

Red Hat® Linux® Networking and System Administration

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Preface

Red Hat Linux is the most popular distribution of Linux currently in use. Red Hat Linux has shown itself to be a robust, reliable operating system that can run on a variety of hardware, from personal computers to large mainframes. Linux in general, and Red Hat Linux in particular, is a very powerful operating system that can be used at the enterprise level as a full-fledged server, as well as at the workstation level for typical user applications. For those of us dissatisfied with the reliability of other commercially available operating systems, Red Hat Linux is a pleasant alternative.

How This Book Is Organized

This book is divided into five parts. Each part covers a specific area of functionality in a typical Red Hat Linux system.

Part I – Red Hat Linux System and Network Administration Defined

This part describes the duties of a system administrator. Chapter 1 explains some of the more common tasks, such as installing servers and application software, managing user accounts, and backing up and restoring files. Many more topics are covered in this chapter. Chapter 2 details the steps involved in planning and building a network and planning for security and disaster recovery. Chapter 3 takes you through the steps required to install Red Hat Linux on a local system as well as on a remote system. Chapter 4 gives an explanation of the Red Hat Linux file system and storage devices. Chapter 5, the last chapter in Part I, lists the system and network configuration files and their uses.

Part II – Red Hat Linux Network Services

This part of the book is where you learn about the networking services available in Red Hat Linux. Chapter 6 gives an explanation of the TCP/IP protocol suite and how to configure it on your system. Chapter 7 tells how to configure the Network File System (NFS) for sharing files with other Linux or Unix computers on your network. Chapter 8 provides a description of the Network Information System (NIS) as well as configuration instructions. If you have computers running Microsoft operating systems, Chapter 9 is where you find instructions for connecting your Red Hat Linux network to the Windows network. The final chapter in this part, Chapter 10, tells you how to connect your Red Hat Linux network to computers running the Apple operating system.

Part III – Red Hat Linux Internet Services

Internet services are somewhat different from network services used on an internal network. Chapter 11 begins this part by explaining Internet services, and includes a discussion of the `xinetd` and TCP wrappers configuration files. A fundamental part of using the Internet is the ability to enter a domain name and have it converted into an IP number that is the actual address of a computer. The name-to-number conversion is done by the Domain Name System (DNS), which is covered in Chapter 12. Chapter 13 describes the File Transfer Protocol (FTP) and gives installation and configuration instructions. Sending and receiving e-mail has become so common that it's hard to remember the time before we had it. Chapter 14 explains mail services and its configuration. Last, but not least, you find an explanation of setting up a Web server. Chapter 15 covers Apache, one of the most popular Web servers in use.

Part IV – Red Hat Linux System Maintenance

The goal of this part of the book is to provide a fundamental understanding of the tasks required to maintain your system and ensure that it runs optimally. Chapter 16 explains the Red Hat Network, a service available from Red Hat that you can use to keep your system current. You can register your systems with Red Hat and then receive notifications of updated or new software that can be installed. Chapter 17 discusses upgrading and customizing the kernel for your specific needs. Chapter 18 tells you how to use the command line to perform all of your system administrative tasks. If you want to use scripts to automate some of your work, Chapter 19 is where you find out how to do it. Chapter 20 deals with monitoring the performance of your system. Creating users and groups is a basic part of system maintenance, and Chapter 21 describes this process. Chapter 22 details the steps necessary to back up your file system and use the backups to restore your system. The final chapter in this part, Chapter 23, gives instructions on installing and upgrading software packages.

Part V – Security and Problem Solving

A critical area of concern for system administrators is maintaining a secure system. Most of the chapters in this part deal with security, beginning with Chapter 24, which covers security basics. Chapter 25 addresses local, or *host-based*, security. In Chapter 26 you find an explanation of firewalls and Internet security and the risks you may encounter from outside connections. Chapter 27 looks at ways to monitor a Red Hat Linux system for attempted, potential, and actual security compromises using the tools available in a standard Red Hat Linux installation. The last chapter in this part, Chapter 28, lists problems you may encounter during normal operation of your system and the steps to take to solve the problems discussed.

