

Chapter 1: UNIX Administration

- Client Specific Performance Objectives and Examples 1-2
- UNIX Variants 3-4
- UNIX: What is it 5
- Operating Systems 6
- UNIX System 7
- UNIX Philosophy 8
- Simple, Orthogonal Commands 9
- Commands Connected Through Pipes 10
- Common Option Interface Style 11
- No File Types 12
- Multi-user 13
- Super User 14
- Network Centrality 15
- Remote or Pseudo Terminals - telnet 16
- Remote Shell - Different from a telnet Session 17
- Network File System 18
- Administration Tools 19
- AIX 20
- HP-UX 21
- Solaris 22
- Linux 23
- System V and BSD 24

Chapter 2: System Administration Tasks

- Client Specific Performance Objectives and Examples 1-2
- Tasks for the System Administrator 3
- Creating User Accounts 4
- Adding a New User Tools 5
- Providing User Support 6
- Supporting Systems 7
- System Design 8
- Backups 9
- System Load and Performance 10
- Network Responsibilities 11

Chapter 3: UNIX Installation

- Client Specific Performance Objectives and Examples 1-2
- Planning for the Installation 3
- From Where to Install 4-5
- Naming the System 6
- Host Name 7
- Domain Name (DNS/Mail) 8
- Laying Out the Partitions 9
- Partitions 10
- root Partition 11

Chapter 6: File System and Disk Administration

- Client Specific Performance Objectives and Examples 1-2
- Warning 3
- File System - What is it 4
- File System Levels 5
- inodes 6
- inode Information 7
- Superblock 8
- Types of Files 9
- Types of Files - Normal Files 10
- Types of Files - Directories 11
- Types of Files - Hard Links 12
- Types of Files - Symbolic Links 13
- Types of Files - Sockets 14
- Types of Files - Named Pipes 15
- Types of Files - Character Devices 16
- Types of Files - Block Devices 17
- Mounting and Unmounting File Systems 18
- Mounting File Systems - Warning 19
- Manually Mounting and Unmounting File Systems 20
- Mount Options 21
- unmount 22
- Mounting File Systems Automatically 23-24
- /etc/fstab 25
- Special Partitions 26
- mount all 27
- df 28
- du 29
- du Parameters 30
- ln 31-32
- tar 33
- tar Parameters 34
- tar Examples 35-38
- Move Directory Trees 39
- find 40
- find Common Parameters 41
- find Examples 42-43
- Repairing File Systems with fsck 44
- fsck Utility 45
- Superblock 46
- inodes 47
- Clean and Stable File System 48
- fsck - When to Run 49
- fsck - Running It 50
- Phase 1: Check Blocks and Sizes 51-52
- Phase 2: Check Pathnames 53-55
- Phase 3: Check Connectivity 56
- Phase 4: Check Reference Counts 57-59
- Phase 5: Check Cylinder Groups 60
- fsck Finishes - What Has to be Done? 61
- lost+found 62-63
- Partitions - Purpose and Function 64-66
- /tmp 61-67

- swap Partition 12
- usr Partition 13
- var Partition 14
- home Partition 15
- tmp Partition 16
- IP Addresses - Assigning 17
- Booting the Installation Media 18
- Installing the Master System 19
- Installing Optional or Additional Packages 20
- Deleting Before Adding Packages 21
- pkginfo 22

Chapter 4: Startup and Shutdown

- Client Specific Performance Objectives and Examples 1-2
- Startup 3
- Initialization Process 4-5
- Configuration File 6-7
- /etc/inittab Entries 8
- Action Keyword 9-10
- RC Scripts 11
- Startup Daemons and Programs 12-14
- nologin 15
- Shutdown 16-18

Chapter 5: User Administration

- Client Specific Performance Objectives and Examples 1-2
- Adding New Users 3
- Password File 4
- Username 5
- Password 6
- User ID 7
- Special User IDs 8
- Group IDs 9
- Other passwd Fields 10
- Shadow Password File 11-12
- Group File 13-14
- Miscellaneous Files 15-16
- Pseudo Users 17
- User Maintenance Commands 18-19
- useradd 20
- userdel and usermod 21
- User Command Options 22-23
- Move a Directory 24
- Common Dot Files 25-26
- Removing Usernames 27
- User Monitor Commands 28-30
- User Limiting Commands 31-32

- /var 68
- /home 69
- /usr 70
- swap 71

Chapter 7: Kernel Basics and Configuration

- Client Specific Performance Objectives and Examples 1-2
- Kernel - What is it 3
- Kernel Services 4
- System Initialization 5
- Kernel Mode 6
- Process Management 7
- Process Structure 8-10
- Process Table 11
- Fork Process 12
- Process Run States 13
- Memory Management 14
- Virtual Memory 15
- Resident Memory 16
- Virtual Address Space 17-19
- Kernel Space 20
- Page Size 21
- Input and Output Management 22
- I/O Performance Monitoring Tools 23
- sar, iostat and monitor 24-25
- Filesystem Types 26
- Rebuilding the Kernel - When 27

