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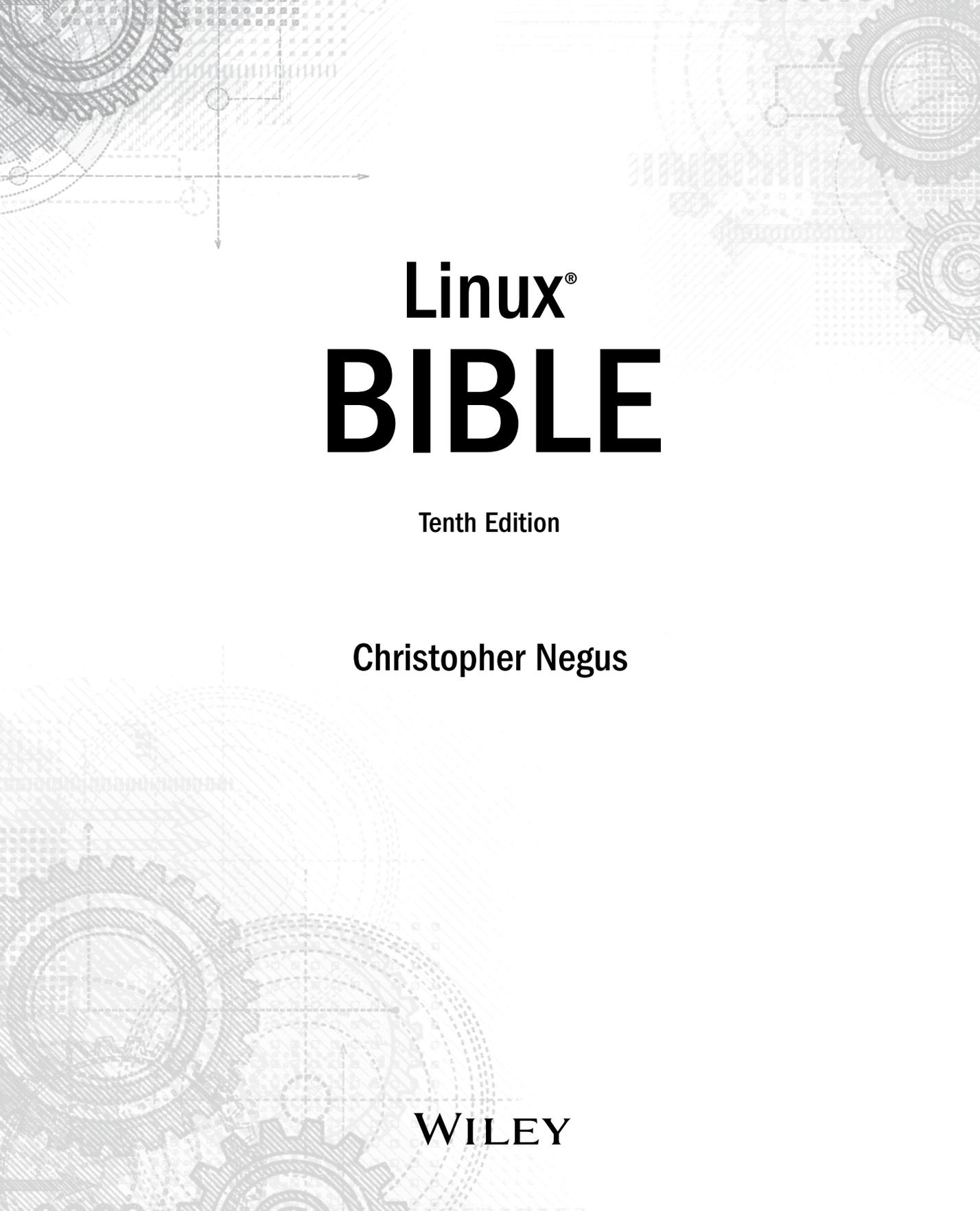
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The background of the cover is a light gray technical illustration. It features several interlocking gears of various sizes, some with fine teeth and others with smoother edges. Overlaid on these gears are various geometric shapes, including rectangles, circles, and lines, some of which are dashed. There are also small circles and arrows, suggesting a complex mechanical or engineering drawing. The overall style is clean and technical.

