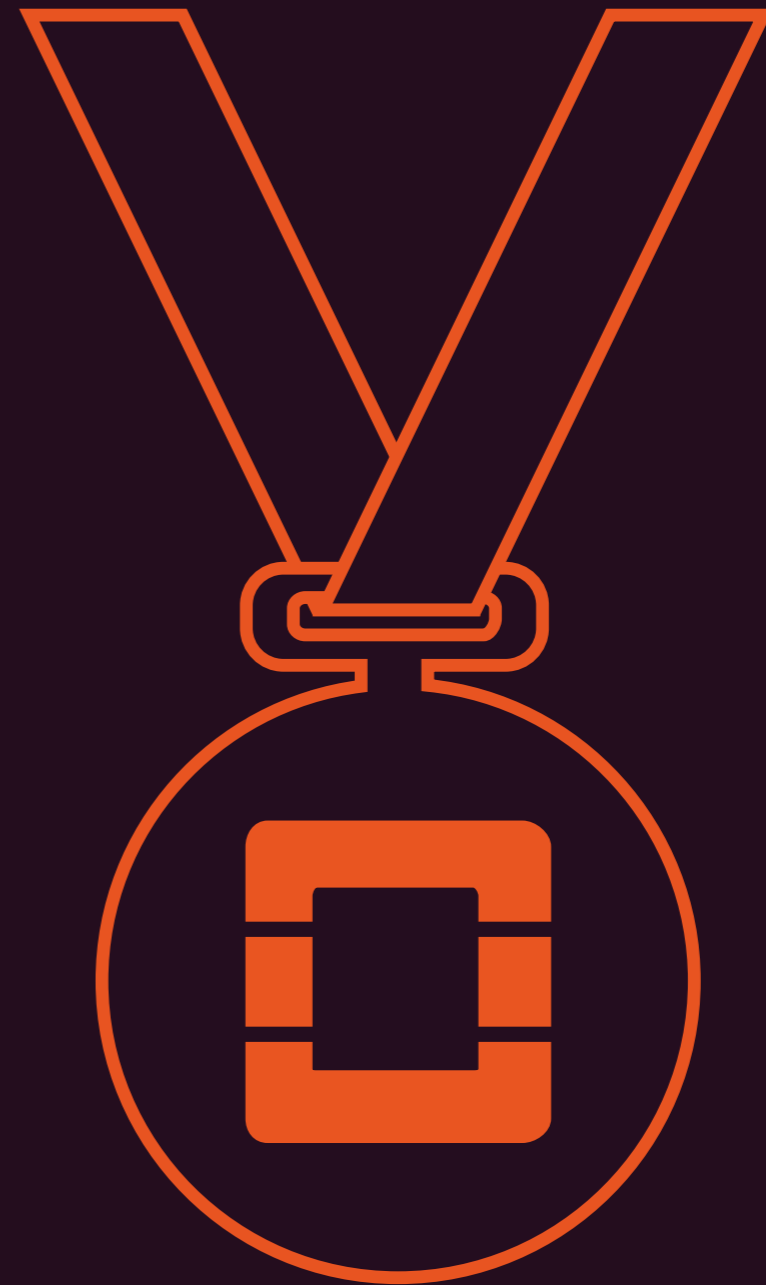


Ubuntu Server Administration Training



Learn from the best

You've decided to install the most widely deployed guest operating system in most public clouds and now you need to learn how to make the most of it. The Ubuntu Server Administration Training Programme is an intensive 3-day, hands-on course that will give you the best foundation for setting up and running Ubuntu Server.

The 3-day training course will cover everything you need to know to install and maintain an Ubuntu Server system. Starting with the installation of an Ubuntu Server guest, your instructor will lead you through the basic concepts of the Linux file system, command line interface, user management, and user security. You will also learn the fundamentals of system initialization, process and software management, storage, networking, system monitoring, and virtualization.

All sessions are a combination of instruction and lab work.

Schedule:

Day 1-3: Lecture/hands-on exercises

Level required:

Basic understanding of Linux/Unix and the ability to type

Install and maintain an Ubuntu Server system

Students should complete the course with a comprehension of the following lessons.

Lesson 1: What Is Ubuntu?

