LPI101 - LPIC-1 EXAM PREP (COURSE 1)

This course prepares students to take the 101 exam of the LPI level 1 certification. The Linux Professional Institute (LPI) is the go to certification body for vendor independent Linux certifications. This course covers fundamental Linux skills such as file management and manipulation, text processing, command line use, package management, filesystems, hardware, and many more. Students will feel confident taking the LPI LPIC-1 101 exam with in classroom assessments and practice exams.

Prerequisites: General computing knowledge and experience. No prior knowledge with Linux is required.

Supported Distributions:

- Red Hat Enterprise Linux 7
- SUSE Linux Enterprise 12
- Ubuntu 14.04 LTS

Course Outline:

1. WORK ON THE COMMAND LINE

1. LPI Objectives Covered
2. Role of Command Shell
3. Shells
4. Gathering System Info
5. Identifying the Shell
6. Changing the Shell
7. Shell Prompts
8. Bash: Bourne-Again Shell
9. Navigating the Filesystem
10. Help from Commands and Documentation
11. Getting Help Within the Graphical Desktop
12. Getting Help with man & info
13. Bash: Command Line History
14. Bash: Command Editing
15. Bash: Command Completion
16. Shell and Environment Variables
17. Key Environment Variables

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18. Help with Commands

19. Linux Shells
20. Shell Variables
21. Bash History
22. Aliases

2. USE STREAMS, PIPES, AND REDIRECTS

1. LPI Objectives Covered
2. File Redirection
3. Piping Commands Together
4. Filename Matching
5. File Globbing and Wildcard Patterns
6. Brace Expansion
7. General Quoting Rules
8. Nesting Commands
9. Gotchas: Maximum Command Length

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10. Redirection and Pipes
11. Wildcard File Matching
12. Shell Meta-Characters
13. Command Substitution

3. MANAGE FILE PERMISSIONS AND OWNERSHIP

1. LPI Objectives Covered
2. Filesystem Hierarchy Standard
3. Displaying Directory Contents
4. Filesystem Structures
5. Determining Disk Usage With df and du
6. File Ownership
7. Default Group Ownership
8. File and Directory Permissions
9. File Creation Permissions with umask
10. Changing File Permissions
11. SUID and SGID on files
12. SGID and Sticky Bit on Directories
13. User Private Group Scheme

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14. Navigating Directories and Listing Files
15. Disk and Filesystem Usage
16. File and Directory Ownership and Permissions

4. CREATE, DELETE, FIND, AND DISPLAY FILES

1. LPI Objectives Covered
2. Directory Manipulation
3. File Manipulation
4. Deleting and Creating Files
5. Physical Unix File Structure
6. Filesystem Links
7. File Extensions and Content
8. Which and Type
9. whereis
10. Searching the Filesystem
11. Alternate Search Method
12. Manually Installed Shared Libraries

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13. Manipulating Files and Directories

5. WORK WITH ARCHIVES AND COMPRESSION

1. LPI Objectives Covered
2. Archives with tar
3. Archives with cpio
4. The gzip Compression Utility
5. The bzip2 Compression Utility
6. The XZ Compression Utility
7. The PKZIP Archiving/Compression format

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8. Archiving and Compression
9. Using tar for Backups
10. Using cpio for Backups

6. PROCESS TEXT STREAMS USING FILTERS

1. LPI Objectives Covered
2. Producing File Statistics
3. The Streaming Editor

4. Replacing Text Characters
5. Text Sorting
6. Duplicate Removal Utility
7. Extracting Columns of Text
8. Displaying Files
9. Prepare Text for Display
10. Previewing Files
11. Displaying Binary Files
12. Combining Files and Merging Text

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13. Text Processing
14. Processing Text Streams

7. SEARCH TEXT FILES USING REGULAR EXPRESSIONS

1. LPI Objectives Covered
2. Searching Inside Files
3. Regular Expression Overview
4. Regular Expressions
5. RE Character Classes
6. Regex Quantifiers
7. RE Parenthesis

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8. Pattern Matching with Regular Expressions
9. Extended Regular Expressions
10. Using Regular Expressions With sed