# Linux<sup>®</sup> **BIBLE**

Tenth Edition

Christopher Negus

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***As always, I dedicate this book to my wife, Sheree.***





## About the Author

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**Chris Negus** is a principal technical writer for Red Hat, Inc. In more than a decade with Red Hat, Chris has taught hundreds of IT professionals to become Red Hat Certified Engineers (RHCEs), and he has written scores of documents on everything from Linux to virtualization to cloud computing and containerization.

Before joining Red Hat, Chris wrote or co-wrote dozens of books on Linux and UNIX, including the *Red Hat Linux Bible* (all editions), *Docker Containers*, *CentOS Bible*, *Fedora Bible*, *Linux Troubleshooting Bible*, *Linux Toys*, *Linux Toys II*, and, nine editions of this *Linux Bible*. Chris also co-authored several books for the Linux Toolbox series for power users: *Fedora Linux Toolbox*, *SUSE Linux Toolbox*, *Ubuntu Linux Toolbox*, *Mac OS X Toolbox*, and *BSD UNIX Toolbox*.

Before becoming an independent author, Chris worked for eight years with the organization at AT&T that developed the UNIX operating system before moving to Utah to help contribute to Novell's UnixWare project in the early 1990s. When not writing about Linux, Chris enjoys playing soccer, hanging out with his wife, Sheree, and spending what time he can with his sons, Seth and Caleb.



## About the Technical Editors

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**W**hen I was hired at Red Hat about a dozen years ago, I didn't know that Red Hat would grow to about seven times its size, be bought by IBM for \$34 billion, and (so far) still maintain the spirit of openness and excitement that it had when I first signed on. Every day when I come to work, I interact with many of the greatest Linux and cloud developers, testers, instructors, and support professionals in the world.

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—Christopher Negus



# Contents at a Glance

Acknowledgments .....	xi
Introduction .....	xxxv
<b>Part I: Getting Started .....</b>	<b>1</b>
Chapter 1: Starting with Linux.....	3
Chapter 2: Creating the Perfect Linux Desktop.....	27
<b>Part II: Becoming a Linux Power User .....</b>	<b>59</b>
Chapter 3: Using the Shell.....	61
Chapter 4: Moving Around the Filesystem .....	93
Chapter 5: Working with Text Files .....	113
Chapter 6: Managing Running Processes.....	131
Chapter 7: Writing Simple Shell Scripts .....	147
<b>Part III: Becoming a Linux System Administrator .....</b>	<b>165</b>
Chapter 8: Learning System Administration .....	167
Chapter 9: Installing Linux .....	195
Chapter 10: Getting and Managing Software.....	221
Chapter 11: Managing User Accounts.....	249
Chapter 12: Managing Disks and Filesystems .....	273
<b>Part IV: Becoming a Linux Server Administrator .....</b>	<b>305</b>
Chapter 13: Understanding Server Administration .....	307
Chapter 14: Administering Networking .....	339
Chapter 15: Starting and Stopping Services .....	369
Chapter 16: Configuring a Print Server .....	403
Chapter 17: Configuring a Web Server.....	427
Chapter 18: Configuring an FTP Server .....	455
Chapter 19: Configuring a Windows File Sharing (Samba) Server.....	475
Chapter 20: Configuring an NFS File Server.....	499
Chapter 21: Troubleshooting Linux .....	523
<b>Part V: Learning Linux Security Techniques .....</b>	<b>563</b>
Chapter 22: Understanding Basic Linux Security.....	565
Chapter 23: Understanding Advanced Linux Security .....	599
Chapter 24: Enhancing Linux Security with SELinux .....	635
Chapter 25: Securing Linux on a Network .....	663

