



## **Accelerated Deploying Ubuntu Server Edition**

### **Training Course Overview**

(Ubuntu 10.04 LTS)

# Accelerated Deploying Ubuntu Server Edition (2 Days, Ubuntu 10.04 LTS)

## About the Course and Objectives

This two-day accelerated course is a condensed version of the five-day course “Deploying Ubuntu Server Edition”. It is designed to provide professionals who already have significant systems administration experience with another Linux distribution with a rapid “conversion course” to the Ubuntu-specific aspects of managing and deploying Linux systems in an enterprise environment.

Although the course covers the same broad outline as the five-day course, emphasis is placed on areas where Ubuntu differs from other Linux distributions; for example, installation, the management of packages and repositories, ufw (Ubuntu firewall) and AppArmor.

After completing this course, participants will be able to:

- Install and deploy Ubuntu Server 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 is designed for experienced system administrators who hold an RHCE or similar certification and wish to migrate or expand their skill set into Ubuntu Server. The course assumes a substantial level of competence in working with and configuring Linux at the command line, and that students have significant real-world experience with Linux system administration. It is not intended for those with only a Microsoft system administration background.

Administrators with less than five years of active, professional experience of a Linux or UNIX distribution are recommended to take the full 5-day “Deploying Ubuntu Server Edition” course.

## 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.

This is an advanced, fast-paced course and almost all work is done from a Linux command prompt, not with graphical tools. Attendees must be able to work effectively on the command line and have familiarity with:

- The bash shell, including
  - - filename wildcards, command completion, command history
  - - environment, variables and simple scripting
- ssh , including setting up public/private key authentication
- Process text using standard filters and pipelines
  - - grep, head, tail, wc, sort, awk, sed, ...
- File system management commands: ls, cp, mv, rm, mkdir, chmod, chown, ...
- Commands to list and manage processes: ps, top, vmstat, /proc, ...
- TCP/IP networking and configuration: static and dynamic (DHCP)
- The boot process e.g. GRUB, init, inittab and the “System V” runlevels
- Package management (not necessarily Debian, could be RPM or pkgadd)
- Key system configuration files such as /etc/passwd, /etc/fstab
- 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 Accelerated 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 16 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 two-day classroom course consists of around 7.5 hours of instruction per day.

Visit [www.ubuntu.com/training](http://www.ubuntu.com/training) for more information about the course, online training option and to locate a local training partner.

## Course Schedule

*(Note: Due to the rapid pace of the course, timings shown are approximate. Depending on student needs at each course event, some topics may not be covered in detail.)*

### Day 1: Our lab environment, and installation

#### Lesson 0: Getting Started in the Virtual Training Environment (0.5 hours)

##### (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 (1 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
- Time synchronisation
- Service Management
  - Controlling boot-time service startup
  - Run-level management

## **Lesson 2: Debian Package Management (3.5 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

### **Lesson 3: Virtualization and Deployment (2.5 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

**Day 2****Lesson 4: Security, Integrity and Performance (4.5 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
- 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 (2.5 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