

Chapter 1: Online Documentation

Client Specific Performance Objectives and Examples	1-2
Help Commands	3
info, pinfo, whatis, apropos	4
bash help.....	5
man Page Sections	6
Commands When Viewing a man Page	7

Chapter 2: Linux Startup and Shutdown

Client Specific Performance Objectives and Examples	1-2
Bootstrapping	3
Boot Process	4-5
Boot Loader.....	6
/etc/grub.conf	7
System Processes	8
Startup Scripts.....	9
BSD /etc/rc* Scripts.....	10
/etc/inittab	11
inittab actions	12
Virtual Consoles	13
Startup Run Levels.....	14
Run Levels - Setting	15
Run Level Scripts	16
Startup Messages	17
System Shutdown	18
Shutdown - When to.....	19
Bootstrapping and Shutdowns – Overview	20
PC Bootstrapping	21
Hardware and Device Drivers	22
Shutdown Procedure.....	23
Booting Process	24
Boot Sector.....	25
LILO.....	26
Linux Kernel	27-28
Shutdowns.....	29
Single User Shutdown.....	30
Multi User Shutdown	31
Power Off the Machine	32
Shut Down Problem	33
sync	34
Rebooting	35-36
init	37
init Location	38
Adopts Orphan Processes	39
/etc/inittab	40-42
Run Levels	43
Run Level List	44
Run Level Configuration.....	45
Special Configuration in /etc/inittab	46

Chapter 3: Kernel

Client Specific Performance Objectives and Examples	1-2
Linux Kernel	3
Linux Kernel: Three Levels	4
Linux Kernel: Properties	5
Linux Kernel: Major Subsystems	6
System Call Interface	7
Process Management	8-9
Memory Management	10-11
Virtual File System	12-14
Network Stack	15
Device Drivers	16
Architecture-dependent Code	17
Kernel Panic	18

Chapter 4: Managing Processes

Client Specific Performance Objectives and Examples	1-2
Programs and Processes	3
Virtual Memory	4
Swap Allocation	5
Process Lifecycle	6
Process Components	7
Process Ownership	8
Process Lifecycle	9
Running a Command	10
Background Jobs	11
Daemons	12
fg, bg, and jobs	13
Signals	14
Common Signals	15
Process Priority	16
System Load	17
Monitoring Processes	18
Information from ps	19
/proc Filesystem	20
Runaway Processes	21

Chapter 5: Managing Users

Client Specific Performance Objectives and Examples	1-2
Section Overview	3
Accounts: Purposes	4
Identity and Authentication.....	5
Components of an Account.....	6
Username Selection.....	7
Weak Passwords	8
Selecting Strong Passwords	9
Pass Phrase Examples	10
Password Storage	11
UNIX Password Encryption.....	12
/etc/shadow	13
Windows Password Encryption.....	14
Groups.....	15
System Accounts	16
User Account Creation	17
Account Creation Tools	18
Account Modification Tools	19
chsh	20
chfn.....	21-22
What is /bin/false?	23
Removing an Account	24
Superuser Access	25
Root Account.....	26-27
User Account - Creation	28-29
E-mail Account	30
User Passwords - Changing	31
User Accounts - Disabling	32
User Accounts - Removing	33-34
/etc/passwd	35
/etc/shadow	36
Groups.....	37-38
Group: Adding Members	39
User and Group Associations	40
User Administration Monitoring.....	41-42

Chapter 6: Linux Administrative Commands

Client Specific Performance Objectives and Examples	1-2
Dmesg	3-4
dmesg - Sample Output	5
Ispci	6
Ispci - Partial Listing	7
Special Files	8
File Types in a Long List	9
Is -F Command	10
Linux File System Layout	11
Subdirectories - root Directory	12-15
Devices	16
Process	17
Process Life Cycle	18
Daemons	19
Daemons - Common	20-22
Message of the Day	23
Message: Sending	24
Super User	25
Configuration Files - Updating	26
Administrator Basic Strategies	27
CPU Overuse Problem	28
man with -k	29
Is Not Available	30
cron Facility	31
crontab	32
crontab Entries	33-34
cron Entry Command	35
cron Entries - Adding/Listing	36
cron Log Files	37
Boot Process	38
Linux Boot Process	39
Loading the Kernel	40
Booting in Multi User Mode	41
Manual Boot	42
Boot Log Files	43
Initialization Scripts	44
Filesystems - Preparation	45
Crash Dump - Saving	46
Start Paging	47
Connecting to Network	48
inittab Configuration File	49
RC Initialization Scripts	50
Shutting Down a Linux System	51
shutdown Command	52
Ensuring Disk Accuracy	53
Aborting a Shutdown	54