<b>Part VI: Engaging with Cloud Computing</b> . . . . .	<b>691</b>
Chapter 26: Shifting to Clouds and Containers .....	693
Chapter 27: Using Linux for Cloud Computing .....	709
Chapter 28: Deploying Linux to the Cloud .....	729
Chapter 29: Automating Apps and Infrastructure with Ansible .....	749
Chapter 30: Deploying Applications as Containers with Kubernetes .....	765
<b>Part VII: Appendixes</b> . . . . .	<b>785</b>
Appendix A: Media .....	787
Appendix B: Exercise Answers .....	797
Index .....	863

# Contents

Acknowledgments . . . . .	xi
Introduction . . . . .	xxxv
<b>Part I: Getting Started</b>	<b>1</b>
<hr/>	
<b>Chapter 1: Starting with Linux . . . . .</b>	<b>3</b>
Understanding What Linux Is . . . . .	4
Understanding How Linux Differs from Other Operating Systems . . . . .	6
Exploring Linux History . . . . .	7
Free-flowing UNIX culture at Bell Labs . . . . .	7
Commercial UNIX . . . . .	9
Berkeley Software Distribution arrives . . . . .	9
UNIX Laboratory and commercialization . . . . .	10
GNU transitions UNIX to freedom . . . . .	11
BSD loses some steam . . . . .	12
Linus builds the missing piece . . . . .	13
OSI open source definition . . . . .	14
Understanding How Linux Distributions Emerged . . . . .	16
Choosing a Red Hat distribution . . . . .	16
Using Red Hat Enterprise Linux . . . . .	17
Using Fedora . . . . .	18
Choosing Ubuntu or another Debian distribution . . . . .	19
Finding Professional Opportunities with Linux Today . . . . .	19
Understanding how companies make money with Linux . . . . .	20
Becoming Red Hat certified . . . . .	21
RHCSA topics . . . . .	22
RHCE topics . . . . .	23
Summary . . . . .	25
<b>Chapter 2: Creating the Perfect Linux Desktop . . . . .</b>	<b>27</b>
Understanding Linux Desktop Technology . . . . .	28
Starting with the Fedora GNOME Desktop Live image . . . . .	30
Using the GNOME 3 Desktop . . . . .	31
After the computer boots up . . . . .	31
Navigating with the mouse . . . . .	32
Navigating with the keyboard . . . . .	36
Setting up the GNOME 3 desktop . . . . .	38

Extending the GNOME 3 desktop.....	39
Using GNOME shell extensions.....	39
Using the GNOME Tweak Tool .....	40
Starting with desktop applications.....	41
Managing files and folders with Nautilus .....	42
Installing and managing additional software.....	43
Playing music with Rhythmbox .....	45
Stopping the GNOME 3 desktop.....	46
Using the GNOME 2 Desktop.....	46
Using the Metacity window manager .....	48
Changing GNOME's appearance.....	49
Using the GNOME panels .....	50
Using the Applications and System menus.....	51
Adding an applet.....	51
Adding another panel .....	52
Adding an application launcher .....	52
Adding a drawer .....	53
Changing panel properties.....	54
Adding 3D effects with AIGLX.....	54
Summary .....	57
Exercises.....	57

## **Part II: Becoming a Linux Power User** **59**

---

<b>Chapter 3: Using the Shell. . . . .</b>	<b>61</b>
About Shells and Terminal Windows .....	62
Using the shell prompt.....	63
Using a Terminal window .....	63
Using virtual consoles .....	65
Choosing Your Shell .....	65
Running Commands .....	66
Understanding command syntax .....	67
Locating commands.....	70
Recalling Commands Using Command History .....	72
Command-line editing .....	73
Command-line completion.....	75
Command-line recall.....	76
Connecting and Expanding Commands .....	78
Piping between commands.....	78
Sequential commands.....	79
Background commands .....	79
Expanding commands.....	80
Expanding arithmetic expressions .....	80
Expanding variables.....	80

