Proxmox VE – Virtualization and Administration Fundamentals

Course code: PROXMOX1

This course is intended for administrators who want to deploy and run virtual infrastructure on the open-source Proxmox VE platform. Over two days, you will get hands-on experience with installation, management of virtual machines (KVM) and containers (LXC), network and storage configuration, and backups, from the first node to day-to-day operation. The course emphasizes hands-on exercises in a real-world environment.

Who is the course for

- Server administrators and IT specialists who manage or plan virtual infrastructure
- Administrators considering a switch from commercial platforms (e.g., VMware) to open-source solutions
- Technicians who want to learn Proxmox VE from scratch

What we teach you

- Install and configure Proxmox VE on a standalone node
- Create and manage virtual machines and containers
- Set up networking and storage
- Back up and restore data
- Confidently work with both the web interface and the command line

Required skills

- Knowledge of Linux administration at the level of the LXI1, LXI2, and LXI3 courses and TCP/IP networking basics.
- Experience with another virtualization platform (VMware, Hyper-V, KVM) is an advantage.

Course outline

Introduction, Installation, and Administration Basics

- Introduction to virtualization: hypervisors, KVM (full virtualization) vs. LXC (containers)
- Proxmox VE architecture, its components, and typical deployments
- Hardware, network, and storage requirements
- Installing Proxmox VE on a standalone node (lab)
- Post-installation configuration, repository management, and updates (no-subscription/enterprise)
- Getting oriented in the web interface and command line (pvesh, qm, pct)
- Network models: Linux bridge, bonding, VLAN; network security basics

Virtual Machines, Containers, Storage, and Backups

- Creating and configuring KVM virtual machines, virtio drivers, QEMU guest agent
- Creating and managing LXC containers, templates; VM vs. container comparison
- Importing and migrating VMs from other platforms (e.g., VMware) – basic procedure
- Storage: local, LVM/LVM-thin, ZFS, NFS, and iSCSI backends – connection and configuration
- Snapshots, backup, and restore of virtual machines and containers
- Users, roles, and permissions; the integrated Proxmox VE firewall
- Outlook: clustering and high availability (continued in the PROXMOX2 course)

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