Document Generated: 11/29/2026

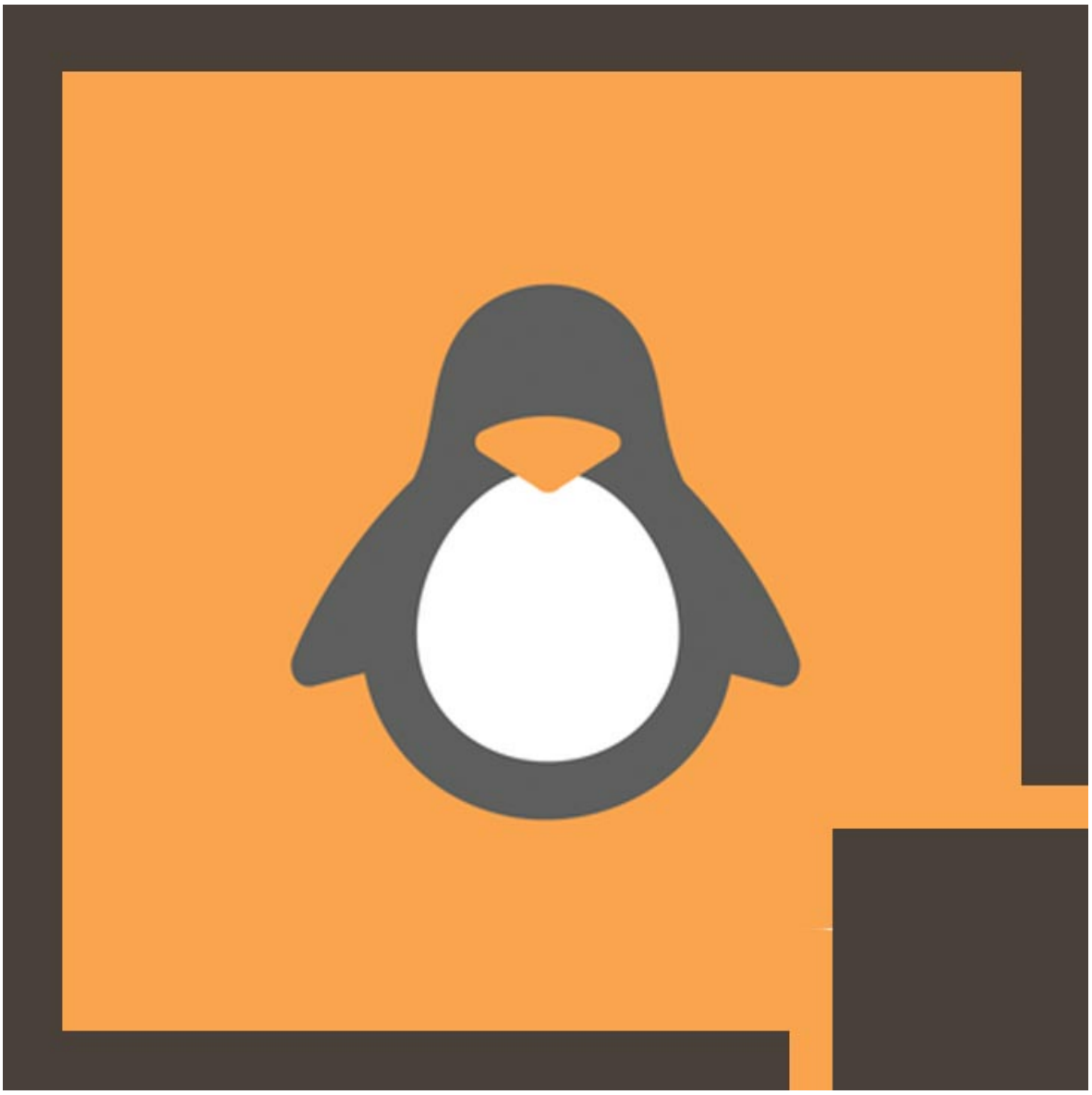
Learning Style: Online Instructor-Led

Technology: Linux Foundation

Difficulty: Beginner

Course Duration: 4 Days

Fundamentals of Linux (LFS300)



About this course:

This is a challenging course that focuses on the fundamental tools and concepts of Linux and Unix. Students gain proficiency using the command line. Beginners develop a solid foundation in Unix, while advanced users discover patterns and fill in gaps in their knowledge. The course material is designed to provide extensive hands-on experience. Students will learn how to manage files and directories, utilize the vi editor, work with Linux security mechanisms to protect files and programs, work with the Linux shell to control the flow and processing of data through pipelines, design and write shell programs of moderate complexity, and manage multiple concurrent processes in order to achieve higher utilization of Linux.