Using Shell Variables.....	81
Creating and using aliases .....	81
Exiting the shell .....	83
Creating Your Shell Environment.....	84
Configuring your shell .....	84
Setting your prompt.....	85
Adding environment variables .....	87
Getting Information about Commands.....	88
Summary .....	90
Exercises.....	90
<b>Chapter 4: Moving Around the Filesystem . . . . .</b>	<b>93</b>
Using Basic Filesystem Commands.....	96
Using Metacharacters and Operators.....	98
Using file-matching metacharacters.....	98
Using file-redirection metacharacters .....	99
Using brace expansion characters.....	101
Listing Files and Directories .....	101
Understanding File Permissions and Ownership.....	105
Changing permissions with chmod (numbers).....	106
Changing permissions with chmod (letters).....	107
Setting default file permission with umask .....	108
Changing file ownership .....	109
Moving, Copying, and Removing Files.....	109
Summary .....	111
Exercises.....	111
<b>Chapter 5: Working with Text Files. . . . .</b>	<b>113</b>
Editing Files with vim and vi.....	113
Starting with vi .....	115
Adding text.....	115
Moving around in the text .....	116
Deleting, copying, and changing text.....	117
Pasting (putting) text.....	118
Repeating commands .....	118
Exiting vi.....	118
Skipping around in the file .....	119
Searching for text .....	119
Using ex mode .....	120
Learning more about vi and vim.....	120
Finding Files .....	120
Using locate to find files by name.....	121
Searching for files with find.....	122
Finding files by name.....	123
Finding files by size.....	124

# Contents

---

Finding files by user .....	124
Finding files by permission.....	125
Finding files by date and time .....	125
Using 'not' and 'or' when finding files.....	126
Finding files and executing commands .....	127
Searching in files with grep .....	128
Summary .....	129
Exercises.....	129
<b>Chapter 6: Managing Running Processes .....</b>	<b>131</b>
Understanding Processes.....	131
Listing Processes .....	132
Listing processes with ps.....	132
Listing and changing processes with top.....	134
Listing processes with System Monitor.....	136
Managing Background and Foreground Processes.....	137
Starting background processes .....	138
Using foreground and background commands .....	139
Killing and Renicing Processes.....	140
Killing processes with kill and killall.....	140
Using kill to signal processes by <b>PID</b> .....	140
Using killall to signal processes by name .....	141
Setting processor priority with nice and renice .....	142
Limiting Processes with cgroups .....	143
Summary .....	144
Exercises.....	145
<b>Chapter 7: Writing Simple Shell Scripts .....</b>	<b>147</b>
Understanding Shell Scripts.....	147
Executing and debugging shell scripts .....	148
Understanding shell variables .....	149
Special shell positional parameters .....	150
Reading in parameters .....	151
Parameter expansion in bash.....	151
Performing arithmetic in shell scripts.....	152
Using programming constructs in shell scripts .....	153
The "if. .then" statements .....	153
The case command.....	156
The "for. .do" loop .....	157
The "while. .do" and "until. .do" loops .....	158
Trying some useful text manipulation programs.....	159
The general regular expression parser.....	159
Remove sections of lines of text (cut) .....	159
Translate or delete characters (tr).....	160
The stream editor (sed) .....	160

Using simple shell scripts.....	161
Telephone list.....	161
Backup script .....	162
Summary .....	163
Exercises.....	163

**Part III: Becoming a Linux System Administrator** **165**

**Chapter 8: Learning System Administration** **167**

Understanding System Administration .....	167
Using Graphical Administration Tools.....	169
Using Cockpit browser-based administration .....	169
Using system-config-* tools .....	171
Using other browser-based admin tools.....	173
Using the root User Account .....	174
Becoming root from the shell (su command).....	175
Allowing administrative access via the GUI.....	176
Gaining administrative access with sudo .....	176
Exploring Administrative Commands, Configuration Files, and Log Files .....	178
Administrative commands .....	178
Administrative configuration files.....	179
Administrative log files and systemd journal .....	183
Using journalctl to view the systemd journal .....	184
Managing log messages with rsyslogd.....	184
Using Other Administrative Accounts.....	185
Checking and Configuring Hardware.....	186
Checking your hardware .....	187
Managing removable hardware .....	189
Working with loadable modules .....	191
Listing loaded modules .....	191
Loading modules.....	192
Removing modules.....	192
Summary .....	193
Exercises.....	193