Chapter 7: File System Management

Client Specific Performance Objectives and Examples	1-2
Kinds of Devices	3
Device Drivers and Files	4
Making Device Files	5
Disk Geometry	6
UNIX Filesystems.....	7
Filesystems and Partitions	8
Partition - Why?	9
Filesystems - Management	10-11
Network Filesystems	12
Why Backups?	13
Backup Plan Characteristics	14
Backup Media	15
Backup Tools	16-17
Backup Strategies	18

Chapter 8: Linux Networking

Client Specific Performance Objectives and Examples	1-4
TCP/IP Protocol Stack	5
TCP/IP Packet Encapsulation.....	6
Connecting to a Network.....	7
Hostnames	8
IP Addresses	9
IP Address Classes	10
Subnet Masks	11
Interface Configuration.....	12
Ethernet Addressing.....	13
Address Resolution Protocol.....	14
Default Gateways.....	15
Network Files	16
Name Services	17
DNS Name Resolution	18
Network Testing	19
Network Tools	20
Dynamic Host Config Protocol	21
ifcfg- Additions.....	22
Virtual Private Networks.....	23
Point to Point Tunneling Protocol	24
IPSec	25
TCP/IP Protocol Stack	26
Client-Server Model	27
Network Ports.....	28
/etc/services	29
Running Network Servers	30
/etc/inetd.conf.....	31
Xinetd	32
/etc/xinetd.conf	33
Example xinetd Service	34
Windows Service Management.....	35

Windows Service Recovery	36
Network Protocols	37
Viewing Active Ports	38
Resource Sharing Daemons	39
Internet Daemons.....	40
Infrastructure Daemons.....	41
Networking Interfaces	42
IP Addressing	43
IP Addresses	44-45
Class Networks	46
IP Address Ranges Reserved for Private Use.....	47
Address Resolution	48
ARP	49
ARP Cache.....	50
RARP	51
Autonomous Systems	52
Subnetworks	53
Subnet	54
Subnetting	55
Gateways	56
Routing Table.....	57-59
Route Tables - Building.....	60
Host Names - Resolving	61
/etc/hosts	62
Network Hardware - Configuring.....	63
Interfaces.....	64
Interface	65
Linux Interface.....	66
Relationship Between Drivers, Interfaces, and Hardware	67
Linux Network Devices.....	68
Ethernet Autoprobing	69
Passing Parameters to the Kernel	70
Autoprobing	71
Configuring TCP/IP Networking	72
Network Scripts	73
Mounting the /proc Filesystem	74-75
Setting the Hostname	76
Interface Configuration for IP	77
Ifconfig.....	78
route	79
Loopback Interface.....	80
Routing Table.....	81
ping.....	82
Ethernet Interfaces	83
Route thru Ethernet	84
route -n	85
Ifconfig Parameters	86
ifconfig Listing	87
Ifconfig - Parameters Recognized	88-89
netstat Command.....	90
Routing Table - Displaying	91-93
Interface Statistics - Displaying	94-95
Connections - Displaying	96

ARP Tables - Checking	97-98
inetd Super Server	99
inetd.....	100-101
/etc/inetd.conf.....	102
Services and Protocols Files.....	103-104

Chapter 9: Administration Fundamentals

Client Specific Performance Objectives and Examples	1-2
Root Account.....	3-4
User Accounts - Creation	5-6
User Passwords - Changing	7
User Accounts - Removing	8-9
System Shutdown and Restart.....	10-11