How to Use This Book

Our intention for this book is to cover the Red Hat Linux operating system in enough detail to provide the answers that you need. The book is divided into the parts previously discussed to make it easy for you to go to the specific part for the topic you need to learn about. You can use the book as a reference for whatever you need to know about a particular topic.

Using this book's icons

Watch for the following margin icons to help you get the most out of this book:



Tips provide special information or advice.



Caution icons warn you of a potential problem or error.



This icon directs you to related information in another section or chapter.



A Note highlights an area of interest or special concern related to the topic.



This icon points you toward related material on the book's CD-ROM.

Conventions

This book uses the following conventions for explanations of how to do things on your computer:

- ◆ *Italic type* introduces new technical terms. It also indicates replaceable arguments that you should substitute with actual values – the context makes clear the distinction between new terms and replaceable arguments.
- ◆ **Bold type** shows a command you type in.
- ◆ `Monospaced text` distinguishes commands, options, and arguments from surrounding explanatory content.
- ◆ Keys to press in combination are shown like this example: `Ctrl+Alt+Delete` means to press all three keys at the same time.
- ◆ The term *click* means to press the left mouse button once. *Double-click* means to press the left button twice in quick succession. *Right click* means to press the right mouse button once. *Drag* means to hold down the left mouse button and move the mouse while holding down the button.

Terry Collings's Acknowledgments

Until I started writing books, I never realized how many people are involved with producing a book like this and how much work they do. The first person I want to thank is my coauthor, Kurt Wall. Kurt is the reason I became involved with working on Linux books when I was asked to technical edit a Linux book several years ago. Since then, Kurt and I have collaborated on other projects, most recently this book.

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Kurt Wall's Acknowledgments

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I would be remiss if I failed to thank Terry Collings for inviting me to participate in this book – he may yet decide that I didn't do him any favors by getting him involved in writing books. I look forward to another opportunity to work with him.

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Contents at a Glance

	Preface	ix
	Acknowledgements	xiii
Part I	Red Hat Linux System and Network Administration Defined	
<hr/>		
Chapter 1	Duties of the System Administrator	3
Chapter 2	Planning the Network	13
Chapter 3	Installing Red Hat Linux	27
Chapter 4	Red Hat Linux File System	71
Chapter 5	Red Hat System Configuration Files	93
Part II	Red Hat Linux Network Services	
<hr/>		
Chapter 6	TCP/IP Networking	123
Chapter 7	The Network File System	153
Chapter 8	The Network Information System	185
Chapter 9	Connecting to Microsoft Networks	209
Chapter 10	Connecting to Apple Networks	235
Part III	Red Hat Linux Internet Services	
<hr/>		
Chapter 11	What are Internet Services?	253
Chapter 12	The Domain Name System	271
Chapter 13	Configuring FTP Services	301
Chapter 14	Configuring Mail Services	335
Chapter 15	Configuring a Web Server	365
Part IV	Red Hat Linux System Maintenance	
<hr/>		
Chapter 16	Using the Red Hat Network	403
Chapter 17	Upgrading and Customizing the Kernel	419
Chapter 18	Configuring the System on the Command Line	463
Chapter 19	Using Scripts to Automate Tasks	503
Chapter 20	Performance Monitoring	551
Chapter 21	Administering Users and Groups	575
Chapter 22	Backing up and Restoring the File System	615
Chapter 23	Installing and Upgrading Software Packages	643

Part V Security and Problem Solving

Chapter 24	Security Basics	685
Chapter 25	Implementing Local Security	705
Chapter 26	Firewalls and Internet Security	731
Chapter 27	Detecting Intrusions	749
Chapter 28	Troubleshooting and Problem Solving	767
	Appendix: What's on the CD-ROM?	787
	Index	791
	End-User License Agreement	847

