

Linux administrator (code: LC-ADMIN)

Overview

This course is designed for those who:

- Would like to start working as an administrator of Linux,
- Want to broaden their knowledge about computers and TCP/IP networks,
- Already work as a IT professional, but want to increase their qualifications.

All classes are taught with computers and are workshops in accordance with our motto: *"The theory can also be shown on a practical example."*

Duration

80h

Ask for details

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Agenda

Part I - Quick Introduction to Linux

1. Linux console: the basics
 - the most important commands
 - basic administration tools at a glance: mc and vim
2. The file system - where and what to look for
3. General principles of the system
 - users, groups and access rights (basics)
 - processes
 - boot procedure
 - how system components are connected:
 - pseudo-files
 - network ports
 - configuration files and logs
 - signals
 - static and dynamic links
 - names, functions and characteristics of each part of the system
 - how to setup the system (configuration via GUI, text and scripts)
4. Working in the shell:
 - shell scripts
 - core-utils
 - sed
5. Regular Expressions
6. Vim

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Part II - Anatomy of the system

1. The boot process
 - differences between the distributions
 - lilo and grub
 - kernel parameters
 - init and inittab, upstart
 - startup scripts
 - launch services
2. Controlled installation
 - installing the example distribution in expert mode
 - nuances: authentication, partitioning
3. Software installation
 - configure, make, make install
 - rpm and deb

- apt and yum
- 4. Processes
 - outline of the operating systems theory
 - system monitoring
 - signals
 - loading libraries, tracking execution
- 5. Operating System vs Hardware:
 - device files, logging
 - lspci, lsusb, hotplug
- 6. Administrator's view on system architecture
 - kernel, modules, libraries
 - providing context for the rest of the course
- 7. Administrator's view on the filesystem
 - where to find binaries, libraries, configuration files, logs, data, documentation etc.
 - /proc file system
- 8. The file system
 - file types
 - permissions (suid etc.)
 - creating a file system (mkfs. *, mkisofs)
 - mount - practical aspects: fat and other file systems, -o loop, choosing a file system

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Part III – Linux Administration

- 1. Automating work: shell scripts
 - operations on text, variables
 - conditions
 - loops
 - functions
- 2. Users
 - users, groups - adding, deleting, configuring
 - pam
 - administrators – sudo
- 3. Finding files
- 4. SQL fundamentals - topics important for a future administrator
 - databases (tables, data types)
 - SQL basics (SELECT, INSERT, UPDATE, DELETE)
- 5. X-window
 - basic configuration (support tools)
 - architecture (incl. networking) with examples
 - basic tools and smart features
- 6. System customization
 - language, regional settings
 - graphical environment settings
 - accessibility
- 7. Encryption
- 8. Fundamental services
 - logs
 - cron and at
 - printing
 - NTP
- 9. Basic network configuration
- 10. Kernel compilation
 - why and when to compile the kernel
 - example compilation

Part IV – Networks and security

1. Computer networks - an overview
 - topologies
 - network hardware and technologies
2. TCP/IP and ISO/OSI model
 - local area networks and the problem of connecting networks
 - addresses, ARP and RARP
 - IP protocol (IPV4 and IPV6) and routing
 - ICMP
 - TCP and UDP
3. Configuring network interfaces
 - scripts
 - manual setting up interfaces (ip command)
 - tools such as ping, traceroute, mtr, whois
 - resolving names. DNS.
4. DHCP
 - how the protocol and the services work
 - basic configuration of the server and the client
5. Remote working
 - ssh (keys, X forwarding, ports, scp and sftp)
6. Security fundamentals
 - identifying devices (nmap, server version identification)
 - basic intrusion techniques (buffer overflow, string format)
 - critical rules
7. Identifying and solving problems
 - prevention: backup strategies and methods
 - what to do in case of a catastrophe

Part V - Some network services

1. IPTables - a firewall
 - configuring a firewall
 - a simple NAT
 - typical settings
2. Apache
 - Apache configuration (including virtual servers, some interesting modules)
3. Samba - MS Windows integration
 - the theory
 - server configuration (including PDC basics)
 - clients
4. Secure file transfer
 - SSH and SFTP servers

Target audience and prerequisites

We do not require the participants to have any prior Linux experience - a general familiarity with Windows (basic system management, commonly used programs, using the Internet) is sufficient.

Certificates

After completing this course, the participants have a complete set of knowledge and skills that allow them to start working as a network administrator. They are ready to start learning by experience. After the classes we issue a certificate of attendance with a detailed list of acquired skills.

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The course is also consistent with the requirements of Linux Professional Institute Certification LPIC-1.

More information on additional opportunities to take LPI exams can be found on the course web page.

Locations

- Warsaw (English) – Jasna 14/16A
- Online (English) – your home, office or wherever you want
- any other location (London, UK, EU) on request

Price

1249 EUR

The price includes:

- course materials,
- snacks, coffee, tea and soft drinks,
- course completion certificate,
- one-time consultation with the instructor after course completion.

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