

LINUX FUNDAMENTALS

1.WHAT IS LINUX?1.Unix and its Design Principles

- 2.FSF and GNU
- 3.GPL – General Public License
- 4.The Linux Kernel
- 5.Linux Kernel and Versioning
- 6.Components of a Distribution
- 7.Slackware
- 8.SUSE Linux Products
- 9.Debian
- 10.Ubuntu
- 11.Red Hat Linux Products
- 12.Oracle Linux

2.LOGIN AND EXPLORATION1.Logging In

- 2.Running Programs
- 3.Interacting with Command Line
- 4.Desktop Environments
- 5.GNOME
- 6.Starting X
- 7.Gathering Login Session Info
- 8.Gathering System Info
- 9.uptime & w
- 10.got root?
- 11.Switching User Contexts
- 12.sudo
- 13.Help from Commands and Documentation
- 14.whereis
- 15.Getting Help Within the Graphical Desktop
- 16.Getting Help with man & info

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- 17.Login and Discovery
- 18.Help with Commands
- 19.Switching Users With su
- 3.THE LINUX FILESYSTEM1.Filesystem Support
- 2.Unix/Linux Filesystem Features

3. Filesystem Hierarchy Standard
4. Navigating the Filesystem
5. Displaying Directory Contents
6. Filesystem Structures
7. Determining Disk Usage With df and du
8. Determining Disk Usage (GUI)
9. Disk Usage with Quotas
10. File Ownership
11. Default Group Ownership
12. File and Directory Permissions
13. File Creation Permissions with umask
14. SUID and SGID on files
15. SGID and Sticky Bit on Directories
16. Changing File Permissions
17. User Private Group Scheme

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18. Navigating Directories and Listing Files
19. Disk and Filesystem Usage
20. File and Directory Ownership and Permissions
21. Introduction to Troubleshooting Labs
22. Troubleshooting Practice: Filesystem
- 4. MANIPULATING FILES**
 1. Directory Manipulation
 2. File Manipulation
 3. Deleting and Creating Files
 4. Managing Files Graphically
 5. Drag and drop with Nautilus
 6. Physical Unix File Structure
 7. Filesystem Links
 8. File Extensions and Content
 9. Displaying Files
 10. Previewing Files
 11. Producing File Statistics
 12. Displaying Binary Files
 13. Searching the Filesystem
 14. Alternate Search Method

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15. Manipulating Files and Directories
16. File Examination & Search Commands

5.SHELL BASICS

- 1.Role of Command Shell
- 2.Communication Channels
- 3.File Redirection
- 4.Piping Commands Together
- 5.Filename Matching
- 6.File Globbing and Wildcard Patterns
- 7.Brace Expansion
- 8.Shell and Environment Variables
- 9.Key Environment Variables
- 10.Which and Type
- 11.General Quoting Rules
- 12.Nesting Commands

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- 13.Redirection and Pipes
 - 14.Wildcard File Matching
 - 15.Shell Variables
 - 16.Shell Meta-Characters
 - 17.Command Substitution
- ## **6.ARCHIVING AND COMPRESSION**
- 1.Archives with tar
 - 2.Archives with cpio
 - 3.The gzip Compression Utility
 - 4.The bzip2 Compression Utility
 - 5.The XZ Compression Utility
 - 6.The PKZIP Archiving/Compression format
 - 7.GNOME File Roller

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- 8.Archiving and Compression
- ## **7.TEXT PROCESSING**
- 1.Searching Inside Files
 - 2.The Streaming Editor
 - 3.Text Processing with Awk
 - 4.Replacing Text Characters
 - 5.Text Sorting
 - 6.Duplicate Removal Utility
 - 7.Extracting Columns of Text

8. Combining Files and Merging Text

9. Comparing File Changes

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10. Processing Text Streams

11. Text Processing

8. REGULAR EXPRESSIONS 1. Regular Expression Overview

2. Regular Expressions

3. RE Character Classes

4. Regex Quantifiers

5. RE Parenthesis

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6. Pattern Matching with Regular Expressions

