

Contents at a Glance

<i>Introduction</i>	<i>xvii</i>
Part 1 How Things Work	1
Chapter 1 Internet Mail Protocols	3
Chapter 2 Understanding E-Mail Architecture	31
Chapter 3 Running Sendmail	51
Part 2 Essential Configuration	79
Chapter 4 Creating a Basic Sendmail Configuration	81
Chapter 5 Understanding a Vendor's Configuration	107
Chapter 6 Using Sendmail Databases	137
Part 3 Advanced Configuration	177
Chapter 7 The <i>sendmail.cf</i> File	179
Chapter 8 Understanding Rewrite Rules	219
Chapter 9 Special <i>m4</i> Configurations	247
Part 4 Maintaining a Healthy Server	267
Chapter 10 Testing Sendmail	269
Chapter 11 Stopping Spam	299
Chapter 12 Sendmail Security	321
Appendices	359
Appendix A <i>m4</i> Macro Command Reference	361
Appendix B The <i>sendmail</i> Command	395
Appendix C Sendmail Variables, Options, and Flags	411
<i>Index</i>	435

Contents

Introduction *xvii*

Part 1 How Things Work 1

Chapter 1	Internet Mail Protocols.	3
	The Internet Protocol Suite	4
	A Simple Mail Transport Protocol	4
	Using SMTP through <i>telnet</i>	6
	SMTP Response Codes	9
	Observing SMTP with Verbose Mode	11
	A Basic Mail Message	13
	Message Headers	13
	Multipurpose Internet Mail Extensions	15
	The Content-Type Header	16
	The Content-Transfer-Encoding Header.	19
	Extended SMTP	20
	Extended Service Keywords	21
	Mailbox Protocols	22
	Post Office Protocol	22
	Internet Mail Access Protocol	25
	In Sum	29
Chapter 2	Understanding E-Mail Architecture.	31
	The Role of DNS	33
	Processing <i>MX</i> Records	35
	The Components of Mail Architecture	36
	Formal Definitions	36
	Sample Mail Architectures	39
	Sendmail's Roles.	41
	A Message Submission Agent	42
	A Message Transfer Agent	46
	A Client	49
	In Sum	49

Chapter 3	Running Sendmail	51
	Running Sendmail at Start-Up	51
	On a BSD-Style Linux System	53
	On a System V-Style Linux System.	54
	Controlling Sendmail with Signals	59
	Installing Sendmail	61
	Installing Sendmail with <i>dpkg</i>	61
	Locating RPM Software.	62
	Installing Sendmail with RPM	66
	X Tools for Installing Sendmail	68
	Cleaning Up after RPM	69
	Downloading and Compiling Sendmail	71
	Known Problems	74
	Configuration Compatibility	75
	In Sum.	76
Part 2	Essential Configuration	79
Chapter 4	Creating a Basic Sendmail Configuration	81
	The <i>cf</i> Directory Structure	82
	Little-Used Directories	83
	The <i>domain</i> Directory	85
	The <i>cf</i> Subdirectory	85
	The <i>ostype</i> Directory	88
	The <i>mailer</i> Directory.	89
	The <i>feature</i> Directory	90
	The <i>m4</i> Directory.	90
	The <i>m4</i> Macro Language.	91
	Controlling <i>m4</i> Output	92
	The Basic Commands	94
	A Sample Macro Configuration File.	97
	Building a Simple <i>m4</i> Configuration File	99
	More <i>m4</i> Commands	102
	In Sum	105

Chapter 5	Understanding a Vendor's Configuration.	107
	The Generic Linux Configuration	108
	The Linux <i>OSTYPE</i> File	109
	The Generic <i>DOMAIN</i> File	112
	Adding Support for the <i>.REDIRECT</i> Pseudo-Domain.	114
	Adding Support for Local Host Aliases	115
	Protecting the <i>root</i> Account from Masquerading.	117
	The Essential Mailers	118
	The Red Hat Configuration	122
	Modifying the Red Hat Configuration	131
	In Sum	135
Chapter 6	Using Sendmail Databases	137
	Adding Database Support.	138
	Database Compiler Options.	138
	Configuration Options	142
	The Cr, Cw, and Ct Files	144
	The <i>relay-domains</i> File	145
	The <i>local-host-names</i> File	147
	The <i>aliases</i> Database	149
	Defining Personal Mail Aliases.	153
	The User Database	154
	The <i>access</i> Database	156
	The Address Field	157
	The Action Field	159
	The <i>virtusertable</i> .	161
	Defining a Virtual Domain	161
	Defining <i>virtusertable</i> Delivery Addresses	163
	The <i>mailertable</i>	166
	The <i>genericstable</i>	169
	Little-Used Databases	171
	The <i>makemap</i> Command	172
	In Sum	174

