

Contents

FOReWoRDTO THE FIRST EDITION	xxi
FOREWORD TO THE SECOND EDITION	xxiii
PREFACE	xxv
ROAD MAP	xxxii

☺ ;. "' ;. ' PART I—FACETS OF EUBY

1	GETTING STARTED	3
	Installing Ruby	3
	Running Ruby	5
	Ruby Documentation: RDoc and ri	8
2	RUBY.NEW	11
	Ruby Is an Object-Oriented Language	11
	Some Basic Ruby	13
	Arrays and Hashes	16
	Control Structures	18
	Regular Expressions	19
	Blocks and Iterators	21
	Reading and Writing	23
	Onward and Upward	24
3	CLASSES, OBJECTS, AND VARIABLES	25
	Inheritance and Messages	27
	Objects and Attributes	29
	Class Variables and Class Methods	33
	Access Control	37
	Variables	39

4	CONTAINERS, BLOCKS, AND ITERATORS	43
	Containers	43
	Blocks and Iterators	49
	Containers Everywhere	57
5	STANDARD TYPES	59
	Numbers	59
	Strings	61
	Ranges	66
	Regulär Expressions	68
6	MORE ABOUT METHODS	79
	Defining a Method	79
	Calling a Method	81
7	EXPRESSIONS	87
	Operator Expressions	88
	Miscellaneous Expressions	89
	Assignment	90
	Conditional Execution	93
	Case Expressions	98
	Loops	100
	Variable Scope, Loops, and Blocks	105
8	EXCEPTIONS, CATCH, AND THROW	107
	The Exception Class	107
	Handling Exceptions	108
	Raising Exceptions	112
	Catch and Throw	114
9	MODULES	117
	Namespaces	117
	Mixins	118
	Iterators and the Enumeräble Module	120
	Composing Modules	120
	Including Other Files	123
10	BASIC INPUT AND OUTPUT	127
	What Is an IO Object?	127
	Opening and Closing Files	128
	Reading and Writing Files	129
	Talking to Networks	133

11	THREADS AND PROCESSES	135
	Multithreading	135
	Controlling the Thread Scheduler.	140
	Mutual Exclusion	141
	Running Multiple Processes.	147
12	UNITTESTING	151
	Test::UnitFramework	152
	Structuring Tests.	156
	Organizing and Running Tests	159
13	WHEN TROUBLE STRIKES	163
	Ruby Debugger.	163
	Interactive Ruby	164
	Editor Support	165
	ButItDoesn'tWork!.	167
	But It's Too Slow!	170

PART II—RUBY IN ITS SETTING

14	RUBY AND ITS WORLD	177
	Command-Line Arguments.	177
	Program Termination.	180
	Environment Variables.	181
	Where Ruby Finds Its Modules	182
	Build Environment.	183
15	INTERACTIVE RUBY SHELL	185
	CommandLine.	185
	Configuration	190
	Commands.	194
	Restrictions.	196
	rtagsandxmp	196
16	DOCUMENTING RUBY	199
	Adding RDoc to Ruby Code	199
	Adding RDoc to C Extensions.	207
	Running RDoc.	211
	Displaying Program Usage	212

- CONTENTS

17	PACKAGE MANAGEMENT WITH RUBYGEMS	215
	Installing RubyGems.	216
	Installing Application Gems.	216
	Installing and Using Gem Libraries.	218
	Creating Your Own Gems	223
18	RUBY AND THE WEB	235
	Writing CGI Scripts.	235
	Cookies	244
	Improving Performance.	247
	ChoiceofWeb Servers.	247
	SOAP and Web Services	249
	More Information.	253
19	RUBYTK	255
	Simple Tk Application	255
	Widgets.	256
	Binding Events.	260
	Canvas	261
	Scrolling	263
	Translating from Perl/Tk Documentation.	265
20	RUBY AND MICROSOFT WINDOWS	267
	Getting Ruby for Windows.	267
	Running Ruby Under Windows	268
	Win32API	268
	Windows Automation	269
21	EXTENDING RUBY	275
	Your First Extension.	275
	Ruby Objects in C	278
	The Jukebox Extension	284
	Memory Allocation.	293
	Ruby Type System.	294
	Creating an Extension	296
	Embedding a Ruby Interpreter.	301
	Bridging Ruby to Other Languages.	304
	Ruby C Language API	305