Releases and Flavors of Ubuntu

- Differentiate between the flavors of Ubuntu Linux

Ubuntu Maintenance Model

- Explain the Ubuntu Linux release cycle
 - Explain the Ubuntu naming convention
 - Explain Ubuntu LTS maintenance cycle
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Lesson 2: Installation of Ubuntu

System Installation

- Complete an Ubuntu Server installation

Introduction to MAAS

- List and explain key MAAS features and functionality
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Lesson 3: Linux Filesystem Hierarchy

Linux Filesystem Hierarchy Standard (FHS)

- Define the Linux Filesystem Hierarchy Standard
- Explain the Ubuntu Filesystem Hierarchy

Linux File Types

- List and define Linux file types
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Lesson 4: CLI Environment

Get Help

- Access and use Linux manual pages
- Access and use Linux info pages
- Locate and use package documentation

Shell Environment

- List key shell environment concepts
- List and explain the purpose of shell environment files
- Define environment variables
- Create and use shell aliases
- Explain data channels, redirection, and command chaining
- Explain return values

- List and explain shell expansion and wild cards
 - Explain and use brace expansion
 - Explain and use tilde expansion
 - Explain and use parameter/variable expansion
 - Explain and use command substitution
 - Explain and use arithmetic expansion
 - Explain and use wildcard expansion

CLI Commands

- Navigate the file system using CLI
- Manipulate the file system using CLI
- Search the file system
- Search file contents
- Manipulate file contents
- Perform text processing

Terminal Multiplexing

- Use terminal multiplexing with Byobu

Introduction to Vim

- Describe Vim
- Describe the purpose of the vimrc file
- Perform Vim navigation
- Use Vim command mode
- Use Vim insert mode
- Use Vim visual mode
- Use Vim search and replace/delete
- Use Vim windows

Remote Administration with OpenSSH

- Describe key OpenSSH features and functionality
 - Perform OpenSSH server configuration
 - Use OpenSSH client tools
 - Perform SSH key management
 - Use SSH port tunneling
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Lesson 5: Identity and Security

User Management

- Explain the purpose of UNIX user accounts
- List and explain user/group data files
- Perform user/group/password management

Privilege Delegation

- Define and use sudo
- Explain su

Permissions

- Explain and manipulate file/directory permissions
- Explain and manipulate umask
- Explain and manipulate SUID/SGID/Sticky Bit

ACLs

- Explain Posix ACL concepts
- Enable Posix ACLs
- Manipulate Posix ACLs

PAM

- List key PAM features and functionality
- Configure PAM modules

Introduction to AppArmor

- List key AppArmor features and functionality
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Lesson 6: System Initialization

Boot Process Overview

- Explain the Ubuntu boot process

The Boot Loader

- Explain and configure GRUB2

The Kernel and Initrd

- Explain the Linux kernel initialization process
- Describe Initrd

Systemd

- Describe Systemd features and functionality
- Explain Systemd init descriptors

Upstart

- Describe Upstart features and functionality
 - Explain Upstart scripts
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Lesson 7: Process Management

Process Administration

- Describe Linux processes
- List processes
- Send signals to processes

Process Priority

- Define and manipulate process priority with nice/renice

Background Processes

- Define and use job control

Scheduling Processes

- Explain and schedule processes with cron
- Explain and schedule processes with at

On-demand Processes

- Explain and configure on-demand processes with xinetd
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Lesson 8: Software Management

Debian Package Management

- Describe Debian package management
- Perform Debian package management

Advanced Package Tool (Apt)

- Perform package management with apt
- Perform package management with aptitude

Snappy Package Management

- Perform package management with snappy
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Lesson 9: Storage

Partitioning

- Describe and use MBR/MSDOS partitions
- Describe and use GPT partitions

File Systems

- Describe and configure Ext4
- Describe and configure XFS
- Describe and configure BTRFS
- Describe and configure ZFS (Xenial)

Software RAID

- Define Linux software RAID
- Describe and use mdadm command

LVM

- Describe LVM features and functionality
 - Configure and work with LVM physical volumes
 - Configure and work with LVM volume groups
 - Configure and work with LVM logical volumes
 - Configure and work with LVM snapshots
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Lesson 10: Networking

Basic Network Commands

- Describe Linux network configuration layers
- Use basic network commands (ip/ethtool)
- Use network troubleshooting commands

Network Initialization and Configuration

- Describe and use Ubuntu network interface management commands
 - Describe and manipulate Ubuntu network interface configuration files
 - Describe and configure hostname resolution
 - Describe and configure network interface bonding
 - Describe and configure VLANs
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Lesson 11: Administration and Monitoring

System Logging

- Describe system logging
- Configure rsyslog
- Configure logrotate

Time Synchronization

- Describe key NTP concepts
- Configure NTP server and client
- Use time sync CLI tools

Backup and Recovery

- Describe and use archiving and compression utilities
 - Describe and use dd
 - Describe and use rsync
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Lesson 12: Virtualisation

QEMU/KVM

- Describe QEMU/KVM
- LXC/LXD
- Describe LXC (Trusty)
- Describe and use LXD (Xenial) containers

uvtool

- Describe and use uvtool

Virtual Machine Management

- Describe and use virsh
 - Describe and use virt-manager
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