

## LPIC-1 Exam Prep (Course 2)

### Topics

- **Account And Security Administration**

- LPI Objectives Covered
- Gathering System Info
- Approaches to Storing User Accounts
- User and Group Concepts
- User Private Group Scheme
- User Administration
- Modifying Accounts
- Group Administration
- Password Aging
- Limiting Logins
- Default User Files
- su and Wheel
- sudo
- Setting Resource Limits via ulimit
- pam\_limits.so
- lsof and fuser
- Lab Tasks
  - User and Group Administration
  - Restricting superuser access to wheel group membership
  - User Private Groups
  - Setting Limits with the pam\_limits Modules

- **Customizing The Shell And Writing Simple Scripts**

- LPI Objectives Covered
- Configuration Files
- Script Execution
- Bash: Configuration Files
- Shell and Environment Variables
- Bash Shell Options
- Bash: 'shortcuts'
- Bash: prompt
- Nesting Commands
- Shell Script Strengths and Weaknesses
- Example Shell Script
- Positional Parameters
- Input & Output
- Doing Math
- Comparisons with test
- Exit Status
- Conditional Statements
- Flow Control: case

- The for Loop
- The while and until Loops
- Functions
- Sending and Receiving Email with mailx
- Lab Tasks
  - Bash Login Scripts
  - Writing a Shell Script
  - Command Line Email
  - Alpine

- **Automating Tasks**

- LPI Objectives Covered
- Automating Tasks
- at/batch
- cron
- The crontab Command
- crontab Format
- /etc/cron.\*/ Directories
- Anacron
- Lab Tasks
  - Adding System cron Jobs
  - Creating and Managing User Cron Jobs

- **Networking**

- LPI Objectives Covered
- IPv4 Fundamentals
- TCP/UDP Fundamentals
- IPv6
- Linux Network Interfaces
- Ethernet Hardware Tools
- Configuring Routing Tables
- Network Configuration with ip Command
- Starting and Stopping Interfaces
- SUSE YaST Network Configuration Tool
- Hostname and Domain Name
- Name Resolution
- DNS Clients
- Network Diagnostics
- Information from ss and netstat
- nmap
- Netcat
- Lab Tasks
  - Basic Client Networking
  - Configuring IPv6

- **X Window System**

- LPI Objectives Covered
- The X Window System
- X Modularity
- X.Org Drivers
- Starting X
- Configuring X Manually
- Automatic X Configuration
- Xorg and Fonts
- Installing Fonts for Modern Applications
- Installing Fonts for Legacy Applications
- The X11 Protocol and Display Names
- Display Managers and Graphical Login
- X Access Control
- Remote X Access (historical/insecure)
- Remote X Access (modern/secure)
- Customizing X Sessions
- Starting X Apps Automatically
- Lab Tasks
  - Configure X Security
  - Launching X Apps Automatically
  - Secure X

- **Accessibility And Localization**

- LPI Objectives Covered
- GNOME Accessibility Support
- Internationalization & Localization
- Character Encodings
- Locales
- Setting the Time Zone
- Lab Tasks
  - GNOME Accessibility
  - Character Encoding Conversion
  - Locale Configuration
  - Time Zone Configuration - Traditional Method
  - System Clock Configuration - Distribution tools
  - System Clock Configuration - Distribution tools

- **Time And Printing**

- LPI Objectives Covered
- Hardware and System Clock
- Managing Network-Wide Time
- Continual Time Sync with NTP
- Configuring NTP Clients
- Useful NTP Commands

- Common UNIX Printing System
- Defining a Printer
- Standard Print Commands
- CUPS Troubleshooting
- CUPS Troubleshooting
- Lab Tasks
  - NTP Client Configuration
  - Printing
  - Configuring Print Queues

- **Log File Administration**

- LPI Objectives Covered
- System Logging
- Syslog-ng
- systemd Journal
- systemd Journal's journalctl
- Secure Logging with Journal's Log Sealing
- Rsyslog
- /etc/rsyslog.conf
- Log Management
- Sending logs from the shell
- Lab Tasks
  - Using the systemd Journal
  - Setting up a Full Debug Logfile
  - Remote Syslog Configuration

- **SQL And MTA Fundamentals**

- LPI Objectives Covered
- Popular SQL Databases
- SELECT Statements
- INSERT Statements
- UPDATE Statements
- DELETE Statements
- JOIN Clauses
- SMTP
- SMTP Terminology
- SMTP Architecture
- Sendmail Architecture
- Sending Email with sendmail
- Sendmail Components
- Exim
- Postfix Features
- Postfix Architecture
- Postfix Components
- Postfix Map Types
- Configuration Commands
- Lab Tasks
  - SQL with Sqlite3

- Configuring Postfix
- Configuring Sendmail

- **Host Security And Encryption**

- LPI Objectives Covered
- Controlling Login Sessions
- Xinetd
- TCP Wrappers
- /etc/hosts.{allow,deny} Shortcuts
- Advanced TCP Wrappers
- Discovering Hosts
- Secure Shell
- ssh and sshd Configuration
- Accessing Remote Shells
- SSH Port Forwarding
- Transferring Files
- Alternative sftp Clients
- SSH Key Management
- ssh-agent
- GPG – GNU Privacy Guard
- Lab Tasks
  - Securing xinetd Services
  - Enforcing Security Policy with xinetd
  - Securing Services with TCP Wrappers
  - Introduction to ssh and scp
  - SSH Key-based User Authentication
  - Using ssh-agent
  - File Encryption with GPG