Chapter 8: Networking

- Client Specific Performance Objectives and Examples 1-2
- TCP/IP Communications 3
- Four-layer Model of TCP/IP 4
- Internet Control Message Protocol 7-8
- ping 9
- RTT: Route Information Table 10-11
- netstat 12-13
- Route Table Maintenance 14-15
- ARP Cache 16
- Name Services 17
- Host Names 18
- Host Name and the /etc/hosts Table 19
- Domain Name System 20-21
- /etc/netmasks 22
- /etc/hosts.equiv 23
- inetd Superserver Daemon 24
- Daemons Controlled by the inetd Superserver 25-28
- IP Address, Netmask - Setting 29-30

Checking the Interface.....	31
Enabling/Disabling the Interface.....	32
TCP/IP Diagnostic Tools - Commonly Used.....	33-34
arp Command.....	35
traceroute.....	36
Router Log Facility.....	37
Router Logs.....	38
syslogd Log Files.....	39
snoop: Protocol Analysis Tool.....	40

Chapter 9: Accounting

Client Specific Performance Objectives and Examples.....	1-2
System Accounting Basics.....	3
Connect Session Statistics.....	4
Process Usage.....	5
Disk Space Utilization.....	6
Commands that Run Automatically.....	7-8
Commands that Run Automatically or Manually.....	9
Manually Executed Commands.....	10-11
System Accounting High-Level Directory Layout.....	12
Files in the /var/adm Directory.....	13
Files in the /var/adm/acct/nite Directory.....	14-15
Files in the /var/adm/acct/sum Directory.....	16
Generation of System Accounting Data Reports.....	17
Daily Automated Reports.....	18
Daily Report.....	19
Daily Usage Report.....	20-22
Daily Command Summary Report and Total Command Summary Report.....	23
Total Command Summary Report.....	24-25
Daily Systems Accounting Summary Report.....	26

Chapter 10: Performance Monitoring

Client Specific Performance Objectives and Examples.....	1-2
Counters - Critical System Resources.....	3-6
Monitoring System Status - uptime.....	7-9
Monitoring System Status - sar -q.....	10
Reporting Fields with sar -q.....	11
Monitoring System Status - sar -u.....	12
Fields in the Report - sar -u.....	13
Monitoring System Status - sar -u.....	14
UNIX Memory Management.....	15
Swapping.....	16
Monitoring Memory Performance - vmstat.....	17-18
Fields in the vmstat Report.....	19-20
Monitoring Memory Performance - sar -wprg.....	21-23
Multiprocessor Implications - vmstat.....	24

Chapter 13: Backing Up and Restoring the System

Client Specific Performance Objectives and Examples.....	1-2
Backup and Restore.....	3
tar Command.....	4-6
tar List Option.....	7
include File.....	8
dump Command.....	9-10
cpio.....	11-12

Chapter 14: Bourne Scripts

Client Specific Performance Objectives and Examples.....	1-2
First Script.....	3-4
White Space.....	5
Variables.....	6
Variable: Setting.....	7
Uninitialized Variable.....	8
Variables: Another Use.....	9
Variable \$0.....	10-11
Looping through Parameters.....	12
\$\$ and \$!.....	13
IFS.....	14
External Programs.....	15
Functions.....	16-17
File Exists.....	18
Verify.....	19
Pipe.....	20
Pipes: Example #1.....	21
Pipes: Example #2.....	22
List Symbols.....	23
Redirects.....	24
Code Indent.....	25
Redirect to stderr.....	26
Simple Menu.....	27
for - Example.....	28
While Loop.....	29
if Structure.....	30
Design Considerations.....	31
Banners.....	32
Lesser Banners.....	33
Symbols.....	34
Layout.....	35
Layout Rules.....	36-38

Monitoring Disk Subsystem Performance.....	25-26
Checking Disk Performance with iostat and sar.....	27
iostat Shows the Following.....	28
sar -d.....	29
Monitoring File System Use with df.....	30-31
Checking System Tables with sar -v.....	32
Tunable Kernel Parameters - Displaying.....	33-35
Tunable Parameters - Current Values - Displaying.....	36
Kernel Parameters.....	37 - 38

Chapter 11: Printers

Client Specific Performance Objectives and Examples.....	1-2
Connecting Printers.....	3
LP Printing Service.....	4-6
Local Printing Services - Setting Up.....	7-8
Print Destination.....	9-11
Port Ownership.....	12
Default Destination.....	13
Enabling and Disabling LP Print Service.....	14
Managing Print Requests.....	15
Printer Configuration Management.....	16
Configuration - Check.....	17
Print Service User Management.....	18

