Document Generated: 08/02/2025

Learning Style: Virtual Classroom

Technology: Linux Foundation

Difficulty: Intermediate

Course Duration: 5 Days

Linux Troubleshooting (L-314)

About this course:

Pertinent and comprehensive, the Linux Troubleshooting course is based on a hands-on approach to equip students with the right skills to effectively solve problems in the Linux environment. Being the perfect combination of lectures, discussions, and lab practice sessions, the Linux Troubleshooting course walks students through various situations of variable complexity to ensure that they can develop strategies and provide solutions for numerous problems.

Since the pool of exercises is diverse, students of the Linux Troubleshooting course will also have access to tips, hints, and complete solutions to make learning easy, convenient, and flexible.

Course objectives:

- Isolating Linux problems by developing and implementing troubleshooting strategies
- Using Linux diagnostic tools including strace, lsof, ipcs, ipcrm, ltrace, and fuser to develop solutions that are both pertinent and professional
- Troubleshooting using tools for testing networks including netstat, ifconfig, nmap, arp, route, and tcpdump.
- Securing systems using ipchains and TCP wrappers
- LDAP directory, LVM, filesystem, and Linux boot process troubleshooting
- Apache, Samba, Sendmail, FTP, and squid troubleshooting

Audience:

This course is intended for:

- Linux system administrators interested in advanced troubleshooting
- Students interested in IT ops training

Prerequisites:

- Knowledge and experience with the Linux operating system and machines
- Familiarity with Linux administration
- Knowledge and experience with file manipulation, process management, and Linux filesystem

Course Outline:

Troubleshooting Methodology

- The Troubleshooting Mindset
- Evaluating Possible Solutions
- Identifying and Implementing Change
- Define and Follow Policies
- Working with Others
- Finding Documentation
- Finding Help Online
- TROUBLESHOOTING TOOLS
- Common Troubleshooting Tools
- RPM Queries
- RPM Verification
- SRPM and spec Files
- Hardware Discovery Tools
- Configuring New Hardware with hwinfo
- strace and ltrace
- lsof and fuser
- ipcs and ipcrm
- iostat, mpstat, and vmstat
- Using hdparm to Measure
- Troubleshooting with the ip command
- Name Resolution
- ss/netstat and rpcinfo
- nmap
- Netcat
- tcpdump and wireshark
- LAB: Determining the System's Configuration
- Troubleshooting with rpm
- Process Related Tools
- Network Tools
- Rescue Environments
    - Diagnostic/Recovery
    - Rescue Procedures
    - Recovery: mount & chroot
    - Recovery Examples
    - Recovery: Network Utilities
    - LAB: Recovery Runlevels
    - Recovering Damaged MBR
    - Recover from Deleted Critical Files
- Topic Group 1
    - Linux Boot Process
    - System Boot Method Overview
    - systemd System and Service Manager
    - Using systemd
    - Booting Linux on PCs
    - Troubleshooting With GRUB 2
    - Boot Process Troubleshooting

    - Troubleshooting: Linux and Init
    - Process Management
    - Process Management Tools
    - Troubleshooting Processes: top
    - Filesystem Concepts
    - Filesystem Troubleshooting
    - Backup Concepts
    - Backup Troubleshooting
    - Backup Troubleshooting
    - LAB: Troubleshooting Problems: Topic Group 1
- Topic Group 2
    - Networking Tools
    - Linux Network Interfaces
    - Networking Commands Review
    - NetworkManager
    - Networking Troubleshooting
    - Networking Troubleshooting
    - Virtual Interfaces/IP Aliases
    - Network Teaming
    - Xinetd Concepts
    - Xinetd Troubleshooting
    - TCP Wrappers Concepts
    - TCP Wrappers Concepts
    - TCP Wrappers Troubleshooting
    - Netfilter/iptables Concepts
    - Netfilter/iptables Troubleshooting
    - LAB: Troubleshooting Problems: Topic Group 2
- Topic Group 3
    - X11 Concepts
    - X11 Server Operation
    - X11 Troubleshooting
    - Rsyslog Concepts
    - System Logging
    - systemd Journal
    - systemd Journal's journactl
    - Secure Logging with Journal's Log Sealing
    - Syslog Troubleshooting
    - RPM Concepts
    - RPM Troubleshooting
    - Common Unix Printing System (CUPS)
    - CUPS Troubleshooting
    - CUPS Troubleshooting
    - at & cron
    - at & cron Usage
    - at & cron Troubleshooting
    - LAB: Troubleshooting Problems: Topic Group 3
- Topic Group 4
    - Users and Groups
    - Users and Groups Troubleshooting
    - PAM Concepts

    - PAM Troubleshooting
    - Filesystem Quotas
    - Quotas Troubleshooting
    - File Access Control Lists
    - FACL Troubleshooting
    - SELinux Concepts
    - SELinux Troubleshooting
    - SELinux Troubleshooting Continued
    - LAB: Troubleshooting Problems: Topic Group 4
- Topic Group 5
    - Kernel Modules
    - Kernel Modules Troubleshooting
    - Logical Volume Management
    - Creating Logical Volumes
    - LVM Deployment Issues
    - VG Migration, PV Resizing & Troubeshooting
    - Software RAID Overview
    - RAID Troubleshooting
    - Multipathing Overview
    - SAN Multipathing
    - Multipath Configuration
    - Multipathing Best Practices
    - LDAP and OpenLDAP
    - Troubleshooting OpenLDAP
    - NIS and NIS+ (YP)
    - NIS Troubleshooting Aids
    - LAB: Troubleshooting Problems: Topic Group 5
- Topic Group 6
    - DNS Concepts
    - DNS Troubleshooting
    - DNS Troubleshooting
    - Apache Concepts
    - Apache Troubleshooting
    - Apache Troubleshooting
    - FTP Concepts
    - FTP Troubleshooting
    - Squid Concepts
    - Squid Troubleshooting
    - LAB: Troubleshooting Problems: Topic Group 6
- Topic Group 7
    - Samba Concepts
    - Samba Troubleshooting
    - Postfix Concepts
    - Postfix Troubleshooting
    - Postfix Troubleshooting
    - IMAP & POP Concepts
    - IMAP/POP Troubleshooting
    - MariaDB
    - MariaDB Troubleshooting
    - LAB: Troubleshooting Problems: Topic Group 7

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