

LINUX LPI-102 CERTIFICATION COURSE



The **Linux LPI-102 Course** is part two of an exam syllabus designed to lead to LPIC-1 Junior Level Administration certification.

Linux Professional Institute (LPI) promote and certify essential skills on Linux and Open Source technologies through the global delivery of comprehensive, top quality, vendor-independent exams.

The **LPI certification** program is arranged into three main levels by job tasks. Distance Learning Centre offers LPI Approved Training Material for the LPIC-1 (Level 1) and LPIC-2 (Level 2) certifications.

Open-source operating systems, most notably Linux, are rapidly gaining ground on more popular proprietary software. Much of this success is due to the efforts of the Linux Professional Institute (LPI).

Besides promoting the use of Linux-based, open-source and free software, LPI seeks to advance the skills of professionals who use these systems through its LPI certification program.

The LPI Certification Program is:

- Designed by a community of Linux professionals, volunteers, vendors and educators.
- Challenging: if you don't know the subjects you won't pass.
- Accessible and available at thousands of test centres around the world or at special events.
- Of high quality: relying on critical input from numerous Linux experts and employing scientific and industry-recognized psychometric processes.
- Distribution-neutral: verifying knowledge on any standard Linux system.
- Relevant: surveying thousands to determine the skills that need to be tested.
- Training-vendor independent: encouraging a variety of methods and approaches to test preparation.
- Supported and sponsored by a large number of Linux companies and projects.
- A certification the Linux community can respect and be proud of.

➤ **Linux LPI-102 Course Book:**

The course book covers the following Units:

- **Lesson One – System Start-up & Shut Down**

The following topics are covered: Boot Loader Features and Configuration; LILO; How to Install LILO; Where to Install; LILO Configuration File; LILO Command Options; Boot Options; LILO Documentation; GRUB; How to Install GRUB; Where to Install; LOADLIN; Standard Boot Process (lilo); Typical lilo.conf; Boot Problems; Manual Boot; Startup Flow Control; Runlevels; The init Control File: /etc/inittab; Structure of /etc/inittab; Run Command Scripts (System V); rc Script Details (System V); Changing Runlevels; Shutting Down; and Maintenance Mode.

Price:
£275.00

Instalment Options:
You can spread the payments for this course over 4 monthly payments. 1 initial payment of £110.00, followed by 3 monthly payments of £55.00.

Course Format:
Linux LPI Course Book

Assessment:
Linux Professional Institute
LPI-102 Examination

Approximate Study Time:
120 Hours of Self Study

- **Lesson Two – Managing Users**

The following topics are covered: Creating New Local User Accounts; New User Requirements; Preparing Groups; The /etc/passwd File; Allocating User IDs; Adding Users; Changing User Attributes; Changing Group Membership; Removing Users; Security; Setting Passwords; The /etc/shadow File; and Account Security.

- **Lesson Three – User Environments**

The following topics are covered: Login Shell; Restricted root Access; Environment; Environment Files; Environment Definitions; Example Environment; The umask Command; Security Issues; Message of the Day (motd); Guest Accounts; and Shared Group Directories.

- **Lesson Four – Documentation**

The following topics are covered: Documentation; man Pages and the man Command; Manual Entries; Related Commands; The info Command; Documentation in /usr/share/doc; Online Documentation; The Linux Documentation Project; Usenet Newsgroups; Newsgroup Archives; and Hardcopy Documentation.

- **Lesson Five – The Linux Shell & Bash Scripting**

The following topics are covered: Introduction; The Linux Shell; The bash Shell; Configuration Files; Environment; Using the bash Shell; A Simple Shell Script; Variables; Naming Variables; Assigning Variables; Quotes and Command Substitution; Variable Notation; Default Variables; Passing Information to Your Script; Positional Parameters; Flow Control; Loops; The for loop; The while and until Loops; Conditions and Tests; Return codes and Exit status; if-then-else; Conditions; case; Input; Accepting Input; read; select; Functions; Arithmetic and Arrays; Arithmetic Expressions; and Arrays.

