

LPIC-2 Exam Prep (Course 1)

Topics

1. Capacity Planning

- Troubleshooting Resource Usage
- Gathering System Info
- Viewing Processes
- Process Management Tools
- Troubleshooting Processes: top
- Network I/O: iptraf-ng
- uptime & w
- lsof and fuser
- System Status – Memory
- System Status – I/O
- System Status – CPU
- Performance Trending with sar
- Network Monitoring Solutions
- Graphing SNMP Data with MRTG
- Nagios Overview
- Nagios Configuration
 - LAB TASKS
- Process Management Basics
- Nagios (Web Interface)

2. Boot Process And Sysv Init

- Booting Linux on PCs
- GRUB 2 Configuration
- Boot Parameters
- init
- Linux Runlevels Aliases
- /etc/inittab (Legacy)
- Systemd local-fs.target and sysinit.target
- Typical SysV Init Script (legacy)
- Legacy local bootup script support
- Managing SysV Init Daemons (legacy)
- Controlling SysV Init Service Startup (legacy)
- systemd System and Service Manager
- Modifying systemd services
- Using systemd
- Systemd local-fs.target and sysinit.target
- Systemd basic.target and multi-user.target
- Shutdown and Reboot
 - LAB TASKS
- Boot Process
- GRUB Command Line
- Basic GRUB Security
- Managing Services With Systemd's systemctl
- Creating a systemd unit file
- Introduction to Troubleshooting Labs
- Troubleshooting Practice: Boot Process

3. System Recovery And Bootloaders

- Diagnostic/Recovery
- Rescue Procedures
- Recovery: mount & chroot
- Recovery Examples
- Recovery: Network Utilities
- GRUB 2
- systemd-boot & U-Boot
- SYSLINUX
- Network Booting with PXE
 - LAB TASKS
- Recovery Runlevels
- Recovering Damaged MBR
- Recover from Deleted Critical Files
- Using SUSE Auto Repair Mode

4. Linux Kernel: Components And Compile

- Why Compile?
- Getting Kernel Source
- Preparing to Compile
- Configuring Kernel Compilation Options
- Available Kernel Compile Options
- Compiling the Kernel
- Install Compiled Kernel Modules
- Initial RAM Filesystem
- Tips and Tricks
- Installing the Kernel
- Troubleshooting With GRUB 2
- Boot Process Troubleshooting
- Troubleshooting: Linux and Init
- Hardware Discovery Tools
- Configuring New Hardware with hwinfo
- Configuring Kernel Components and Modules
- Kernel Modules
- Handling Module Dependencies
- Dynamic Kernel Module System (DKMS)
- Kernel Modules Troubleshooting
- Configuring the Kernel via /proc/
udev
 - LAB TASKS
- Adjusting Kernel Options
- Linux Kernel Driver Compilation
- Linux Kernel Compilation

5. Filesystem Administration

- Filesystem Support
- Mounting Filesystems
- Filesystem Table (/etc/fstab)
- AutoFS
- AutoFS Configuration
- Managing Optical Media
- Partitioning Disks with fdisk & gdisk
- Resizing a GPT Partition with gdisk
- Partitioning Disks with parted
- Non-Interactive Disk Partitioning with sfdisk
- Btrfs Introduction
- Filesystem Creation
- Filesystem Maintenance
- smartmontools
- Resizing Filesystems
- Managing an XFS Filesystem
- Swap
- File Encryption With encfs
- Linux Unified Key Setup (LUKS)
- Persistent Block Devices
- List Block Devices
 - LAB TASKS
- Accessing NFS Shares
- On-demand filesystem mounting with AutoFS
- Hot Adding Swap
- Creating ISO Images for Backups
- smartd and smartctl
- LUKS-on-disk format Encrypted Filesystem

6. LVM & RAID

- Logical Volume Management
- Implementing LVM
- Creating Logical Volumes
- Activating LVM VGs
- Exporting and Importing a VG
- Examining LVM Components
- Changing LVM Components
- Advanced LVM Overview
- Advanced LVM: Components & Object Tags
- Advanced LVM: Automated Storage Tiering
- Advanced LVM: Thin Provisioning
- Advanced LVM: Striping & Mirroring
- Advanced LVM: RAID Volumes
- SLES Graphical Disk Tool
- RAID Concepts
- Array Creation with mdadm
- Software RAID Monitoring
- Software RAID Control and Display
 - LAB TASKS
- Creating and Managing a RAID-5 Array
- Creating and Managing LVM Volumes

7. Adjusting Storage Device Access And Iscsi

- Tuning with hdparm
- SCSI Devices
- SSD and NVMe Storage
- Remote Storage Overview
- Remote Filesystem Protocols
- Remote Block Device Protocols
- iSCSI Architecture
- Open-iSCSI Initiator Implementation
- iSCSI Initiator Discovery
- iSCSI Initiator Node Administration
- Mounting iSCSI Targets at Boot
- iSCSI Multipathing Considerations
 - LAB TASKS
- iSCSI Initiator Configuration
- Client Networking
- LPI Objectives Covered
- Linux Network Interfaces
- Ethernet Hardware Tools
- Network Configuration with ip Command
- Configuring Routing Tables
- IP to MAC Address Mapping with ARP
- Network Configuration with ip Command
- Starting and Stopping Interfaces
- IPv6
- Linux Wireless Extensions and Tools
- Wireless Tools Discovery
- NetworkManager
- SUSE YaST Network Configuration Tool
- Network Diagnostics
- Information from ss and netstat
- Discovering Reachable Services
- nmap
- Netcat
- tcpdump and wireshark
- Networking Troubleshooting
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 - LAB TASKS
- Basic Client Networking
- Wireless Fundamentals
- NMAP

8. System Maintenance

- System Messaging Commands
- Controlling System Messaging
- Archives with tar
- Controlling Login Sessions
- The gzip Compression Utility
- The bzip2 Compression Utility
- The XZ Compression Utility
- Comparing File Changes
- Compiling/Installing from Source
- Tape Libraries
- Backup Software
- Backup Examples

- LAB TASKS
 - Command Line Messaging
 - Messaging with talkd
 - Archiving and Compression
 - Using tar for Backups
 - Using cpio for Backups
 - Using rsync and ssh for Backups