

KOENIG SOLUTIONS • COURSE OUTLINE

LPI Linux Essentials v1.6

Learn to navigate, administer and secure Linux systems, from the command line to users, permissions and networking.

4 Days

8 HOURS A DAY

5

MODULES

169

TOPICS

COURSE OVERVIEW

This course covers the Linux community, open source philosophy, licensing and major open source applications, along with the ICT skills needed to work in Linux. It then builds command line proficiency, including navigating directories, managing files, archiving data, searching with regular expressions, and writing simple shell scripts. It also explains how the Linux operating system stores programs, processes and log data, and how to query network configuration. Finally, it addresses security fundamentals, covering user and group management, file permissions and ownership, and special directories and files.

WHO THIS COURSE IS FOR

System Administrators

IT Support Technicians

Linux Users

Help Desk Staff

Open Source Enthusiasts

TOOLS AND REQUIREMENTS

Lab Requirement

- Koenig-DC

LEARNING OBJECTIVES

- Describe Linux distributions, open source applications and licensing models
- Identify ICT skills required for working on a Linux system
- Apply command line syntax, variables and quoting in the shell
- Navigate directories and list, create, move and delete files
- Archive and compress files using tar, gzip and zip
- Extract and filter data from files using grep and pipes
- Develop simple shell scripts to automate repetitive commands
- Manage users, groups and file permissions for system security

5 Modules, 169 Topics

01

The Linux Community and a Career in Open Source

1.1 LINUX EVOLUTION AND POPULAR OPERATING SYSTEMS

- Weight: 2
- **Description:** Knowledge of Linux development and major distributions
- Distributions
- Embedded Systems
- Linux in the Cloud
- Debian, Ubuntu (LTS)
- CentOS, openSUSE, Red Hat, SUSE
- Linux Mint, Scientific Linux
- Raspberry Pi, Raspbian
- Android

1.2 MAJOR OPEN SOURCE APPLICATIONS

- Weight: 2
- **Description:** Awareness of major applications as well as their uses and development
- Desktop applications
- Server applications
- Development languages
- Package management tools and repositories
- OpenOffice.org, LibreOffice, Thunderbird, Firefox, GIMP
- Nextcloud, ownCloud
- Apache HTTPD, NGINX, MariaDB, MySQL, NFS, Samba
- C, Java, JavaScript, Perl, shell, Python, PHP
- dpkg, apt-get, rpm, yum

1.3 OPEN SOURCE SOFTWARE AND LICENSING

- Weight: 1
- **Description:** Open communities and licensing Open Source Software for business
- Open source philosophy
- Open source licensing
- Free Software Foundation (FSF), Open Source Initiative (OSI)
- Copyleft, Permissive
- GPL, BSD, Creative Commons
- Free Software, Open Source Software, FOSS, FLOSS
- Open source business models

1.4 ICT SKILLS AND WORKING IN LINUX

- Weight: 2
- **Description:** Basic Information and Communication Technology (ICT) skills and working in Linux
- Desktop skills
- Getting to the command line
- Industry uses of Linux, cloud computing and virtualization
- Using a browser, privacy concerns, configuration options, searching the web and saving content
- Terminal and console
- Password issues
- Privacy issues and tools
- Use of common open source applications in presentations and projects

Finding Your Way on a Linux System

2.1 COMMAND LINE BASICS

- Weight: 3
- **Description:** Basics of using the Linux command line
- Basic shell
- Command line syntax
- Variables
- Quoting
- Bash
- echo
- history
- PATH environment variable
- export
- type

2.2 USING THE COMMAND LINE TO GET HELP

- Weight: 2
- **Description:** Running help commands and navigation of the various help systems
- Man pages
- Info pages
- man
- info
- /usr/share/doc/
- locate