8. PERFORM BASIC FILE EDITING OPERATIONS USING VI

1. LPI Objectives Covered
2. Text Editing
3. vi and Vim
4. Learning Vim
5. Basic vi
6. Intermediate vi

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7. Text Editing with Vim

9. CREATE, MONITOR, AND KILL PROCESSES

1. LPI Objectives Covered
2. What is a Process?
3. Process Lifecycle
4. Process States
5. Viewing Processes
6. Signals
7. Tools to Send Signals
8. Managing Processes
9. Tuning Process Scheduling
10. Job Control Overview
11. Job Control Commands
12. nohup and disown
13. uptime & w
14. Persistent Shell Sessions with Screen
15. Using screen
16. Advanced Screen

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17. Job Control Basics
18. Process Management Basics
19. Screen Basics
20. Using Screen Regions

10. USE RPM, YUM, AND DEBIAN PACKAGE MANAGEMENT

1. LPI Objectives Covered
2. Managing Software
3. RPM Architecture
4. Working With RPMs
5. Querying and Verifying with RPM
6. Installing Debian Packages
7. Querying and Verifying with dpkg
8. The alien Package Conversion Tool
9. Managing Software Dependencies
10. Using the Yum command
11. yumdownloader
12. Configuring Yum
13. The dselect & APT Frontends to dpkg

14. Aptitude
15. Configuring APT

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16. Working with RPMs on Ubuntu
17. Querying the RPM Database

11. WORK WITH PARTITIONS, FILESYSTEMS, AND DISK QUOTAS

1. LPI Objectives Covered
2. Partition Considerations
3. Logical Volume Management
4. Filesystem Planning
5. Partitioning Disks with fdisk & gdisk
6. Resizing a GPT Partition with gdisk
7. Partitioning Disks with parted
8. Non-Interactive Disk Partitioning with sfdisk
9. Filesystem Creation
10. Filesystem Support
11. Unix/Linux Filesystem Features
12. Swap
13. Selecting a Filesystem
14. Filesystem Maintenance
15. Mounting Filesystems
16. Mounting Filesystems
17. Managing an XFS Filesystem
18. NFS
19. SMB
20. Filesystem Table (/etc/fstab)
21. Configuring Disk Quotas
22. Setting Quotas
23. Viewing and Monitoring Quotas

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24. Hot Adding Swap
25. Accessing NFS Shares
26. Setting User Quotas

12. LINUX BOOT PROCESS

1. LPI Objectives Covered
2. Booting Linux on PCs
3. GRUB 2
4. GRUB 2 Configuration
5. GRUB Legacy Configuration
6. Boot Parameters
7. init
8. Linux Runlevels Aliases
9. Systemd local-fs.target and sysinit.target
10. Runlevel Implementation
11. System Boot Method Overview
12. systemd System and Service Manager
13. Modifying systemd services
14. systemd Targets
15. Using systemd
16. Shutdown and Reboot
17. System Messaging Commands
18. Controlling System Messaging

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19. Command Line Messaging
20. Messaging with talkd
21. Boot Process
22. GRUB Command Line
23. Basic GRUB Security

13. DETERMINE AND CONFIGURE HARDWARE SETTINGS

1. LPI Objectives Covered
2. Managing Linux Device Files
3. Hardware Discovery Tools
4. Configuring New Hardware with hwinfo
5. PC Architecture and Bus
6. DMA & IRQ
7. USB Devices
8. USB Architecture
9. Configuring Kernel Components and Modules
10. Kernel Modules
11. Handling Module Dependencies
12. Configuring the Kernel via /proc/

13. Kernel Hardware Info â€“ /sys/
14. /sys/ Structure
15. Random Numbers and /dev/random

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16. Adjusting Kernel Options

A. LINUX FUNDAMENTALS

1. Unix and its Design Principles
2. FSF and GNU
3. GPL â€“ General Public License
4. The Linux Kernel
5. Components of a Distribution
6. Red Hat Linux Products
7. SUSE Linux Products
8. Debian
9. Ubuntu
10. Logging In
11. got root?
12. Switching User Contexts
13. Gathering Login Session Info

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14. Login and Discovery
15. Switching Users With su