**Chapter 9: Installing Linux** **195**

Choosing a Computer.....	196
Installing Fedora from Live Media .....	198
Installing Red Hat Enterprise Linux from Installation Media.....	201
Understanding Cloud-Based Installations.....	204
Installing Linux in the Enterprise.....	205
Exploring Common Installation Topics .....	207
Upgrading or installing from scratch .....	207
Dual booting.....	208

Installing Linux to run virtually .....	209
Using installation boot options .....	210
Boot options for disabling features .....	210
Boot options for video problems.....	210
Boot options for special installation types.....	210
Boot options for kickstarts and remote repositories.....	211
Miscellaneous boot options.....	212
Using specialized storage.....	213
Partitioning hard drives .....	214
Understanding different partition types .....	215
Tips for creating partitions.....	215
Using the GRUB boot loader .....	217
Summary .....	219
Exercises.....	219
<b>Chapter 10: Getting and Managing Software. ....</b>	<b>221</b>
Managing Software on the Desktop .....	221
Going Beyond the Software Window .....	223
Understanding Linux RPM and DEB Software Packaging.....	224
Understanding DEB packaging.....	225
Understanding RPM packaging .....	226
What is in an RPM? .....	226
Where do RPMs come from? .....	227
Installing RPMs .....	228
Managing RPM Packages with YUM.....	229
Transitioning from yum to dnf.....	229
Understanding how yum works .....	229
Using YUM with third-party software repositories .....	233
Managing software with the yum command .....	233
Searching for packages.....	234
Installing and removing packages.....	236
Updating packages.....	238
Updating groups of packages .....	239
Maintaining your RPM package database and cache.....	240
Downloading RPMs from a YUM repository .....	241
Installing, Querying, and Verifying Software with the rpm Command.....	241
Installing and removing packages with rpm .....	241
Querying rpm information .....	242
Verifying RPM packages.....	244
Managing Software in the Enterprise .....	245
Summary .....	246
Exercises.....	247

<b>Chapter 11: Managing User Accounts . . . . .</b>	<b>249</b>
Creating User Accounts .....	249
Adding users with useradd.....	252
Setting user defaults.....	255
Modifying users with usermod .....	257
Deleting users with userdel.....	258
Understanding Group Accounts.....	259
Using group accounts .....	259
Creating group accounts .....	260
Managing Users in the Enterprise.....	261
Setting permissions with Access Control Lists .....	262
Setting ACLs with setfacl .....	262
Setting default ACLs .....	264
Enabling ACLs .....	265
Adding directories for users to collaborate.....	267
Creating group collaboration directories (set GID bit) .....	267
Creating restricted deletion directories (sticky bit) .....	268
Centralizing User Accounts.....	269
Summary .....	270
Exercises.....	270
<b>Chapter 12: Managing Disks and Filesystems . . . . .</b>	<b>273</b>
Understanding Disk Storage.....	273
Partitioning Hard Disks.....	275
Understanding partition tables .....	275
Viewing disk partitions .....	276
Creating a single-partition disk.....	277
Creating a multiple-partition disk .....	281
Using Logical Volume Manager Partitions.....	285
Checking an existing LVM.....	286
Creating LVM logical volumes .....	289
Growing LVM logical volumes .....	290
Mounting Filesystems .....	291
Supported filesystems.....	291
Enabling swap areas .....	293
Disabling swap area.....	294
Using the fstab file to define mountable file systems .....	295
Using the mount command to mount file systems .....	297
Mounting a disk image in loopback.....	298
Using the umount command .....	299
Using the mkfs Command to Create a Filesystem .....	300
Managing Storage with Cockpit.....	301
Summary .....	303
Exercises.....	303