Contents

	Preface	ix
	Acknowledgements	xiii
Part I	Red Hat Linux System and Network Administration Defined	
<hr/>		
Chapter 1	Duties of the System Administrator	3
	The Linux System Administrator	3
	Installing and Configuring Servers	5
	Installing and Configuring Application Software	6
	Creating and Maintaining User Accounts	7
	Backing Up and Restoring Files	7
	Monitoring and Tuning Performance	9
	Configuring a Secure System	10
	Using Tools to Monitor Security	11
	Summary	12
Chapter 2	Planning the Network	13
	Deciding What Kind of Network You Need	13
	Understanding topologies	15
	Client/server or peer-to-peer?	16
	What's in the mix?	18
	Determining system requirements	19
	Planning and Implementing Security	20
	Addressing external and internal threats	20
	Formulating a security policy	21
	Planning for Recovery from Disasters	22
	Write It Down – Good Records Can Save Your Job	24
	Summary	25
Chapter 3	Installing Red Hat Linux	27
	Exploring Your PC's Components	27
	Processor	28
	Bus	28
	Memory	28
	Video card and monitor	29
	Hard drive	29
	Floppy disk drive	29
	Keyboard and mouse	30
	SCSI controller	30
	CD-ROM drive	30

Sound card	30
Network card	30
Checking for Supported Hardware	31
Creating the Red Hat Boot Disk	31
Starting the Red Hat Linux Installation	32
Partitioning the Hard Disk for Red Hat Linux	36
Naming disks and devices	36
Mounting a file system on a device	37
Understanding the swap partition	38
Preparing disk partitions for Red Hat Linux	39
Configuring Red Hat Linux Installation	43
Installing the Boot Loader	43
Configuring the network	45
Setting the time zone	47
Setting the root password and add user accounts	48
Configuring password authentication	49
Selecting the Package Groups to Install	51
Completing the Installation	53
Using KickStart	55
KickStart Commands	57
Auth – Authentication Options	57
bootloader	58
clearpart	59
device --opts	59
driverdisk	59
firewall	59
install	60
Installation methods	60
interactive	61
keyboard	61
language	61
lilo	61
lilocheck	62
mouse	62
network	62
partition	64
raid	65
reboot	66
rootpw	66
skipx	66
timezone	66
upgrade	67
xconfig	67
zerombr – Partition table initialization	67
%packages – Package Selection	67

	%pre – Pre-Installation Configuration Section	69
	%post – Post-Installation Configuration Section	69
	Starting a KickStart Installation	69
	Summary	70
Chapter 4	Red Hat Linux File System	71
	Understanding the Red Hat Linux File System Structure	71
	The / directory	72
	Using File System Commands	74
	ls	74
	cp	74
	rm	74
	mv	74
	chown	75
	chgrp	75
	chmod	75
	chattr	76
	ln	76
	symlinks	76
	stat	77
	lsof	77
	mknod	78
	macutil	78
	Working With Linux–Supported File Systems	79
	Standard disk file systems	79
	Nonstandard Linux file systems	82
	Memory file systems and virtual file systems	83
	Linux Disk Management	88
	Partitioning an x86 machine	89
	Mounting other OS partitions/slices	89
	Metadevices	90
	Summary	91
Chapter 5	Red Hat System Configuration Files	93
	Examining the System Configuration Files	94
	Systemwide shell configuration scripts	94
	System environmental settings	97
	System configuration files in the /etc/sysconfig directory	105
	Examining the Network Configuration Files	105
	Files to change when setting up a system or moving the system	106
	Starting up network services from xinetd	111
	Starting up network services from the rc scripts	112
	Other important network configuration files in the /etc/sysconfig directory	113
	Network configuration files in /etc/sysconfig/network-scripts	113

Managing the init Scripts	114
Managing rc scripts by hand	116
Managing rc scripts using chkconfig	118
Summary	120