- **Lesson Six – Process Scheduling**

The following topics are covered: Scheduling Processes; The at Command; Listing and Deleting at Jobs; The crontab Command; Administering at and crontab and Anacron.

- **Lesson Seven – Printing**

The following topics are covered: Printing Options; LPD; The lpd Daemon; The /etc/printcap File; LPRng; CUPS; LPD Installation; Printer Configuration; Red Hat/Fedora Print Configuration; SUSE; Print Commands; lpr; lpq; lprm; Printer Queue Management with lpc; Remote Printing; Printer Security; Print Filters; magicfilter; APSfilter; Foomatic; and PostScript.

- **Lesson Eight – The Linux Kernel**

The following topics are covered: The Linux Kernel; Kernel Version Numbering; Recent Kernel Changes; Preparing for the New Kernel; Software Tools; The Source Tree; Applying Patches To the Kernel Source Code; Customizing and Installing a New Kernel; make Targets; General Procedure for Building a Kernel; Configuring a New Kernel; make config; make menuconfig; make-xconfig; Testing a New Kernel with LILO; Kernel Modules; and Building a Monolithic Kernel.

- **Lesson Nine – Basic Networking**

The following topics are covered: Overview of TCP/IP; Protocols; IP; TCP; UDP; ICMP; Networks; Internet Protocol Address; IPv4 Address Format; Networking Overview; Packet Fragmentation; Packet Structure; Media Access Control (MAC) Addresses; Components of the TCP/IP Protocol Suite; Setting up Networking; Configuration Files; Defining IP Addresses; Networking Hardware; Modems and NICs; Network Configuration Utilities; Configuring A Network; Configuring Your Network Interface Card; ifconfig; netcfg; Configuring IP Addresses; Routing Tables and Routing Daemons; Routing tables; Routing daemons; gated and routed; Configuring the Default Gateway; Configuring Name Resolution; inetd; xinetd; xinetd.conf; The xinitd.d Directory; xinetd Signals; Point to Point Protocol (PPP); Configuring PPP; Dial-Up Tools; Minicom; WvDial; SLIP and CSLIP; ISDN; Common Networking Tools; ping; traceroute; dig; and whois.

- **Lesson Ten – Networking Services**

The following topics are covered: Web Services: Apache; Installation; Basic Configuration; Directives; Enabling Server Status and View; Configuration; Document Directory Configuration; Options directive; Symlinks; Directory Security; Restricting Access; File Transfer; ftp; Relevant Files; The /etc/ftpaccess File; The /etc/ftphosts File; The /etc/ftpusers File; Proftpd; Relevant files; E-mail Services: Sendmail; Sendmail Install and Configuration; Sendmail Configuration; Sendmail Alias Functions; Syntax; Sendmail Command Line Switches and Parameters; The m4 Macro System; The sendmail.cf File; Specific Sections of sendmail.cf.; Local Info Section; Message Precedence Section; Trusted Users Section; Format-of-Headers Section; Rewriting Rules Section; Mailer Definitions Section; Setting Up the sendmail.cf File; Structure of sendmail.cf Directories; Configuring the m4 Sources; Queued Mail; ssh - Secure Shell; Features; Components of Secure Shell 1; Components of Secure Shell 2; SSH2 Changes; Downloading SSH; Windows SSH Clients; Installation and Configuration; SSH1 Configuration Files; SSH Usage and Setup; Using SSH; Troubleshooting ssh; and OpenSSH.

- **Lesson Eleven – DNS**

The following topics are covered: Domain Name Service; Problems of a Flat Namespace; The DNS Namespace; Some Top Level Domains; An Important Point About DNS; Zones; Master and Slave Servers; BIND — Berkeley Internet Name Domain; Configuring BIND; named Files; Syntax for named.conf; Options Section Syntax; Brief Overview of DNS Resource Records; Domain Database File: db.example.org; SOA (Start of Authority) Record; Name Servers; Mail Servers; Sub-domains; DNS Database Records; and named Signals.