<b>Part IV: Becoming a Linux Server Administrator</b>	<b>305</b>
<b>Chapter 13: Understanding Server Administration . . . . .</b>	<b>307</b>
Starting with Server Administration.....	308
Step 1: Install the server .....	308
Step 2: Configure the server .....	310
Using configuration files .....	310
Checking the default configuration .....	310
Step 3: Start the server.....	311
Step 4: Secure the server .....	312
Password protection.....	312
Firewalls .....	313
TCP Wrappers.....	313
SELinux .....	313
Security settings in configuration files.....	314
Step 5: Monitor the server.....	314
Configure logging .....	314
Run system activity reports.....	314
Watch activity live with Cockpit .....	314
Keep system software up to date.....	315
Check the filesystem for signs of crackers.....	315
Checking and Setting Servers .....	316
Managing Remote Access with the Secure Shell Service .....	316
Starting the openssh-server service.....	317
Using SSH client tools .....	318
Using ssh for remote login.....	318
Using ssh for remote execution .....	320
Copying files between systems with scp and rsync .....	321
Interactive copying with sftp .....	324
Using key-based (passwordless) authentication .....	324
Configuring System Logging .....	326
Enabling system logging with rsyslog .....	326
Understanding the rsyslog.conf file.....	327
Understanding the messages log file .....	329
Setting up and using a loghost with rsyslogd.....	330
Watching logs with logwatch.....	331
Checking System Resources with sar .....	332
Checking System Space .....	334
Displaying system space with df.....	334
Checking disk usage with du.....	334
Finding disk consumption with find .....	335
Managing Servers in the Enterprise.....	336
Summary .....	336
Exercises.....	337

---

<b>Chapter 14: Administering Networking</b> . . . . .	<b>339</b>
Configuring Networking for Desktops .....	340
Checking your network interfaces .....	342
Checking your network from NetworkManager .....	342
Checking your network from Cockpit.....	343
Checking your network from the command line .....	345
Configuring network interfaces .....	349
Setting IP addresses manually .....	349
Setting IP address aliases.....	350
Setting routes .....	351
Configuring a network proxy connection.....	352
Configuring Networking from the Command Line .....	353
Configure networking with nmtui.....	354
Editing a NetworkManager TUI connection.....	354
Understanding networking configuration files.....	355
Network interface files .....	356
Other networking files .....	358
Setting alias network interfaces.....	360
Setting up Ethernet channel bonding .....	361
Setting custom routes .....	363
Configuring Networking in the Enterprise.....	364
Configuring Linux as a router.....	364
Configuring Linux as a DHCP server .....	365
Configuring Linux as a DNS server .....	365
Configuring Linux as a proxy server.....	366
Summary .....	366
Exercises.....	367
<b>Chapter 15: Starting and Stopping Services</b> . . . . .	<b>369</b>
Understanding the Initialization Daemon (init or systemd).....	370
Understanding the classic init daemons .....	371
Understanding systemd initialization.....	377
Learning systemd basics .....	377
Learning systemd’s backward compatibility to SysVinit .....	382
Checking the Status of Services .....	384
Checking services for SysVinit systems .....	385
Stopping and Starting Services.....	387
Stopping and starting SysVinit services .....	387
Stopping a service with systemd.....	389
Starting a service with systemd.....	389
Restarting a service with systemd .....	389
Reloading a service with systemd .....	390
Enabling Persistent Services.....	391
Configuring persistent services for SysVinit .....	391

Enabling a service with systemd .....	392
Disabling a service with systemd .....	393
Configuring a Default Runlevel or Target Unit .....	394
Configuring the SysVinit default runlevel.....	394
Adding New or Customized Services .....	396
Adding new services to SysVinit.....	396
Step 1: Create a new or customized service script file .....	396
Step 2: Add the service script to /etc/rc.d/init.d.....	398
Step 3: Set appropriate permission on the script .....	398
Step 4: Add the service to runlevel directories.....	398
Adding new services to systemd.....	399
Step 1: Create a new or customized service configuration unit file.....	399
Step 2: Move the service configuration unit file .....	399
Step 3: Add the service to the Wants directory .....	400
Summary .....	401
Exercises.....	401
<b>Chapter 16: Configuring a Print Server . . . . .</b>	<b>403</b>
Common UNIX Printing System.....	403
Setting Up Printers.....	405
Adding a printer automatically.....	405
Using web-based CUPS administration .....	406
Allow remote printing administration .....	406
Add a printer not automatically detected.....	407
Using the Print Settings window .....	409
Configuring local printers with the Print Settings window.....	409
Configuring remote printers .....	412
Adding a remote CUPS printer.....	413
Adding a remote UNIX (LDP/LPR) printer.....	413
Adding a Windows (SMB) printer.....	414
Working with CUPS Printing .....	415
Configuring the CUPS server (cupsd.conf) .....	415
Starting the CUPS server .....	417
Configuring CUPS printer options manually.....	417
Using Printing Commands .....	418
Printing with lp .....	419
Listing status with lpstat -t.....	419
Removing print jobs with lprm .....	419
Configuring Print Servers .....	420
Configuring a shared CUPS printer.....	420
Configuring a shared Samba printer.....	422
Understanding smb.conf for printing .....	422
Setting up SMB clients .....	423
Summary .....	424
Exercises.....	424

