Unix/Linux Systems Administration

Master the art of Unix/Linux systems management and operations

Table of contents

Course Overview

Master the art of Unix/Linux systems administration, covering everything from basic command-line operations to advanced server configuration and management. This 10-week course provides comprehensive training in the skills needed to configure, manage, secure, and optimize Unix and Linux systems in production environments.

Next Cohort

- Start Date: September 10th, 2026
- Format: Available in instructor-led online, self-paced, and in-person formats
- Prerequisites: Basic familiarity with command line interfaces, fundamental understanding of operating systems

Course Curriculum

Module 1: Unix/Linux Fundamentals (Week 1)

- History and philosophy of Unix and Linux
- Major distributions and their characteristics
- System architecture overview
- File system hierarchy and navigation
- Essential command-line tools and utilities

- Getting help and documentation

Module 2: User and Permission Management (Week 2)

- User accounts and groups
- File permissions and ownership
- Special permissions (setuid, setgid, sticky bit)
- Access Control Lists (ACLs)
- Sudo and privilege escalation
- User management best practices

Module 3: Shell Scripting and Automation (Week 3)

- Bash scripting fundamentals
- Variables, control structures, and functions
- Regular expressions and text processing
- Script debugging and error handling
- Automation tools (cron, systemd timers)
- Creating maintainable scripts

Module 4: File System Management (Week 4)

- File system types and features
- Partitioning and formatting storage
- Mounting and managing file systems
- Disk quotas and storage management
- RAID and LVM configuration
- File system backups and snapshots

Module 5: Process and Service Management (Week 5)

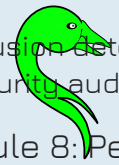
- Understanding processes and jobs
- Process monitoring and control
- Systemd service management
- SysV init (historical context)
- Scheduling and resource allocation
- Troubleshooting service issues

Module 6: Network Configuration and Services (Week 6-7)

- Networking fundamentals in Linux
- Network interface configuration
- IP addressing and routing
- Firewall management (iptables, nftables, firewalld)
- DNS configuration and troubleshooting
- Common network services (SSH, NFS, Samba)

Module 7: System Security (Week 8)

- Security principles and policies
- System hardening techniques
- Authentication mechanisms
- PAM configuration



- Intrusion detection and prevention
- Security auditing and compliance

Module 8: Performance Tuning and Monitoring (Week 9)

- Performance metrics and analysis
- Monitoring tools and techniques
- Resource utilization optimization
- Identifying bottlenecks
- Kernel tuning and optimization
- Log management and analysis

Module 9: Advanced Topics and Capstone Project (Week 10)

- Containerization basics
- Configuration management tools
- Infrastructure as code concepts
- Cloud integration and management
- Disaster recovery planning
- Capstone project: Building and securing a complete Linux environment

Learning Outcomes

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

- Configure and manage Unix/Linux systems with confidence
- Implement effective user management and permission schemes
- Write and maintain shell scripts for automation
- Manage file systems, storage, and backups efficiently
- Configure and troubleshoot network services
- Implement system security measures and harden systems
- Monitor and optimize system performance
- Troubleshoot complex system issues
- Deploy and manage production-ready Linux environments

Instructors

Our instructors are experienced systems administrators and engineers with extensive backgrounds in managing Linux environments across various industries, including enterprise, cloud, and high-performance computing sectors.

Assessment and Certification

- Weekly hands-on labs and technical assignments
- Command-line skills assessments
- Shell scripting projects
- System configuration and troubleshooting challenges
- Final capstone project demonstrating comprehensive administration skills
- Industry-recognized course completion certificate

Resources

- Dedicated virtual lab environment for hands-on practice
- Comprehensive course materials and reference guides
- Access to a variety of Linux distributions and environments
- Community forum for discussion and collaboration
- Office hours with instructors for personalized support

Download

Contact

Interested in enrolling or have questions about this course?

- Email: office@chen.ist
- Phone: Schedule a call to discuss your goals
- Web: Book a free consultation