

Gentoo Linux Administrator

Learn to install, configure, optimise and secure Gentoo Linux, and deploy key services such as Apache, NFS, DNS, ZFS and databases.

7 Days

8 HOURS A DAY

21

MODULES

66

TOPICS

COURSE OVERVIEW

This course covers the Gentoo Linux philosophy and installation process, including disk partitioning, base system setup, and kernel configuration. It explains the Portage package manager, USE flags, overlays, and advanced features such as slots, profiles and masking, along with system initialization, configuration, optimization, maintenance and security practices. It also addresses desktop environment installation, system utilities, and hands-on projects covering specific server roles. Further modules examine configuring and integrating services including Apache, NFS, DNS, ZFS, PostgreSQL, MySQL, and GNOME or KDE desktops.

WHO THIS COURSE IS FOR

System Administrators

Linux Administrators

Infrastructure Engineers

DevOps Engineers

Database Administrators

LEARNING OBJECTIVES

- Explain the Gentoo philosophy of flexibility and customization
- Install Gentoo including disk partitioning and kernel setup
- Configure Portage, USE flags, overlays and package masking
- Compile and customize the Linux kernel for specific hardware
- Configure system initialization, services, networking and users
- Apply optimization and performance tuning techniques
- Implement security hardening and mandatory access controls
- Configure services such as Apache, NFS, DNS, ZFS and PostgreSQL

21 Modules, 66 Topics

01

Introduction to Gentoo

TOPICS

- Overview of Gentoo and its history
- **The philosophy behind Gentoo:** flexibility, optimization, and customization

02

Installation

TOPICS

- Preparing the environment for a Gentoo installation
- Disk partitioning and file system selection
- Installing the base system, setting up the kernel, and boot configuration

03

Portage Package Manager

TOPICS

- Introduction to Portage, the heart of Gentoo
- Understanding USE flags and their significance
- Searching, installing, and updating packages
- Working with overlays

04

Kernel Configuration

TOPICS

- Customizing the Linux kernel for your hardware and requirements
- Manual kernel compilation and the benefits of doing so
- Kernel modules and drivers

05

System Initialization and Services

TOPICS

Understanding Gentoo's init systems · Managing and customizing system services

06

System Configuration

TOPICS

- Configuring the system for networking, locale, time zones, etc.
- User management and permissions

07

Optimization

TOPICS

- CPU-specific optimizations and the benefits they offer
- Fine-tuning system performance through various settings and configurations

08

Gentoo Maintenance

TOPICS

Keeping the system up-to-date · Handling system upgrades and potential issues · Troubleshooting common problems

09

Advanced Portage Features

TOPICS

Working with slots, profiles, and eselect · Masking and unmasking packages

10

Security

TOPICS

- Setting up a secure Gentoo system
- Hardening and best practices
- Introduction to SELinux or other mandatory access controls on Gentoo

11

Desktop and Software Installation

TOPICS

- Installing and customizing desktop environments
- Introduction to popular software and their Gentoo-specific configurations

12

Utilities and Tools

TOPICS

- Using tools like emerge, revdep-rebuild, and dispatch-conf
- System logging and monitoring

13

Hands-on Projects

TOPICS

- Practical exercises that challenge you to apply what you've learned
- Setting up specific server roles, desktop configurations, or embedded systems

01

Apache

TOPICS

- Installing Apache through Portage
- **Basic configuration of an Apache web server:** virtual hosts, .htaccess, mod_rewrite, etc.
- Setting up SSL for secure connections
- Optimization and performance tuning specific to Gentoo

02

NFS (Network File System)

TOPICS

- Installation and configuration of the NFS server and client packages
- Exporting and mounting filesystems
- Security and permissions
- Best practices in Gentoo specific scenarios

03

DNS (Domain Name System)

TOPICS

Setting up BIND or other DNS servers · Configuring zones, forwarding, and caching · Securing your DNS server · DNS troubleshooting and tools

04

ZFS

TOPICS

- Introduction to the ZFS filesystem
- Installing the ZFS kernel modules and userland utilities on Gentoo
- Creating and managing ZFS pools and datasets
- Snapshots, replication, and other advanced features

05

Postgres

TOPICS

- Installing PostgreSQL from Portage
- Initializing a PostgreSQL database cluster
- **Basic database operations:** creating databases, tables, and managing users
- Performance tuning and maintenance tasks
- Backup and restore procedures

06

MySQL

TOPICS

- Installing MySQL (or MariaDB) on Gentoo
- MySQL server configuration
- User management, database creation, and basic operations
- Performance tuning, backups, and restoration

07

GNOME and/or KDE Desktop

TOPICS

- Installing GNOME or KDE from Portage
- Configuring display managers like GDM or SDDM
- Customizing your desktop environment
- Introduction to key applications and utilities in GNOME/KDE
- Performance optimization and theme customization

08

Integration and Advanced Scenarios

TOPICS

- Integrating Apache with Postgres or MySQL for web applications
- Setting up ZFS for optimized database storage
- Centralized authentication for services
- Troubleshooting and recovery scenarios

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.

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