---

<b>Chapter 17: Configuring a Web Server . . . . .</b>	<b>427</b>
Understanding the Apache Web Server .....	427
Getting and Installing Your Web Server .....	428
Understanding the httpd package .....	428
Installing Apache.....	431
Starting Apache .....	432
Securing Apache .....	433
Apache file permissions and ownership .....	433
Apache and firewalls.....	433
Apache and SELinux .....	434
Understanding the Apache configuration files .....	435
Using directives.....	435
Understanding default settings.....	438
Adding a virtual host to Apache.....	440
Allowing users to publish their own web content.....	442
Securing your web traffic with SSL/TLS .....	443
Understanding how SSL is configured .....	445
Generating an SSL key and self-signed certificate .....	447
Generating a certificate signing request .....	448
Troubleshooting Your Web Server .....	449
Checking for configuration errors .....	449
Accessing forbidden and server internal errors .....	451
Summary .....	453
Exercises.....	453
<b>Chapter 18: Configuring an FTP Server . . . . .</b>	<b>455</b>
Understanding FTP .....	455
Installing the vsftpd FTP Server .....	457
Starting the vsftpd Service .....	458
Securing Your FTP Server.....	461
Opening up your firewall for FTP .....	461
Configuring SELinux for your FTP server .....	463
Relating Linux file permissions to vsftpd.....	465
Configuring Your FTP Server .....	465
Setting up user access .....	465
Allowing uploading .....	467
Setting up vsftpd for the Internet.....	468
Using FTP Clients to Connect to Your Server.....	469
Accessing an FTP server from Firefox.....	470
Accessing an FTP server with the lftp command .....	470
Using the gFTP client .....	472
Summary .....	473
Exercises.....	473

<b>Chapter 19: Configuring a Windows File Sharing (Samba) Server. . . . .</b>	<b>475</b>
Understanding Samba .....	475
Installing Samba .....	476
Starting and Stopping Samba .....	478
Starting the Samba (smb) service .....	478
Starting the NetBIOS (nmbd) name server .....	480
Stopping the Samba (smb) and NetBIOS (nmb) services.....	481
Securing Samba.....	482
Configuring firewalls for Samba.....	482
Configuring SELinux for Samba .....	484
Setting SELinux Booleans for Samba .....	484
Setting SELinux file contexts for Samba .....	485
Configuring Samba host/user permissions.....	486
Configuring Samba.....	486
Configuring the [global] section .....	486
Configuring the [homes] section.....	487
Configuring the [printers] section .....	489
Creating a Samba shared folder .....	489
Adding the shared folder to Samba .....	490
Checking the Samba share.....	490
Accessing Samba Shares .....	493
Accessing Samba shares in Linux.....	493
Accessing Samba shares from a Linux file manager.....	493
Mounting a Samba share from a Linux command line .....	495
Accessing Samba shares in Windows .....	496
Using Samba in the Enterprise.....	497
Summary .....	497
Exercises.....	498
<b>Chapter 20: Configuring an NFS File Server. . . . .</b>	<b>499</b>
Installing an NFS Server.....	502
Starting the NFS service.....	502
Sharing NFS Filesystems.....	503
Configuring the /etc/exports file.....	504
Hostnames in /etc/exports .....	505
Access options in /etc/exports.....	506
User mapping options in /etc/exports .....	506
Exporting the shared filesystems.....	507
Securing Your NFS Server .....	508
Opening up your firewall for NFS .....	508
Allowing NFS access in TCP wrappers .....	510
Configuring SELinux for your NFS server .....	511
Using NFS Filesystems .....	512
Viewing NFS shares .....	512

