

Course overview:

LPI101 Certification

(LP101eng)



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Overview and objectives

This five-day course will help to prepare students for the LPI certification – a vendor-neutral Linux credential that measures critical Linux system and network administration skills. The LPI certification consists of two exams – LPI 101 and LPI 102 – this course prepares for LPI 101.

Students will learn about the core elements of the Linux operating system, including installation, package management, X Windows and application management, together with core Internet-related technologies such as e-mail, security, DNS, Apache and Squid.

Who should attend?

This course is intended for students interested in gaining a greater understanding of Linux and for those responsible for providing basic installation, operation and troubleshooting services on Linux workstations and servers.

A general understanding of Linux administration skills is helpful but not necessary for course attendance.

Linux Overview

- What Is Linux? • The History of Linux • The Free Software Model • Proprietary Software Under Linux • The GNU General Public License • Lesser General Public License • Linux Features • Hardware • Loadable Device Modules • Software • GUI Window Managers • Programming Languages • Linux Advantages • GUIs Are Optional • Remote Administration is Easy • Rebooting is Uncommon • Viruses Are Almost Nonexistent • Greater Security • Linux Limitations • Linux Distribution Mechanism • Linux Distributions • Linux Standards • FHS and LSB • System Administration • Operational (vs. Administrative) Duties • Administrative (vs. Operational) Duties • Support • System Documentation • Providing User Support

Installing a Linux System

- Installation Options • Getting Ready • Types of Servers and Workstations • Identify Your Hardware • Determine Network Settings • Installation Methods • Installing From a CD-ROM • Creating a Boot Floppy • Installing From a Network • General Installation Steps • Install or Upgrade • Disk Partitioning • Swap Space • File System Types • ext2fs • ext3fs • ReiserFS • XFS • JFS • Partitioning the Drive • fdisk • Drive and Partition Names • Commands • Partition Attributes • Partition ID Type • The fdisk Procedure • Other Partitioning Methods • Software Choices • Hardware Configuration • System Settings • X Window System Installation • Linux Boot Loaders • The 1024 Cylinder Limit • Boot Loaders: LILO, GRUB, and LOADLIN • LILO • GRUB • LOADLIN • System Initialization • init and /etc/inittab • Linux Boot Sequence

Hardware

- Hardware • System Boot Procedure • POST • BIOS and CMOS • Drives • Floppy Drives • IDE Drives • SCSI • SCSI-1 • SCSI-2 • SCSI-3 • SCSI Device Configuration • The SCSI BIOS • Peripheral Devices: AGP, ISA, and PCI • AGP • ISA • PCI • Hot Swappable Hardware • USB • IEEE 1394 • PCMCIA and CardBus • Mobile Hardware • Other Peripherals • Addresses, Channels, and Ports • IRQ • I/O Addresses • DMA • COM Ports • Printer Ports (LPT) • SCSI Device Numbering • Adding and Configuring Devices • Devices and Drivers • ISA/Plug and Play • Hard Drives • Network Interface Controllers • Adding RAM • Modems • UARTs • Audio Controllers • The Linux Kernel • The ALSA Project • OSS Commercial Sound Drivers • USB • USB Modules

Linux Usage

- Command Line Basics • Command Line Syntax • Common Commands • su and sudo • Navigating the Directory Tree • The ls Command • Hidden Files • The cd Command • The pwd Command • Viewing File Permissions • Symbolic Links (symlinks) • Copying, Moving, and Removing Files • The cp Command • The mv Command • The rm Command • Creating and Deleting Directories • Working In the Linux Shell • User Environment Files • Environment • Using the bash Shell • Command History and Editing • Recursive Commands

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Getting Help

- System Information • Identifying the System • System Default Files • man Pages and the man Command • Identifying and Communicating with Active Users • Communicating with Users • Login Prompts • Finding Files • The find Command • The locate Command • Locating Commands • Identifying Files

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- Linux Text Editors: vi • Basic vi • vi modes • Moving Within a File • Advanced Functions • Global Replacement and Regular Expressions • The set Command • The .exrc File • Executing Commands • Splitting Windows • Diffs • Buffers • Listing Buffers • Editing Buffers

File Systems

- File System Structure • File System Types • Making a File System • Mounting a File System • Command Line Mounting • Mounting with /etc/fstab • Mounting Microsoft (MS-DOS) Partitions • Mounting Removable Media in a GUI • Unmounting Partitions • Checking File Systems • Repairing Corrupted File Systems • The lost+found Directory • Managing File Systems • Kernel File Cache • Utilities • Disk Free (df) • Disk Usage (du) • Quota • User Disk Quota • Reporting on a User's Quota Status • Turning on Quota at Boot Time • Maintaining Quota • The /proc File System

Files and Directories

- Standard Directories • The Linux File System • Access Control • Overview • Opening a file • File and Directory Permission • File Manipulation Permissions • Setting User and Group IDs • Programs • The Sticky Bit • File Permission Commands • chown • chgroup • chmod • chattr • Permissions and Ownership in a GUI • File-related Commands • Links • Why Use Links? • The ln Command • Hard Link • Symbolic Link

The X Window System

- The X Window System • X Client/Server Model • Gathering Information • Video Card • Monitor • Installing XFree86 • Configuring the X Window System • XF86Setup • SaX • Starting Your X Window System • Adjusting the X Window System • The xwininfo Utility • The xvidtune Utility • X Resource Files • Xresources • .xsession • .xscreensaver • Remote X Clients • xhost • X Stations and X Terminals • Installing and Managing Fonts Under X • Understanding the Font Path • Adding Directories to the Font Path • Font Servers • Window Managers/Desktop Environments • xdm • Modifying xdm • Configuring and Using KDE • KDE Install • KDM • Configuring and Using GNOME • GDM • Terminal Emulators

Package Management

- Package Managers • Red Hat Package Manager (RPM) • rpm Package Names • RPM Commands • The rpmrc File • Debian Package Manager • dselect • apt • Non-Debian Packages — alien • Installing Software from Source • Unpacking the Tarball • tar • gzip and gunzip • configure • make and make install • Using Packages Without a Package Manager

Managing Shared Libraries

- Managing Shared Libraries • System Library File Names and Locations • The libc and ld.so/ld-linux.so Libraries • Updating libc et al. • Other Files Related to Shared Libraries • Commands Related to System Libraries • Installing and Supporting Multiple Versions of a Shared Library • Over-riding the Shared Library Loading Mechanism • Errors Related to Missing or Damaged Shared Libraries

Text Processing

- Text Processing • The grep Family • Regular Expressions • Filters • sed • Addressing and Editing Commands • Redirecting Input, Output, and Errors • Input • Output • Errors • Pipes

Processes

- Processes • The Linux Kernel • Programs and Processes • Processes and the Kernel • Daemons and Zombies • Key Attributes of a Process • Running Processes • Checking on Processes • Running top • nice and renice • Background jobs • Signals • Sending Signals • Intercepting Signals

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