PART III—RUBY CRYSTALLIZED

22	THE RUBY LANGUAGE	317
	Source Layout	317
..	The Basic Types	319
	Names	328
	Variables and Constants	330
	Predefined Variables	333
	Expressions	338
	Boolean Expressions	341
	if and unless Expressions	343
	case Expressions	343
	Loop Constructs	344
	Method Definition	345
	Invoking a Method	348
	Aliasing	351
	Class Definition	352
	Module Definitions	354
	Access Control	356
	Blocks, Closures, and Proc Objects	356
	Exceptions	360
	Catch and Throw	362
23	DUCK TYPING	365
	Classes Aren't Types	366
	Coding like a Duck	370
	Standard Protocols and Coercions	371
	Walk the Walk, Talk the Talk	377
24	CLASSES AND OBJECTS	379
	How Classes and Objects Interact	379
	Class and Module Definitions	387
	Top-Level Execution Environment	393
	Inheritance and Visibility	393
	Freezing Objects	394
25	LOCKING RUBY IN THE SAFE	397
	SafeLevels	398
	Tainted Objects	399

26 REFLECTION, OBJECTSPACE, AND DISTRIBUTED RUBY	403
Looking at Objects	404
Looking at Classes	405
Calling Methods Dynamically	407
System Hooks	410
Tracing Your Program's Execution	412
Marshaling and Distributed Ruby	414
Compile Time? Runtime? Anytime!	419

PART IV—RUBY -LIBRARY REFERENCE

27 BuILt-iN CLASSES AND MODULES	423
Alphabetical Listing	424
Array	427
Bignum	441
Binding	444
Class	445
Comparable	447
Continuation	448
Dir	449
Enumerable	454
Errno	460
Exception	461
FalseClass	464
File	465
File::Stat	477
FileTest	483
Fixnum	484
Float	487
GC	491
Hash	492
Integer	501
IO	503
Kernel	516
Marshal	535
MatchData	537
Math	540
Method	543
Module	545
NilClass	561
Numeric	562

Object ;	567
ObjectSpace	578
Proc	580
Process	583
Process::GID	589
Process::Status	591
Process;Sys	594
Process::UID	596
Range	597
Regexp	600
Signal	604
String	606
Struct	626
Struct::Tms	630
Symbol ;	631
Thread	633
ThreadGroup	640
Time I	642
TrueClass	650
UnboundMethod	651
28 STANDARD LIBRARY	653
Abbrev	655
Base64	656
Benchmark	657
BigDecimal	658
CGI	659
CGI::Session	661
Complex	662
CSV	663
Curses ;	664
Date/DateTime	665
DBM	666
Delegator	667
Digest	668
DL	669
dRuby	670
English ; E	671
Enumerator	672
erb	673
Etc	675
expect ;	676
Fcntl	677

FileUtils	678
Find	679
Forwardable	680
ftools	681
GDBM	682
Generator	683
GetoptLong	684
GServer	685
Iconv	686
IO/Wait	687
IPAddr	688
jcode	689
Logger	690
Mail	691
mathn	692
Matrix	694
Monitor	695
Mutex	696
Mutexjn	697
Net::FTP	698
Net::HTTP	699
Net::IMAP	701
Net::POP	702
Net::SMTP	703
Net::Telnet	704
NKF	705
Observable	706
open-uri	707
Open3	708
OpenSSL	709
OpenStruct	710
OptionParser	711
ParseDate	713
Pathname	714
PP	715
PrettyPrint	716
Profile	717
Profiler	718
PStore	719
PTY	720
Rational	721
readbytes	722
Readline	723

Resolv	724
REXML	725
Rinda	727
RSS	728
Scanf	729
SDBM	730
Set	731
Shellwords	732
Singleton	733
SOAP	734
Socket	735
StringIO	736
StringScanner	737
Sync	738
Syslog	740
Tempfile	741
Test::Unit	742
thread	743
ThreadsWait	744
Time	745
Timeout	746
Tk	747
tmpdir	748
Tracer	749
TSort	750
un	751
URI	752
WeakRef	753
WEBrick	754
Win32API	755
WIN32OLE	756
XMLRPC	757
YAML	758
Zlib	759

PART ¥—APPENDIXES

A	SOCKET LIBRARY	763
	BasicSocket	764
	Socket	766
	IPSocket	770
	TCP Socket	771
	SOCKS Socket	772
	TCP Server	773
	UDP Socket	774
	UNIX Socket	776
	UNIX Server	777
B	M K M F REFERENCE	779
	mkmf ;	779
C	SUPPORT	783
	Web Sites ;	783
	Download Sites	784
	Usenet Newsgroup	784
	Mailing Lists	784
D	BIBLIOGRAPHY	787
	INDEX	789
	SUMMARY TABLES	824