---

Manually mounting an NFS filesystem.....	512
Mounting an NFS filesystem at boot time .....	513
Mounting noauto filesystems.....	514
Using mount options.....	515
Using autofs to mount NFS filesystems on demand.....	517
Automounting to the /net directory .....	517
Automounting home directories.....	518
Unmounting NFS filesystems .....	520
Summary .....	521
Exercises.....	521
<b>Chapter 21: Troubleshooting Linux .....</b>	<b>523</b>
Boot-Up Troubleshooting.....	523
Understanding Startup Methods.....	524
Starting with System V init scripts .....	524
Starting with systemd .....	525
Starting from the firmware (BIOS or UEFI) .....	526
Troubleshooting BIOS setup.....	526
Troubleshooting boot order .....	527
Troubleshooting the GRUB boot loader.....	528
The GRUB Legacy boot loader.....	528
GRUB 2 Boot loader .....	530
Starting the kernel .....	532
Troubleshooting the initialization system .....	533
Troubleshooting System V initialization .....	533
Troubleshooting rc.sysinit.....	533
Troubleshooting runlevel processes.....	534
Troubleshooting systemd initialization .....	538
Troubleshooting Software Packages.....	542
Fixing RPM databases and cache.....	545
Troubleshooting Networking.....	547
Troubleshooting outgoing connections.....	547
View network interfaces.....	547
Check physical connections .....	548
Check routes .....	548
Check hostname resolution.....	549
Troubleshooting incoming connections.....	550
Check if the client can reach your system at all .....	551
Check if the service is available to the client.....	551
Check the firewall on the server.....	552
Check the service on the server .....	553
Troubleshooting Memory .....	553
Uncovering memory issues.....	554
Checking for memory problems .....	556
Dealing with memory problems.....	558

Troubleshooting in Rescue Mode ..... 559  
Summary ..... 561  
Exercises..... 561

**Part V: Learning Linux Security Techniques** **563**

---

**Chapter 22: Understanding Basic Linux Security** . . . . . **565**

Implementing Physical Security..... 565  
    Implementing disaster recovery ..... 566  
    Securing user accounts..... 566  
        One user per user account ..... 567  
        Limiting access to the root user account ..... 567  
        Setting expiration dates on temporary accounts ..... 567  
        Removing unused user accounts ..... 568  
    Securing passwords ..... 570  
        Choosing good passwords ..... 570  
        Setting and changing passwords..... 571  
        Enforcing best password practices..... 572  
        Understanding the password files and password hashes ..... 574  
    Securing the filesystem ..... 576  
        Managing dangerous filesystem permissions ..... 576  
        Securing the password files ..... 577  
        Locking down the filesystem ..... 578  
    Managing software and services..... 579  
        Updating software packages ..... 579  
        Keeping up with security advisories..... 580  
    Advanced implementation..... 580  
Monitoring Your Systems..... 580  
    Monitoring log files ..... 581  
    Monitoring user accounts..... 584  
        Detecting counterfeit new accounts and privileges..... 584  
        Detecting bad account passwords..... 586  
    Monitoring the filesystem ..... 587  
        Verifying software packages..... 588  
        Scanning the filesystem ..... 589  
        Detecting viruses and rootkits..... 590  
Auditing and Reviewing Linux..... 595  
    Conducting compliance reviews..... 595  
    Conducting security reviews ..... 596  
Summary ..... 596  
Exercises..... 597

**Chapter 23: Understanding Advanced Linux Security** . . . . . **599**

Implementing Linux Security with Cryptography ..... 599  
    Understanding hashing ..... 600