

Linux System Administration (TTLX2200)

Learn How to Install, Configure and Maintain an Enterprise Linux System in a Networked Environment

Course Snapshot

- **Course:** Linux System Administration (TTLX2200)
- **Duration:** 5 days
- **Skill Level:** Introductory level
- **Audience:** Systems administrators and users new to Linux who wish to learn how to install, configure and maintain an Enterprise Linux system in a networked environment.
- **Format / Hands-on:** This course is 50% hands-on and combines engaging instructor-led presentations and practical demonstrations with hands-on exercises, challenge labs, use case exploration and engaging group activities. Student machines are required.
- **Flexible Delivery Options:** This course can be delivered for your team or organization online-live (virtual), onsite in-person, self-paced or across our immersive blended **Learning Experience Platform (LXP)**.
- **Public Schedule:** This course is currently available on our **Public Open Enrollment Schedule**.
- **Customizable:** We're flexible! This course agenda, topics, labs, hours and delivery modalities can be adjusted to target your specific training skills objectives, tools and learning goals. Please ask for details.

Overview

Linux System Administration is a comprehensive sysadmin course that provides you with the practical, hands-on skills you need to install, configure and maintain an Enterprise Linux system in a networked environment. Rich with labs and opportunity for hands-on practice, this course teaches you valuable skills required to perform key day to day administrative tasks and functions including creating and managing users, creating and maintaining file systems, determining and implementing security measures and performing software installation and package management. You'll also explore installing and supporting SSH, NFS, Samba and the Apache Web server. The course also reviews common security issues, as well as several related tools such as the PAM modules that help secure the operating system and network environment.

Although the course includes installing and configuring a CentOS 7 / RHEL 7 Linux system, much of the course content also applies to Oracle, Ubuntu, Scientific and other current versions of mainstream Linux distributions. Labs include user and group maintenance, system backups and restoration, software management, administration tasks automation, file system creation and maintenance, managing remote access, working with cron, and configuring basic file sharing and Web services, as well as working with system logging utilities such as rsyslog and more.

Learning Objectives

Working in this hands-on lab environment, guided by our expert practitioner, you'll explore:

- Installing the Linux operating system and configuring peripherals
- Performing and modifying startup and shutdown processes
- Configuring and maintaining basic networking services
- Creating and maintaining system users and groups
- Understanding and administering file permissions on directories and regular files
- Planning and creating disk partitions and file systems
- Performing maintenance on file systems
- Identifying and managing Linux processes
- Automating tasks with cron
- Performing backups and restoration of files
- Working with system log files
- Troubleshooting system problems
- Analyzing and taking measures to increase system performance

- Configuring file sharing with NFS
- Configuring Samba for file sharing with the Windows clients
- Setting up a basic Web server
- Understanding the components for setting up a LAMP server
- Implementing basic security measures

Need different skills or topics? If your team requires different topics or tools, additional skills or custom approach, this course may be further adjusted to accommodate. We offer additional Unix, Linux, Scripting, administration, networking, programming, database and other related courses which may be blended with this course for a track that best suits your learning objectives.

Audience & Pre-Requisites

This is an **introductory-level** course, designed for anyone wanting to learn Linux. Attendees should be comfortable working with computers and the command line, but no other specific skills are required to attend.

Related Courses | UNIX/Linux Essentials Training Suite

- [TTLX2100](#) Introduction to UNIX/Linux Fundamentals with Shell Scripting – 5 days
- [TTLX2103](#) Introduction to Linux Basics | Linux Essentials JumpStart – 3 days
- [TTLX2104](#) Intermediate Linux: Shell, Bash, Text Manipulation, Multitasking & More – 2 days
- [TTLX2200](#) Linux System Administration – 5 days
- Please contact us for recommendations for next steps in your learning journey based on your unique needs and goals.

Enhanced Learning Support: Please ask about our Pre-Training Class OnRamps & Primer offerings, Skills Gap Assessment Services, Case Studies, Knowledge Check Quizzes, Skills Immersion Programs & Camps, Collaborative Mentoring Services and Extended Learning Support services.

Course Topics / Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We will work with you to tune this course and level of coverage to target the skills you need most. Course agenda, topics and labs are subject to adjust during live delivery in response to student skill level, interests and participation.