7. Extended Regular Expressions

8. Using Regular Expressions With sed

9. TEXT EDITING 1. Text Editing

2. Pico/GNU Nano

3. Pico/Nano Interface

4. Nano configuration

5. Pico/Nano Shortcuts

6. vi and Vim

7. Learning Vim

8. Basic vi

9. Intermediate vi

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10. Text Editing with Nano

11. Text Editing with Vim

10. MESSAGING 1. System Messaging Commands

2. Controlling System Messaging

3. Internet Relay Chat

4. Instant Messenger Clients

5. Electronic Mail

6. Sending Email with sendmail

7. Sending and Receiving Email with mailx
8. Sending and Receiving Email with mutt
9. Sending Email with Pine
10. Evolution

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11. Command Line Messaging
12. Messaging with talkd
13. Command Line Email
14. Alpine

11. COMMAND SHELLS 1. Shells

2. Identifying the Shell
3. Changing the Shell
4. Configuration Files
5. Script Execution
6. Shell Prompts
7. Bash: Bourne-Again Shell
8. Bash: Configuration Files
9. Bash: Command Line History
10. Bash: Command Editing
11. Bash: Command Completion
12. Bash: "shortcuts"
13. Bash: prompt
14. Setting Resource Limits via ulimit

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15. Linux Shells
16. Bash History
17. Aliases
18. Bash Login Scripts
19. The Z Shell

12. INTRODUCTION TO SHELL SCRIPTING 1. Shell Script Strengths and Weaknesses

2. Example Shell Script
3. Positional Parameters
4. Input & Output
5. Doing Math
6. Exit Status
7. Comparisons with test

8. Conditional Statements
9. Flow Control: case
10. The for-Loop
11. The while and until Loops

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12. Writing a Shell Script

13. PROCESS MANAGEMENT AND JOB CONTROL 1. What is a Process?

2. Process Lifecycle
3. Process States
4. Viewing Processes
5. Signals
6. Tools to Send Signals
7. nohup and disown
8. Managing Processes
9. Tuning Process Scheduling
10. Job Control Overview
11. Job Control Commands
12. Persistent Shell Sessions with Screen
13. Using screen
14. Advanced Screen

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15. Job Control Basics
16. Process Management Basics
17. Screen Basics
18. Using Screen Regions
19. Troubleshooting Practice: Process Management

14. AT AND CRON 1. Automating Tasks

2. at/batch
3. cron
4. The crontab Command
5. crontab Format
6. /etc/cron.* / Directories
7. Anacron

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8. Creating and Managing User Cron Jobs
9. Adding System cron Jobs
10. Troubleshooting Practice: Automating Tasks
- 15. MANAGING SOFTWARE**
1. Downloading with FTP
2. FTP
3. lftp
4. Command Line Internet – Non-interactive
5. Command Line Internet – Interactive
6. Managing Software Dependencies
7. Using the Yum command
8. Using Yum history
9. YUM package groups
10. Configuring Yum
11. yumdownloader
12. Popular Yum Repositories
13. Using the Zypper command
14. Zypper Services and Catalogs
15. The dselect & APT Frontends to dpkg
16. Aptitude
17. Configuring APT

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18. Command Line File Transfers
19. Using Yum
20. Using Zypper
21. Managing Yum Repositories
22. Managing Zypper Repositories
23. Using APT
24. Adding an APT repository
- 16. THE SECURE SHELL (SSH)**
1. Secure Shell
2. OpenSSH Client & Server Configuration
3. Accessing Remote Shells
4. Transferring Files
5. Alternative sftp Clients
6. SSH Key Management
7. ssh-agent

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8. Introduction to ssh and scp
9. SSH Key-based User Authentication
10. Using ssh-agent

17. MOUNTING FILESYSTEMS & MANAGING REMOVABLE MEDIA 1.

Filesystems Concept Review

2. Mounting Filesystems
3. NFS
4. SMB
5. Filesystem Table (/etc/fstab)
6. AutoFS
7. Removable Media

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8. Accessing NFS Shares
9. On-demand filesystem mounting with AutoFS