

**Linux Troubleshooting**

**Course Number:** LNX-118
**Duration:** 5 days

**Overview**

This Linux Troubleshooting training course teaches Linux administrators how to tackle both common and uncommon system problems. Attendees learn effective troubleshooting techniques and then practice applying them in a realistic troubleshooting workshop process. This Linux course covers the troubleshooting of topics and technologies that were introduced in the three core classes, [Linux Fundamentals](file:////training/linux-fundamentals), [Enterprise Linux System Administration](file:////training/enterprise-linux-system-administration), and [Enterprise Linux Network Services.](file:////training/enterprise-linux-network-services)

NOTE: This class can be taught using the Linux distribution of your choice.

**Prerequisites**

This course is designed for intermediate to advanced users. Students should have already taken the [Linux Fundamentals](file:////training/linux-fundamentals), [Enterprise Linux Systems Administration](file:////training/enterprise-linux-system-administration), and [Enterprise Linux Network Services](file:////training/enterprise-linux-network-services), or have equivalent knowledge. A short refresher for each topic will be presented, but will not be discussed in depth.

**Materials**

All Linux training attendees receive comprehensive courseware.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computers for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will work well.

**Objectives**

All students will understand Linux troubleshooting methodology and tools.

Students practice applying these tools and techniques in self-paced labs. Students can choose from over 120 scenarios organized by topic and difficulty. Because each scenario is independent of the others, students can choose scenarios according to their interests and experience.

**Outline**

* Introduction
* 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
* Rescue Environments
	+ Diagnostic/Recovery
	+ Rescue Procedures
	+ Recovery: mount & chroot
	+ Recovery Examples
	+ Recovery: Network Utilities
* Topic Group 1
	+ Linux Boot Process
	+ System Boot Method Overview
	+ Systemd System and Service Manager
	+ Modifying systemd services
	+ 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
* 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
* Topic Group 3
	+ X11 Concepts
	+ X11 Server Operation
	+ X11 Troubleshooting
	+ Rsyslog Concepts
	+ System Logging
	+ Systemd Journal
	+ Systemd Journal's journalctl
	+ 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
* 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
* 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
* Topic Group 6
	+ DNS Concepts
	+ DNS Troubleshooting
	+ DNS Troubleshooting
	+ Apache Concepts
	+ Apache Troubleshooting
	+ Apache Troubleshooting
	+ FTP Concepts
	+ FTP Troubleshooting
	+ Squid Concepts
	+ Squid Troubleshooting
* Topic Group 7
	+ Samba Concepts
	+ Samba Troubleshooting
	+ Postfix Concepts
	+ Postfix Troubleshooting
	+ Postfix Troubleshooting
	+ IMAP & POP Concepts
	+ IMAP/POP Troubleshooting
	+ MariaDB
	+ MariaDB Troubleshooting
* Conclusion