



Deploying Ubuntu Server Edition

Training Course Overview

(Ubuntu 10.04 LTS)

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Course Overview

About the Course and Objectives

This advanced five-day hands-on course will provide participants with the skills they need to deploy, configure and maintain secure Ubuntu servers within the enterprise infrastructure. The course is based on Ubuntu 10.04 LTS. Extensive lab exercises in a multi-server virtual machine environment will help attendees put their new skills into practice. This course is available in instructor led and virtual online training classroom environments.

After completing this course, participants will be able to:

- Install and deploy Ubuntu servers in an enterprise environment.
- Perform an advanced, automated installation using Kickstart.
- Manage disk partitions, logical volumes and file systems.
- Install and manage software packages using command-line tools.
- Create proxies and mirrors for Ubuntu repositories.
- Create and deploy virtual machines using KVM and libvirt.
- Automate updates and use Landscape to manage client systems.
- Maintain user-level security.
- Configure a simple firewall.
- Set up a mail server using Postfix and Dovecot.
- Constrain applications with AppArmor mandatory access controls.
- Monitor server load and status.
- Define and implement a backup strategy.
- Install and configure LDAP directory service, Kerberos and AD integration.

Who Should Attend

This course has been designed for intermediate-to-advanced system administrators working in organisations which are about to, or have already, deployed Ubuntu desktop and servers in the office. It has been tailored to meet the needs of companies switching from UNIX, Red Hat and other Linux distributions. The course is not intended for those with only a Microsoft system administration background.

Pre-requisites

Attendees should already have:

- An Ubuntu Certified Professional certification and/or;
- A RHCE certification and/or, the equivalent training and working knowledge of RedHat (or other RPM-based distributions), and/or
- A sound working knowledge of system administration of some other version of UNIX or Linux such as Solaris, HPUX or SUSE.

In particular attendees must be able to work effectively at a command prompt and have familiarity with:

- The bash shell and ssh
- Use of standard filters and pipelines
- File system management commands
- Commands to list and manage processes
- TCP/IP networking and configuration
- An editor that doesn't need a mouse, such as vi or emacs

Students receive

- Individual student packs consisting of:
 - Student Course Guide
 - Ubuntu 10.04 LTS desktop and server CDs
 - Ubuntu note pad and pen
 - Ubuntu gift (it's a surprise!)
- Free access to Landscape systems management and monitoring service.
- Certificate of completion, following minimum 80 per cent attendance and active participation, as determined by the instructor.

Course Delivery Options

A Canonical-trained Ubuntu Certified Instructor will guide students throughout the Deploying Ubuntu Server course. There is a choice of online training and classroom training, providing students with the learning environment which suits them best.

Online training

Students develop essential skills without spending time and money travelling to a training centre. Canonical's online course provides students with 40 hours of planned, instructor-led training over the Internet. Students log in to Canonical online lab environments at specific class times so they can see, hear and interact with their instructor and fellow students and complete lab exercises in real time.

All participants need is a high-speed Internet connection, a sound card, a microphone and a basic level of English language comprehension. Canonical's integrated VoIP facility, virtual machine technology and Ubuntu Certified Instructor will take care of the rest. Students should check the [complete technical requirements](#) and their Internet connectivity before signing up to this course.

Classroom training

Ubuntu classroom-based courses provide students with a face-to-face learning experience at a set place and time. Each five-day classroom course consists of around 7.5 hours of instruction per day.

Visit www.ubuntu.com/training for more information about the course, online training option and to locate a local training partner.

Course Schedule

(Approximate timing)

Day 1: Our lab environment, and installation

Lesson 0: Getting Started in the Virtual Training Environment (1 hour)

(Virtual Classroom Training Only)

- Introduction to the environment used for the course and the labs
- Architecture of the virtual training environment
- Introduction to Moodle
- Introduction to Spread
 - Interacting with fellow students and the instructor
 - Giving feedback to the instructor
 - Using audio (computer-based, or dial-in)
 - Testing your connection speed
 - ssh login to the virtual machine environment
 - ssh client recommendations for windows and macintosh users
 - Accessing your virtual machines
 - Using 'screen' to switch between machines (Ctrl-A commands)

Lesson 1: Installation (4 hours)

- Installation
 - Checking hardware requirements
 - Downloading and burning an installation CD
 - Running the installer
 - “Expert mode” installation

- Partitioning: (guided, manual, LVM)
- Software selection
- Why is the root account disabled?
- Troubleshooting installations
 - Saving installation logs
 - Passing parameters to the installer
- Logical Volumes
 - The benefits of logical volumes
 - Architecture
 - Creating physical volumes, volume groups and logical volumes
 - Extending logical volumes
- Time synchronisation
- Service Management
 - Controlling boot-time service startup
 - Run-level management

Day 2: Package Management

Lesson 2: Debian Package Management (6 hours)

- What is a Debian package?
- Low-level package management
 - Installing, listing and removing packages with dpkg
 - Package configuration and re-configuration
- High-level package management
 - Repository structure: pockets and components
 - The Advanced Packaging Tool (APT)
 - Specifying the location of repositories
 - Installing, removing and searching packages
 - Package dependencies
 - Meta-packages and virtual packages
 - Personal Package Archives
- Repository management
 - Creating a local repository
 - Configuring a proxy server
 - Mirroring a repository

Day 3: Virtualization and Deployment

Lesson 3: Virtualization and Deployment (7 hours)

- Virtualization
 - Setting up a KVM host
 - Virtual machine management using libvirt and virsh
 - Creating a guest
 - Building machine images with VMbuilder
- Automated installation
 - Kickstart and pre-seeding
 - Creating and using a kickstart file
 - Setting up DHCP and TFTP servers to support installation
 - Installing from a local server
 - Making an automated installation CD
- Automating Updates
- Server management using Landscape
 - Obtaining a Landscape account
 - Configuring and registering a Landscape client
 - Managing and upgrading machines through Landscape

Days 4 and 5: Security, Integrity, Performance, and Authentication

Lesson 4: Security, Integrity and Performance (14 hours)

- User-level security
 - Living without a root login
 - sudo and the sudoers file
 - Ubuntu group memberships and privileges
 - Configuring PAM to enforce password strength
 - Encrypting partitions using the dm-crypt device mapper
- Constructing a firewall
 - netfilter and iptables
 - Simplifying firewall construction with ufw
 - Testing firewalls with nmap
- Mandatory access control with AppArmor
 - Discretionary vs Mandatory access control

- Creating an AppArmor profile
- Setting enforce mode and complain mode
- Intrusion detection
 - Verifying file system integrity with AIDE
 - Monitoring log files with logwatch
- Configuring ssh authentication
- Configuration management with etckeeper
- Backup tools and strategies
 - Multi-level backup strategies
 - Using rsync for backups
 - Centralised backup with BackupPC and Bacula
- System monitoring and performance tuning
 - Monitoring memory and disk usage
 - Centralised monitoring with Nagios and Munin
 - Network latency monitoring with Smokeping
 - Kernel parameter tuning

Lesson 5: Directory Service and Authentication (8 hours)

- OpenLDAP
 - OpenLDAP components and architecture
 - Installation and initial configuration
 - Command-line tools (ldapadd and friends)
 - Secure LDAP
 - Managing user accounts in LDAP
 - Configuring a client to use LDAP for authentication
 - Replicating an LDAP directory
- Kerberos
 - Setting up a Key Distribution Centre
 - Configuring clients for kerberos login
 - Adding principals: Hosts, services, users, admin
- Active Directory integration
 - Likewise Open
 - Joining a domain
- Logging in as an AD user

END