Chapter 10: Linux Security: Fundamentals

Client Specific Performance Objectives and Examples	1-2
Security: Major Events	3
Incidents: Reported	4
Vulnerabilities: Reported	5
Threat Pyramid.....	6
Treat Evolution	7
Security: How Much	8
Password Security Issues	9
Password Risk Minimization	10
/etc/shadow Fields	11
Account Management	12
Root Account Management.....	13
System Configuration.....	14
Pluggable Authentication Modules.....	15
Filesystem Protection	16
Network Service Security	17
Network Traffic Issues.....	18
Physical Security	19
Session Security	20
Implementing Security.....	21
Risks and Policies	22
System Testing	23
Log Monitoring	24
Incident Response	25

Chapter 11: Linux Kernel

Client Specific Performance Objectives and Examples	1-2
Linux: Standard Configuration File Format	3
System Configuration Files	4
Access Files	5
Booting and login/logout.....	6
File System	7
System Administration	8-9
Networking	10-11
Daemons	12
The Kernel.....	13
Files in the /proc/sys/kernel/ Directory	14
User Configuration Files: . (dot) Files and rc Files.....	15
Commonly Used rc and . (dot) Files	16-19
Tools for Building the Kernel.....	20
Compiler	21
Linker.....	22
make.....	23
Configuration - Creation	24
Configuration - from Scratch	25
Default Configuration Options	26
Console Configuration Method	27
Building the Kernel	28
Distribution Kernel - Using	29
Kernel Configuration - Where is it	30
Uncompress config	31
Kernel Parameters - Changing.....	32-33
sysctl	34
Parameters - Where Stored	35
Files in /proc/sys/kernel.....	36
Parameter Files in /proc	37
sysctl Command.....	38
Kernel - Changing Permanently	39

Chapter 12: Administrating Services

Client Specific Performance Objectives and Examples	1-2
Services in Linux	3
chkconfig and service Commands	4
GUI Tool system-config-services	5-7
chkconfig - Finding Which Services Start On Boot	8
Finding Which Services Start On Boot Using chkconfig	9
Status of One Service	10
View Only Services Not Started On Boot	11
Changing Whether a Service Starts On Boot	12
Service Command - Starting and Stopping Services.....	13
Get All Running Services	14
Symbolic Links	15-17

Chapter 13: Perl Fundamentals

Client Specific Performance Objectives and Examples	1
Structure of a Perl Program	1
Expressions, Statements, and Side-Effects	3
Scalar Datum	4
Strings	5
Single-quoted Strings	6
Special Characters in Single-quoted Strings	6
Newlines in Single-quoted Strings	7
print Function	8
Double-quoted Strings	9
Interpolation: ASCII Octal Values	10
Interpolation: ASCII Hex Values	11
Characters Requiring Special Consideration	11
Numbers.....	12
Printing Numeric Literals	13
Scalar Variables	14
Guidelines	14
Scalar Interpolation	15
Undefined Variables	18
Operators	21
Numerical Operators	21
Comparison Operators	22
Auto-Increment and Decrement	23
String Operators	23
Assignment with Operators	24
Output of Scalar Data	24
Scalar Operators	25
Arrays	26
List Literals	26
List Literals, using both () and the qw Operator	27
Array Variables	27
Associated Scalars	28
Associated Scalar Variables for an Array	29
Slice: New Array Creation Based upon a Subset of Elements from Another Array	29
Arrays as Stacks	29
Arrays as Queues	30
Context: List versus Scalar	31
Array Interpolation	32
Blocks	33
Control Structures	34
if/unless Structures	35
while/until Structures	35
do while/until Structures	36
for Structure	36
foreach Structure	37
Associative Arrays - Hashes	38
Variables	38
Literals	39
Keys and Values	39
Each	39
Slices	40
Context Considerations	41

Regular Expressions	42
Grouping with ()s	43
Anchor Characters	43
Pattern Matching	43
Regular Expression Shortcuts.....	45
Subroutines	46
Subroutines: Defining	46
Returning Values.....	46
Arguments.....	47