- **Lesson Twelve – Distributed File Systems**

The following Appendix are covered: Linux File Sharing; Overview of the Network file system (NFS); The NFS Protocols Stack; The NFS Client; The NFS Server; The portmapper; NFS daemon; Mount daemon; Overview of Samba; Obtaining and Installing Samba; Prerequisites; Windows Client Configuration; Documentation Files; Installing Samba from Source or from Binary; Advantages of Source; Advantages and Disadvantages of Binary; Installing from Source; Configuring Your Installation; Configuring the Makefile; Compiling Samba from Source; Installing Samba; Installing from Binary; Uninstalling Samba; Configuring the smb.conf File; Starting Samba; Configuring Samba With SWAT; Installing SWAT; Starting SWAT; Logon to SWAT; SWAT Options Overview; Help in SWAT; Creating a Basic smb.conf File with SWAT; Creating a TEST Share; Add a User; Viewing Your smb.conf File; and Advanced View.

- **Lesson Thirteen – Network Security & Performance Security**

The following Appendix are covered: Your Role in Security; About Security; Physical Security; Software Security; Software Exploits; Security Tools; Network Security; The Shadow Password Suite; Two Types of Network Attacks; Unauthorized Access; Service Attacks: Denial of Service (DoS); Basic NFS Security; Security and NFS; Client Security; Server Security; X Window Security; Keep Up on Security Updates; TCP Wrappers; tcpd Access Control Files; Wrapper Variables; tcpdump; Introduction to Ipchains; Some Related Terminology; Ipchains; Some Important Questions and Answers; Ipchains Switches and Parameters; Ipchains Rules and Features; Understanding Packet Filtering; Implementing Ipchains; Basic IP Masquerading; Using Ipchains; What the Company Wants; ipfwadm; netfilter; Performance Tuning; What to Monitor; Monitoring CPU Process and Memory Usage; Virtual Memory Statistics (vmstat); /proc/meminfo; Other Utilities; Managing Log Files; The syslog.conf File; Inspecting Log Files; Log Rotation and Management; Remote Logging; Root and Mail; Troubleshooting; Potential Installation Problems; LILO Error Messages; Printer Troubleshooting; Repairing File Systems; Mail System Maintenance; Emergency Booting; Hardware vs. IRQ Problems; Isolating Hardware Problems; IRQ Problems; Problems with SCSI Controllers and Devices; Setting Your System's Clock; and Troubleshooting.

• Lesson Fourteen – Recovery Planning

The following Appendix are covered: Why Backup?; When to Back Up; Where To Store Backups; What to Back up; Databases; Backup Media; Magnetic Tape; Optical Disks; Removable Disks; Backup Utilities; Linux Backup Terminology; Overview of Utilities; Tape Archive and Restore; Copy to I/O; Options to cpio; Device Dump Utility; Using dd to Identify a File Type; Using Compression and dd; Handling Tapes; Handling Tapes with mt; Working with MS-DOS Diskettes; and Network Backups.

Pre-Requirements:

There are no particular entry requirements for the course but we advise that all students have a good general knowledge of using PCs and general software.

To start the Linux LPI-102 Course students should be able to:

- Work at the Linux command line.
- Perform easy maintenance tasks: help out users, add users to a larger system, backup & restore, shutdown & reboot.
- Install and configure a workstation (including X) and connect it to a LAN, or a stand-alone PC via modem to the Internet.

Course Duration & Support:

Students may register at any time. The courses are designed as self-study courses but if you have any problems you can email our email support. As the course is self study you can complete in as little or as long a time as you prefer, and we do not impose a cut-off date for study.

Assessment:

Assessment is from the Linux LPI-102 Examination. Examinations are 120 minutes in length each and have 60 questions in multiple choice/multiple answer format. The Exam is graded on a scale of 200 - 800 with a minimum passing score of 500.

Qualification:

On Completion of the Linux LPI-102 Course, you can apply for your **internationally recognised Linux Professional Institute LPI-102 Examination**.

Examinations must be sat at a registered Prometric or Pearson VUE testing centre and are currently £120.00 + VAT each.

You can locate testing centres and schedule appointments on their Websites:

Prometric website – <http://www.prometric.com/>

Pearson VUE - <http://pearsonvue.com/>

