3. User review
4. Firewall review
5. Security notice review

Change management

1. Pre-change validation

2. Backup before change
3. Command recording
4. Rollback planning
5. Post-change verification

Documentation habits

1. System inventory
2. Configuration notes
3. Change records
4. Access records
5. Recovery notes

18. Final Review and Skills Consolidation

Ubuntu 24.04 LTS administration review

1. Installation
2. CLI usage
3. Package management
4. Users and permissions
5. Services
6. Networking
7. Storage
8. Security

Industry readiness checklist

1. Safe command-line habits
2. Update discipline
3. Security-first administration
4. Troubleshooting confidence
5. Awareness of Ubuntu release evolution

Disclaimer

This training outline is intended as a professional guideline only. The trainer may amend, restructure, expand, reduce, or otherwise modify the contents, sequence, emphasis, or delivery approach at their discretion, without prior notice, to suit participant needs, technical constraints, operational relevance, or changes in Ubuntu releases, security advisories, and industry practices.

© 2026 Faysal Aziz · Kuala Lumpur

<https://faysalaziz.com/courses/ubuntu-24-04-lts-professional-administration/>