Chapter 12: FTP Administration

Client Specific Performance Objectives and Examples.....	1-2
FTP - History.....	3
FTP Connections.....	4-5
Control Connection.....	6
Control Connection - Example.....	7
Control Connection.....	8
Data Connection.....	9
Connections - Ports.....	10
Reliability of FTP.....	11-12
FTP Session.....	13
ftp Prompt.....	14-15
ftp Commands.....	16-17
FTP Responses.....	18
FTP Response Code.....	19-20
Administering FTP.....	21
Setting Up the Service.....	22
Danger.....	23
Administering FTP Users.....	24
/etc/shells.....	25
Autologin and .netrc.....	26
.netrc.....	27-28
Anonymous FTP.....	29
Anonymous FTP Service - Setting Up.....	30-33
Troubleshooting FTP.....	34-39

Chapter 15: Shell Fundamentals

Client Specific Performance Objectives and Examples.....	1-2
Shells.....	3
Shell Script - Creation.....	4
Shell Programming.....	5
Shell Script - Invoking.....	6-8
Comments.....	9
Startup Files.....	10
Parameters and Variables.....	11
Positional Parameters.....	12-14
Special Parameters.....	15
Special Parameters - Examples.....	16
Special Parameters.....	17-19
Shell Parameters.....	20
Shells are Programs.....	21
Executing Commands.....	22
Parsing the Command Line.....	23
Special Characters.....	24-26
Quote Characters.....	27
Commands and Arguments.....	28
Control Operator.....	29-31
Command Separation and Grouping.....	32
I/O Redirection: Purpose and Function.....	33
Redirect: How it Works.....	34-35
I/O Redirection: Special Characters.....	36
I/O Redirection: Example.....	37-38
Device Files and I/O Redirection.....	39
Shell Variables.....	40-41
Shell Variables Local versus Environment Variables.....	42
Environment Control.....	43
Advanced Variable Substitution.....	44
Variable Substitution Example.....	45
Command Substitution.....	46
Pathname Expansion.....	47-48
Other Expansion.....	49

Chapter 16: Bourne Shell Programming

Client Specific Performance Objectives and Examples.....	1-2
Bourne Shell.....	3
Bourne Shell Programming.....	4
if ... then.....	5
test Command.....	6
test Criteria.....	7
test Operator Exercise.....	8
test Criteria.....	9
File test Exercise.....	10
test Criteria.....	11
Use of if/else.....	12
Data Entry Exercise.....	13
if...then...else.....	14

if...then...elif 15
 Debugging Shell Scripts 16
 for... in 17
 for 18
 while 19
 while - #2 20
 while - #3 21
 until 22
 break and continue 23
 for - Example 24
 case 25-26
 case - Example #1 27
 case - Example #2 28
 echo and read 29
 Built-in: exec 30-31
 Catch a Signal: Built-in trap 32
 Trap - Example 33
 Built-in 34-35
 Functions 36-37
 System Scripts 38

Chapter 17: Korn Shell Programming

Client Specific Performance Objectives and Examples 1-2
 Flow Control Constructs 3
 if/else 4
 Overriding a Built-in Command 5
 String Comparisons 6
 String - Example 7
 File Attribute Operators 8-11
 Arithmetic Conditionals 12
 for Statement 13
 for Statement - Example 14
 case Statement 15
 case Statement - Example 16
 select Statement 17-18
 Select - Example 19
 while and until Statements 20-21
 while - Example 22
 break and continue Statements 23
 Command-line Options and Arithmetic 24
 shift 25
 getopt Statements 26
 Numeric Variables and Arithmetic 27
 Arithmetic Operators 28-29
 Parentheses 30
 Arithmetic Variables and Assignment 31
 Expression Assignments - Examples 32
 Arithmetic for 33
 Arithmetic for - Example 34
 Arrays 35
 Indexed Arrays 36-38
 Indexed Arrays - Examples 39

Associative Arrays 40-41
 Array Name Operators 42
 String Formatting Options 43
 String Formatting - Example 44
 Type and Attribute Options 45-46
 Korn Input/Output 47
 I/O Redirectors 48-49
 File Descriptors 50
 Redirect 51
 Special Filenames 52-54
 Print Escape Sequences 55
 Options to Print 56
 printf 57
 Format Specifiers Used in printf 58-59
 Width and Alignment 60
 Precision 61
 read Command 62
 Reading Lines from Files 63
 Reading Lines from Files - Example 64
 Process Handling 65
 Process IDs and Job Numbers 66
 Foreground and Background 67-68
 Suspending a Job 69
 trap 70
 trap - Example 71