LPI201 - LPIC-2 EXAM PREP (COURSE 1)

This course prepares students to take the LPI 201 exam of the LPIC-2 certification. The Linux Professional Institute (LPI) is the go-to certification body for vendor independent Linux certifications. This course covers more advanced Linux skills such as system management and networking. Students will feel confident taking the LPI LPIC-2 201 exam with in classroom assessments and practice exams.

Prerequisites: LPIC-1 certification or LPI101 "LPIC-1 Exam Prep (Course 1)" and LPI102 "LPIC-1 Exam Prep (Course 2)".

Supported Distributions:

- Red Hat Enterprise Linux 7
- SUSE Linux Enterprise 12

Course Outline:

1. CAPACITY PLANNING

1. LPI Objectives Covered
2. Troubleshooting Resource Usage
3. Gathering System Info
4. Viewing Processes
5. Process Management Tools
6. Troubleshooting Processes: top
7. Network I/O: iptraf-ng
8. uptime & w
9. lsof and fuser
10. System Status â€“ Memory
11. System Status â€“ I/O
12. System Status â€“ CPU
13. Performance Trending with sar
14. Network Monitoring Solutions
15. Graphing SNMP Data with MRTG
16. Nagios Overview
17. Nagios Configuration

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18. Process Management Basics
19. Nagios (Web Interface)

2. BOOT PROCESS AND SYSV INIT

1. LPI Objectives Covered
2. Booting Linux on PCs
3. GRUB 2 Configuration
4. Boot Parameters
5. init
6. Linux Runlevels Aliases
7. /etc/inittab (Legacy)
8. Systemd local-fs.target and sysinit.target
9. Typical SysV Init Script (legacy)
10. Legacy local bootup script support
11. Managing SysV Init Daemons (legacy)
12. Controlling SysV Init Service Startup (legacy)
13. systemd System and Service Manager
14. Modifying systemd services
15. Using systemd
16. Systemd local-fs.target and sysinit.target
17. Systemd basic.target and multi-user.target
18. Shutdown and Reboot

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19. Boot Process
20. GRUB Command Line
21. Basic GRUB Security
22. Managing Services With Systemd's systemctl
23. Creating a systemd unit file
24. Introduction to Troubleshooting Labs
25. Troubleshooting Practice: Boot Process

3. SYSTEM RECOVERY AND BOOTLOADERS

1. LPI Objectives Covered
2. Diagnostic/Recovery
3. Rescue Procedures
4. Recovery: mount & chroot
5. Recovery Examples
6. Recovery: Network Utilities
7. GRUB 2
8. systemd-boot & U-Boot

9. SYSLINUX
10. Network Booting with PXE

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11. Recovery Runlevels
12. Recovering Damaged MBR
13. Recover from Deleted Critical Files
14. Using SUSE Auto Repair Mode

4. LINUX KERNEL: COMPONENTS AND COMPILE

1. LPI Objectives Covered
2. Why Compile?
3. Getting Kernel Source
4. Preparing to Compile
5. Configuring Kernel Compilation Options
6. Available Kernel Compile Options
7. Compiling the Kernel
8. Install Compiled Kernel Modules
9. Initial RAM Filesystem
10. Tips and Tricks
11. Installing the Kernel
12. Troubleshooting With GRUB 2
13. Boot Process Troubleshooting
14. Troubleshooting: Linux and Init
15. Hardware Discovery Tools
16. Configuring New Hardware with hwinfo
17. Configuring Kernel Components and Modules
18. Kernel Modules
19. Handling Module Dependencies
20. Dynamic Kernel Module System (DKMS)
21. Kernel Modules Troubleshooting
22. Configuring the Kernel via /proc/
23. udev

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24. Adjusting Kernel Options
25. Linux Kernel Driver Compilation
26. Linux Kernel Compilation

5. FILESYSTEM ADMINISTRATION

1. LPI Objectives Covered
2. Filesystem Support
3. Mounting Filesystems
4. Filesystem Table (/etc/fstab)
5. AutoFS
6. AutoFS Configuration
7. Managing Optical Media
8. Partitioning Disks with fdisk & gdisk
9. Resizing a GPT Partition with gdisk
10. Partitioning Disks with parted
11. Non-Interactive Disk Partitioning with sfdisk
12. Btrfs Introduction
13. Filesystem Creation
14. Filesystem Maintenance
15. smartmontools
16. Resizing Filesystems
17. Managing an XFS Filesystem
18. Swap
19. File Encryption With encfs
20. Linux Unified Key Setup (LUKS)
21. Persistent Block Devices
22. List Block Devices

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23. Accessing NFS Shares
24. On-demand filesystem mounting with AutoFS
25. Hot Adding Swap
26. Creating ISO Images for Backups
27. smartd and smartctl
28. LUKS-on-disk format Encrypted Filesystem

6. LVM & RAID

1. LPI Objectives Covered
2. Logical Volume Management
3. Implementing LVM
4. Creating Logical Volumes
5. Activating LVM VGs
6. Exporting and Importing a VG
7. Examining LVM Components

8. Changing LVM Components
9. Advanced LVM Overview
10. Advanced LVM: Components & Object Tags
11. Advanced LVM: Automated Storage Tiering
12. Advanced LVM: Thin Provisioning
13. Advanced LVM: Striping & Mirroring
14. Advanced LVM: RAID Volumes
15. SLES Graphical Disk Tool
16. RAID Concepts
17. Array Creation with mdadm
18. Software RAID Monitoring
19. Software RAID Control and Display

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20. Creating and Managing a RAID-5 Array
21. Creating and Managing LVM Volumes

7. ADJUSTING STORAGE DEVICE ACCESS AND ISCSI

1. LPI Objectives Covered
2. Tuning with hdparm
3. SCSI Devices
4. SSD and NVMe Storage
5. Remote Storage Overview
6. Remote Filesystem Protocols
7. Remote Block Device Protocols
8. iSCSI Architecture
9. Open-iSCSI Initiator Implementation
10. iSCSI Initiator Discovery
11. iSCSI Initiator Node Administration
12. Mounting iSCSI Targets at Boot
13. iSCSI Multipathing Considerations

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14. iSCSI Initiator Configuration

8. CLIENT NETWORKING

1. LPI Objectives Covered
2. Linux Network Interfaces
3. Ethernet Hardware Tools

4. Network Configuration with ip Command
5. Configuring Routing Tables
6. IP to MAC Address Mapping with ARP
7. Network Configuration with ip Command
8. Starting and Stopping Interfaces
9. IPv6
10. Linux Wireless Extensions and Tools
11. Wireless Tools Discovery
12. NetworkManager
13. SUSE YaST Network Configuration Tool
14. Network Diagnostics
15. Information from ss and netstat
16. Discovering Reachable Services
17. nmap
18. Netcat
19. tcpdump and wireshark
20. Networking Troubleshooting
21. Networking Troubleshooting

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22. Basic Client Networking
23. Wireless Fundamentals
24. NMAP

9. SYSTEM MAINTENANCE

1. LPI Objectives Covered
2. System Messaging Commands
3. Controlling System Messaging
4. Archives with tar
5. Controlling Login Sessions
6. The gzip Compression Utility
7. The bzip2 Compression Utility
8. The XZ Compression Utility
9. Comparing File Changes
10. Compiling/Installing from Source
11. Tape Libraries
12. Backup Software
13. Backup Examples

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14. Command Line Messaging
15. Messaging with talkd
16. Archiving and Compression
17. Using tar for Backups
18. Using cpio for Backups
19. Using rsync and ssh for Backups