Part 3	Advanced Configuration	177
Chapter 7	The <i>sendmail.cf</i> File	179
	The Local Info Section	180
	The Define Macro Command	182
	The Define Class Command	186
	Loading a Class Variable from a File	190
	The Keyed File Command	191
	The Version Level Command	197
	The Options Section	199
	The Message Precedence Section	201
	The Trusted Users Section	202
	The Format of Headers Section	203
	The Rewriting Rules Section	204
	The Mailer Definitions Section	205
	The <i>M</i> Command	207
	Editing the <i>sendmail.cf</i> File	211
	Testing Your New Configuration	212
	A Command Summary	215
	In Sum.	217
Chapter 8	Understanding Rewrite Rules	219
	Basic Rulesets	219
	More Rulesets	221
	Mailer Rulesets	224
	Rewrite Rules	226
	Pattern Matching	226
	Transforming the Address	231
	Special Ruleset 0 Rewrite Rules	242
	Mailer Triple Variations	244
	In Sum.	246
Chapter 9	Special <i>m4</i> Configurations	247
	Using the <i>DOMAIN</i> File	248

	Address Masquerading . . . . .	. 249
	Enabling Masquerading . . . . .	. 249
	Masquerade Options . . . . .	. 251
	Masquerading Usernames . . . . .	. 256
	Writing Local Rules . . . . .	. 258
	Configuring a Relay Client. . . . .	. 261
	In Sum . . . . .	. 265
Part 4	Maintaining a Healthy Server	267
Chapter 10	Testing Sendmail . . . . .	. 269
	Simple Command-Line Options . . . . .	. 269
	Using the <i>-bv</i> Option . . . . .	. 270
	Running in Verbose Mode . . . . .	. 271
	The <i>hoststat</i> Command . . . . .	. 273
	The <i>mailq</i> Command . . . . .	. 276
	Running Sendmail in Test Mode . . . . .	. 280
	Testing with the <i>/parse</i> Command . . . . .	. 283
	Processing a Specific Address Type . . . . .	. 284
	Testing with the <i>/try</i> Command . . . . .	. 285
	Displaying and Setting Internal Values . . . . .	. 287
	Using Debug Levels . . . . .	. 293
	In Sum . . . . .	. 298
Chapter 11	Stopping Spam . . . . .	. 299
	Don't Be a Spam Source . . . . .	. 299
	Define an Acceptable Use Policy . . . . .	. 300
	Run the Identification Daemon. . . . .	. 300
	Properly Configure Mail Relaying . . . . .	. 301
	Use Sendmail to Block Spam. . . . .	. 305
	Using the Realtime Blackhole List. . . . .	. 306
	Using the <i>access</i> Database . . . . .	. 309
	Using Anti-Spam Rewrite Rules . . . . .	. 312

	Filtering Out Spam at the Mailer	314
	Managing Mail with <i>procm</i> ail.	315
	In Sum.	319
Chapter 12	Sendmail Security	321
	Basic Security	322
	Secure the Hardware	322
	Secure the Software.	324
	Limit Login Access	328
	Securing a Sendmail Server.	335
	Securing Sendmail against Unauthorized Access	337
	Sendmail Security Protocols	342
	Encryption and Cryptography	343
	Sendmail Authentication	344
	Transport Layer Security	350
	In Sum.	356
 Appendices		
Appendix A	<i>m4</i> Macro Command Reference	361
	Complete Command Reference	366
	<i>define</i>	367
	<i>FEATURE</i>	376
	<i>OSTYPE</i>	382
	<i>DOMAIN</i>	386
	<i>MAILER</i>	390
	Local Code	392
	<i>DAEMON_OPTIONS</i>	393
	LDAP Mail Routing	394
Appendix B	The <i>sendmail</i> Command	395
	Command-Line Switches.	396
	Debug Levels	399

Appendix C	Sendmail Variables, Options, and Flags	.411
	Variables	.411
	Class Variables	.416
	Options	.418
	Mailer Flags	.431
<i>Index</i>		.435