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| <ol style="list-style-type: none"> 1. System Administration Overview <ul style="list-style-type: none"> • UNIX, Linux and Open Source • Duties of the System Administrator • Superusers and the Root Login • Sharing Superuser Privileges with Others (su and sudo Commands) • TCP/IP Networking Fundamentals • Online Help 2. Installation and Configuration <ul style="list-style-type: none"> • Planning: Hardware and Software Considerations • Site Planning • Installation Methods and Types • Installation Classes • Partitions • Logical Volume Manager - LVM | <ul style="list-style-type: none"> • File System Overview • Swap Partition Considerations • Other Partition Considerations • The Linux Boot Loader: grub • Software Package Selection • Adding and Configuring Peripherals • Printers • Graphics Controllers • Basic Networking Configuration • Booting to Recovery Mode <ol style="list-style-type: none"> 3. Booting and Shutting Down Linux <ul style="list-style-type: none"> • Boot Sequence • The systemd Daemon • The systemctl Command • Targets vs. Run Levels • Modifying a Target • Service Unit Scripts | <ul style="list-style-type: none"> • Changing System States • Booting into Rescue Mode • Shutdown Commands <ol style="list-style-type: none"> 4. Managing Software and Devices <ul style="list-style-type: none"> • Identifying Software Packages • Using rpm to Manage Software • Using yum to Manage Software • Installing and Removing Software • Identifying Devices • Displaying Device and System Information (PCI, USB) • Plug and Play Devices • Device Configuration Tools 5. Managing Users and Groups <ul style="list-style-type: none"> • Setting Policies • User File Management • The /etc/passwd file |
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- The /etc/shadow file
 - The /etc/group file
 - The /etc/gshadow file
 - Adding Users
 - Modifying User Accounts
 - Deleting User Accounts
 - Working with Groups
 - Setting User Environments
 - Login Configuration Files
- 6. The Linux File System**
- Filesystem Types
 - Conventional Directory Structure
 - Mounting a File System
 - The /etc/fstab File
 - Special Files (Device Files)
 - Inodes
 - Hard File Links
 - Soft File Links
 - Creating New File Systems with mkfs
 - The lost+found Directory
 - Repairing File Systems with fsck
 - The Journaling Attribute
 - File and Disk Management Tools
- 7. Linux File Security**
- File Permissions
 - Directory Permissions
 - Octal Representation
 - Changing Permissions
 - Setting Default Permissions
 - Access Control Lists (ACLs)
 - The getfacl and setfacl commands
 - SUID Bit
 - SGID Bit
 - The Sticky Bit
- 8. Controlling Processes**
- Characteristics of Processes
 - Parent-Child Relationship
 - Examining Running Processes
 - Background Processes
 - Controlling Processes
 - Signaling Processes
- Killing Processes
 - Automating Processes
 - cron and crontab
 - at and batch
 - System Processes (Daemons)
- 9. Working with the Linux Kernel**
- Linux Kernel Components
 - Types of Kernels
 - Kernel Configuration Options
 - Recompiling the Kernel
- 10. Shell Scripting Overview**
- Shell Script Fundamentals
 - Bash Shell Syntax Overview
 - Shell Script Examples
- 11. System Backups**
- Backup Concepts and Strategies
 - User Backups with the tar Command
 - System Backup Options
 - The xfsdump and xfsrestore Commands
- 12. Troubleshooting the System**
- Common Problems and Symptoms
 - Troubleshooting Steps
 - Repairing General Boot Problems
 - Repairing the GRUB 2 Boot Loader
 - Hard Drive Problems
 - Restoring Shared Libraries
 - System Logs and rsyslogd
- 13. Basic Networking**
- Networking Services Overview
 - NetworkManager Introduction
 - Network Configuration Files Locations and Formats
 - Enabling and Restarting Network Services with systemctl
 - Configuring Basic Networking Manually
 - Configuring Basic Networking with NetworkManager
- 14. LAMP Server Basics**
- LAMP Overview
 - Configuring the Apache Web Server
 - Common Directives
 - Apache Virtual Hosting
 - Configuring an Open Source Database
 - MySQL
 - MariaDB
 - PHP Basics
 - Perl CGI Scripting
- 15. Introduction to System Security**
- Security Overview
 - Maintaining System Security
 - Server Access
 - Physical Security
 - Network Security
 - Security Tools
 - Port Probing with nmap
 - Intrusion Detection and Prevention
 - PAM Security Modules
 - Scanning the System
 - Maintaining File Integrity
 - Using Firewalls
 - Introduction to firewalld
- 16. The Samba File Sharing Facility**
- Configure Samba for Linux to Linux/UNIX File Sharing
 - Configure Samba for Linux to Windows File Sharing
 - Use the smbclient Utility to Transfer Files
 - Mount/Connect Samba Shares to Linux and Windows Clients
- 17. Networked File Systems (NFS)**
- Using NFS to Access Remote File Systems
 - Configuring the NFS Server
 - Configuring the NFS Client
 - Exporting File Systems from the NFS Server to the NFS Client

Setup Made Simple! Learning Experience Platform (LXP)

All applicable course software, digital courseware files or course notes, labs, data sets and solutions, live coaching support channels, CodeCoach.AI anytime tutor access, and rich extended learning and post training resources are provided for you in our “easy access, single source, no install required” online **Learning Experience Platform (LXP)**, remote lab and content environment. Access periods vary by course. We’ll collaborate with you to ensure your team is set up and ready to go well in advance of the class. Please inquire about set up details and options for your specific course of interest.

For More Information

For more information about our training services (instructor-led, self-paced or blended), collaborative coaching services, robust Learning Experience Platform (LXP), Career Experiences, public course schedule, partner programs, courseware licensing options or to see our complete list of course offerings, solutions and special offers, please visit us at www.triveratech.com, email Info@triveratech.com or call us toll free at **844-475-4559**. Our pricing and services are always satisfaction guaranteed.

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