The average salary of Linux Systems Engineer is **$102,367** per year.

Course Objectives:

After completing this course, students will be able to:

- Basic file manipulation.
- Basic and advanced filesystem features.
- I/O redirection and pipes.
- Text manipulation and regular expressions.
- Managing jobs and processes.
- Vi, the standard Unix editor.
- Automating tasks with shell scripts.
- Managing software.
- Secure remote administration.

Audience:

- Students in this course commonly span a variety of skill levels, from beginners desiring a solid foundation in Unix to experienced users seeking to fill in gaps in their knowledge. Courseware supports latest versions of Red Hat Enterprise Linux, Fedora Core, SUSE LINUX Professional, and SUSE LINUX Enterprise Server.

Prerequisites:

- Students should be comfortable with computers. No familiarity with Linux or other Unix operating systems is required.

Course Outline:

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Introduction

- Linux Foundation
- Linux Foundation Training
- Linux Foundation Certifications
- Linux Foundation Digital Badges

- Laboratory Exercises, Solutions and Resources
- Things Change in Linux and Open Source Projects
- Distribution Details
- Labs

Preliminaries

- The Command Line
- Linux Distributions and Desktops
- Keeping Current
- Filesystem Layout
- Editors
- sudo
- Labs

Linux Philosophy and Concepts

- Linux History
- Linux Philosophy
- Linux Community
- Linux Vocabulary
- Linux Distributions
- Labs

Linux Installation

- Planning the Installation Process
- Source Media
- Doing the Install
- Labs

Graphical Interface

- Graphical Layers
- Session Management
- Exploring the Filesystem
- Customizing the Graphical Desktop
- Labs

System Configuration from the Graphical Interface

- System Settings
- Display Settings
- Network Manager
- NTP (Network Time Protocol)
- Graphical Software Package Management
- Labs

Finding Linux Documentation

- Documentation Sources
- The UNIX Manual
- GNU Info
- Command Help
- Other Documentation Sources
- Labs

Common Applications

- Internet Applications
- Office Applications
- Multimedia Applications
- Graphics Editors
- Labs

Text Editors

- Available Text Editors
- Creating a File Without an Editor
- nano
- gedit
- Visual Studio Code
- vi
- emacs
- Labs

Boot Process

- Bootloader
- Linux Kernel and initramfs
- init and Services
- Console
- X Window System and Desktop Manager
- Labs

Command-line Operations

- Command Line Operations and Options
- Basic Operations
- Command Prompt
- Wildcards
- Searching for Files
- Package Management
- Labs

User Environment

- Accounts
- Environment Variables
- Key Shortcuts

- Command History
- Command Aliases
- File Ownership and Permissions
- Labs

Text Operations

- cat
- echo
- sed
- awk
- Miscellaneous Text Utilities
- Sorting, Cutting, Pasting, Joining, Splitting
- Regular Expressions and grep
- Labs

File Operations

- Filesystems
- Partitions and Mount Points
- Network File System (NFS)
- Working with Files
- Comparing Files
- File Types
- Compressing Data
- Labs

Bash Shell Scripting

- Scripts
- Features
- Functions
- Command Substitutions and Arithmetic
- If Conditions and Tests
- Looping Structures
- Case Structure
- Debugging
- Creating Temporary Files and Directories
- Labs

Processes

- Introduction to Processes
- Process Attributes
- ps
- top
- Load Averages
- Process Control
- Starting Processes in the Future
- Labs

Printing

- CUPS and Printer Configuration
- Printing Operations
- PostScript and PDF
- Labs

Networking

- Addressing
- Networking Interfaces and Configuration
- Networking Utilities and Tools
- Labs

Local Security Principles

- Local Security
- When to Use Root
- sudo
- Passwords
- Bypassing User Authentication
- Labs

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