Linux Essentials for Developers

- 3 Days
- Lecture and Hands-on Labs

Course Overview

Linux is at the core of nearly all open-source projects. If you want to become a developer, then Linux is the engine that will run nearly all of your code. Your view of Linux will be different than a Linux System admin who must make sure that system availability is as close to 100% as possible. As a developer, you will be required to make Linux bend to your will, which is means you will have great power over the system. With great power comes great responsibility. You must be able to use Linux to accomplish your task, while not adversely affecting system reliability, security or operational efficiency. In this course you will learn how to make Linux deliver essential services and in the same motion, maintain the Linux system integrity. Successful students can generally expect their work efficiency to increase dramatically.

What You'll Learn

- Basic and intermediate Linux skill and tool sets
- Exploring compute resources
- Overivew of how the Linux OS handles mounts and storage
- Introduction to system networking
- AI LLM prompt engineering for relevant configuration snippets and solutions

Outline

Navigating Linux - Day 1

- 🖳 Lecture + Lab: Shell Command
- 🖳 Lecture + Lab: man
- 🗩 Lecture: LEC - POSIX File System
- 🖳 Lecture + Lab: Dot Files

Essential linux tools

- 🖳 Lecture + Lab: Using Vim to Edit Files
- 🖳 Lecture + Lab: Using Tmux
- 🖳 Lecture + Lab: Using HTOP
- 🖳 Lecture + Lab: Watch
- 🖳 Lecture + Lab: Bash Shortcuts
- 🗩 Lecture: LEC - Choosing a Linux Cheatsheet

SSH

- 🖳 Lecture + Lab: Introducing SSH
- 🖳 Lecture + Lab: SSH-Keygen
- 🖳 Lecture + Lab: Using Secure Copy (scp)
- 🖳 Lecture + Lab: A look at Rsync

Managing Files in Linux - Day 2

- 💻 Lecture + Lab: Finding Files
- 💻 Lecture + Lab: Grep and Piping
- 💻 Lecture + Lab: I/O Redirection
- 💻 Lecture + Lab: File Management Tasks

Managing User and Group Accounts

- 💻 Lecture + Lab: Configure User Profiles
- 💻 Lecture + Lab: Create User and Group Accounts
- 💻 Lecture + Lab: Understand User Properties

Managing Linux Permissions and Ownership

- 💬 Lecture: LEC - Basic File Permissions
- 💻 Lecture + Lab: Interacting with File Permissions
- 💻 Lecture + Lab: Modify File and Directory Permissions
- 💻 Lecture + Lab: Modify File and Directory Ownership
- 💻 Lecture + Lab: Set Special Permissions and Attributes

Repository Essentials

- 💻 Lecture + Lab: Understanding Dependencies

Managing Processes and Kernel Services

- 💻 Lecture + Lab: Monitor Processes and Resources

Shell Scripts - Day 3

- 💬 Lecture: LEC - Bash Scripting Intro
- 💻 Lecture + Lab: Bash Read CLI Vars
- 💬 Lecture: LEC - Bash Conditional Statements
- 💻 Lecture + Lab: Bash Conditionals (if/else)
- 💻 Lecture + Lab: Bash While Loops

Managing Jobs and Processes

- 💬 Lecture: LEC - Understanding Systemd
- 💻 Lecture + Lab: Managing Services with Systemctl
- 💻 Lecture + Lab: Manage Jobs and Background Processes
- 💻 Lecture + Lab: Schedule Jobs

Understanding Network Services

- 💬 Lecture: LEC - Essential IP2 Commands (ip -l ip -a, ip route, ss, netstat
- 💻 Lecture + Lab: Managing IP Configuration

Diagnosing a Slow Network

- 💻 Lecture + Lab: MTR
- 💻 Lecture + Lab: IPerf
- 💻 Lecture + Lab: Check MTU
- 💻 Lecture + Lab: Check Virtual Networking

Troubleshooting Disk Memory and Logs

- 💻 Lecture + Lab: DF
- 💻 Lecture + Lab: DU
- 💻 Lecture + Lab: Free
- 💻 Lecture + Lab: Logs -f: Follow Flag