2.3 USING DIRECTORIES AND LISTING FILES

- Weight: 2
- **Description:** Navigation of home and system directories and listing files in various locations
- Files, directories
- Hidden files and directories
- Home directories
- Absolute and relative paths
- Common options for ls
- Recursive listings
- cd
- . and ..
- home and ~

2.4 CREATING, MOVING AND DELETING FILES

- Weight: 2
- **Description:** Create, move and delete files and directories under the home directory
- Files and directories
- Case sensitivity
- Simple globbing
- mv, cp, rm, touch
- mkdir, rmdir

The Power of the Command Line

3.1 ARCHIVING FILES ON THE COMMAND LINE

- Weight: 2
- **Description:** Archiving files in the user home directory
- Files, directories
- Archives, compression
- tar
- Common tar options
- gzip, bzip2, xz
- zip, unzip

3.2 SEARCHING AND EXTRACTING DATA FROM FILES

- Weight: 3
- **Description:** Search and extract data from files in the home directory
- Command line pipes
- I/O redirection
- Basic Regular Expressions using ., [], *, and ?
- grep
- less
- cat, head, tail
- sort
- cut
- wc

3.3 TURNING COMMANDS INTO A SCRIPT

- Weight: 4
- **Description:** Turning repetitive commands into simple scripts
- Basic shell scripting
- Awareness of common text editors (vi and nano)
- #! (shebang)
- /bin/bash
- Variables
- Arguments
- for loops
- echo
- Exit status

The Linux Operating System

4.1 CHOOSING AN OPERATING SYSTEM

- Weight: 1
- **Description:** Knowledge of major operating systems and Linux distributions
- Differences between Windows, OS X and Linux
- Distribution life cycle management
- GUI versus command line, desktop configuration
- Maintenance cycles, beta and stable

4.2 UNDERSTANDING COMPUTER HARDWARE

- Weight: 2
- **Description:** Familiarity with the components that go into building desktop and server computers
- Hardware
- Motherboards, processors, power supplies, optical drives, peripherals
- Hard drives, solid state disks and partitions, /dev/sd*
- Drivers

4.3 WHERE DATA IS STORED

- Weight: 3
- **Description:** Where various types of information are stored on a Linux system
- Programs and configuration
- Processes
- Memory addresses
- System messaging
- Logging
- ps, top, free
- syslog, dmesg
- /etc/, /var/log/
- /boot/, /proc/, /dev/, /sys/

4.4 YOUR COMPUTER ON THE NETWORK

- Weight: 2
- **Description:** Querying vital networking configuration and determining the basic requirements for a computer on a Local Area Network (LAN)
- Internet, network, routers
- Querying DNS client configuration
- Querying network configuration
- route, ip route show
- ifconfig, ip addr show
- netstat, ss
- /etc/resolv.conf, /etc/hosts
- IPv4, IPv6
- ping
- host

Security and File Permissions

5.1 BASIC SECURITY AND IDENTIFYING USER TYPES

- Weight: 2
- **Description:** Various types of users on a Linux system
- Root and standard users
- System users
- /etc/passwd, /etc/shadow, /etc/group
- id, last, who, w
- sudo, su

5.2 CREATING USERS AND GROUPS

- Weight: 2
- **Description:** Creating users and groups on a Linux system
- User and group commands
- User IDs
- /etc/passwd, /etc/shadow, /etc/group, /etc/skel/
- useradd, groupadd
- passwd

5.3 MANAGING FILE PERMISSIONS AND OWNERSHIP

- Weight: 2
- **Description:** Understanding and manipulating file permissions and ownership settings
- File and directory permissions and ownership
- ls -l, ls -a
- chmod, chown

5.4 SPECIAL DIRECTORIES AND FILES

- Weight: 1
- **Description:** Special directories and files on a Linux system including special permissions
- Using temporary files and directories
- Symbolic links
- /tmp/, /var/tmp/ and Sticky Bit
- ls -d
- ln -s

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training

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Fly-Me-A-Trainer (FMAT)

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