

Table of Contents

Preface	vii
Chapter 1: What and Why of Scripting with Bash	1
Bash vulnerabilities	1
The bash command hierarchy	3
Command type	3
Command PATH	5
Preparing text editors for scripting	5
Configuring vim	6
Configuring nano	6
Configuring gedit	7
Creating and executing scripts	8
Hello World!	9
Executing the script	9
Checking the exit status	10
Ensuring a unique name	11
Hello Dolly!	11
Running the script with arguments	12
The importance of correct quotes	13
Printing the script name	14
Debugging your scripts	16
Summary	17

Chapter 2: Creating Interactive Scripts	19
Using echo with options	19
Basic script using read	21
Script comments	21
Enhancing scripts with read prompts	22
Limiting the number of entered characters	23
Controlling the visibility of entered text	24
Enhancing learning with simple scripts	24
Backing-up with scripts	24
Connecting to a server	26
Version 1 – ping	26
Version 2 – SSH	27
Version 3 – MySQL/MariaDB	27
Summary	28
Chapter 3: Conditions Attached	29
Simple decision paths using command-line lists	29
Verifying user input with lists	31
Using the test shell builtin	32
Testing strings	33
Testing integers	33
Testing file types	34
Creating conditional statements using if	34
Extending if with else	36
More conditions with elif	37
Creating the backup2.sh using elif	37
Using case statements	39
Script – building a front-end with grep	41
Summary	43
Chapter 4: Creating Code Snippets	45
Abbreviations	45
Using code snippets	46
Bringing color to the terminal	47
Summary	49
Chapter 5: Alternative Syntax	51
Recapping test	51
Testing files	52
Adding logic	52
Square brackets as not seen before	52

Providing parameter defaults	53
Variables	54
Special parameters	54
Setting defaults	55
When in doubt – Quote!	56
Advanced test using []	59
Whitespace	59
Other advanced features	59
Pattern matching	59
Regular expressions	60
Regular expression script	60
Arithmetic operations using ((61
Simple math	61
Parameter manipulation	62
Standard arithmetic tests	63
Summary	63
Chapter 6: Iterating with Loops	65
For loops	65
Controlling the loop	69
While loops and until loops	70
Reading input from files	71
Creating operator menus	74
Summary	77
Chapter 7: Creating Building Blocks with Functions	79
Introducing functions	79
Passing parameters to functions	82
Returning values from functions	86
Using functions in menus	87
Summary	89
Chapter 8: Introducing sed	91
Using grep to display text	92
Displaying received data on an interface	92
Displaying user account data	93
Listing the number of CPUs in a system	94
Parsing CSV files	97
The CSV file	97
Isolating catalog entries	100
Using regular expressions	100
Working with alternate spellings	100
How many words have four consecutive vowels?	101
RE anchors	102

Understanding the basics of sed	102
Substituting command	103
Editing the file	104
Summary	105
Chapter 9: Automating Apache Virtual Hosts	107
Apache name-based Virtual Hosts	108
Creating the Virtual Hosts template	109
First steps	109
Isolating lines	110
sed script files	111
Automating Virtual Host creation	113
Prompting for data during site creation	115
Summary	119
Chapter 10: Awk Fundamentals	121
The history behind awk	121
Displaying and filtering content from files	122
Formatting output	125
Further filtering to display users by UID	127
Awk control files	128
Summary	128
Chapter 11: Summarizing Logs with Awk	129
The HTTPD log file format	129
Displaying data from web logs	131
Selecting entries by date	131
Summarizing 404 errors	133
Summarizing HTTP access codes	133
Displaying the highest ranking IP address	135
Displaying the browser data	136
Working with e-mail logs	137
Summary	138
Chapter 12: A Better lastlog with Awk	139
Using awk ranges to exclude data	139
The lastlog command	140
Horizontal filtering rows with awk	141
Counting matched rows	141
Conditions based on the number of fields	142
Manipulating the awk record separator to report on XML data	144
Apache Virtual Hosts	144
XML catalog	145
Summary	147

Chapter 13: Using Perl as a Bash Scripting Alternative	149
What is Perl?	149
Hello World	151
Perl arrays	152
Program name?	152
Argument arrays	153
Counting elements in an array	153
Looping through an array	154
Creating arrays	155
Conditional statements in Perl	156
Replacing command line lists	156
If and unless	157
Using functions within Perl	158
Prompt for user input	158
Creating the function	159
Summary	160
Chapter 14: Using Python as a Bash Scripting Alternative	161
What is Python?	161
Saying Hello World the Python way	163
Pythonic arguments	164
Supplying arguments	164
Counting arguments	165
Significant whitespace	166
Reading user input	167
Using Python to write to files	168
Summary	169
Index	171