Part II Red Hat Linux Network Services

Chapter 6	TCP/IP Networking	123
	TCP/IP Explained	123
	Understanding Network Classes	125
	Setting Up a Network Interface Card (NIC)	127
	Configuring the network card	128
	Configuring an internal network	129
	Understanding Subnetting	131
	Interpreting IP numbers	133
	Before you subnet your network	134
	Classless InterDomain Routing (CIDR)	137
	Gateways and Routers	139
	Configuring Dynamic Host Configuration Protocol (DHCP)	141
	Setting up the server	141
	Configuring the client	142
	Configuring a Point-to-Point Protocol (PPP) Connection	142
	Configuring a PPP server	143
	CHAP security	144
	Configuring a PPP client	145
	Setting up a PPP connection	145
	Configuring IP Masquerading	150
	Summary	151
Chapter 7	The Network File System	153
	NFS Overview	153
	Understanding NFS	153
	NFS advantages	155
	NFS disadvantages	156
	Configuring an NFS Server	156
	Overview of server configuration	157
	Designing an NFS server	157
	Key files, commands, and daemons	159
	Example NFS server	172
	Configuring an NFS Client	173
	Overview of client configuration	173
	Key files and commands	173
	Example NFS client	176
	Tuning NFS	176
	Troubleshooting NFS	179

	Examining NFS Security	181
	General NFS security issues	181
	Server security considerations	183
	Client security considerations	183
	Summary	184
Chapter 8	The Network Information System	185
	Understanding NIS	185
	Configuring an NIS Server	189
	Key files and commands	190
	Setting the NIS domain name	190
	Configuring and starting the server daemon	191
	Initializing the NIS maps	193
	Starting the NIS password daemon	194
	Starting the server transfer daemon	195
	Starting the NIS servers at boot time	195
	Configuring an example NIS server	197
	Configuring an NIS Client	199
	Setting the NIS domain name	199
	Configuring and starting the client daemon	199
	Configuring the client startup files	204
	Key NIS client files and commands	205
	Testing your NIS configuration	206
	Configuring an example NIS client	207
	Strengthening NIS Security	208
	Summary	208
Chapter 9	Connecting to Microsoft Networks	209
	Installing Samba	209
	Configuring the Samba Server	211
	[global]	212
	[homes]	213
	[printers]	213
	[nancy]	214
	Using SWAT	214
	Configuring the Samba Client	222
	Using a Windows Printer from the Linux Computer	230
	Testing the Samba Server	232
	Summary	233
Chapter 10	Connecting to Apple Networks	235
	Understanding AppleTalk	235
	AppleTalk addressing	235
	Apple zones	236
	Installing the AppleTalk Software	236
	The AppleTalk DDP kernel module	236
	Installing Netatalk	237
	Configuring /etc/services	237
	Configuring Netatalk	238

Configuring the Daemons	239
Configuring atalkd	239
Configuring AppleTalk Interfaces	239
Additional configuration	241
Configuring AppleTalk file sharing	242
Setting up AFP Accounts	244
Configuring AFS to work with AppleTalk	244
Configuring AppleTalk printer sharing	244
Configuring Red Hat as an AppleTalk Client	246
Accessing Apple printers	246
Finding the printer's zone	246
Summary	249

Part III Red Hat Linux Internet Services

Chapter 11	What are Internet Services?	253
	Secure Services	254
	ssh	254
	scp	255
	sftp	256
	Less Secure Services	256
	telnet	256
	ftp	256
	rsync	257
	rsh	257
	rlogin	257
	finger	257
	talk and ntalk	258
	Using Your Linux Machine as a Server	258
	http	258
	sshd	258
	ftpd	259
	dns	259
	The Inetd Server	259
	Xinetd	262
	Inetd and Xinetd vs. Stand-Alone	264
	Inetd- or xinetd-started services	265
	Stand-alone services	266
	Linux Firewall Packages	267
	tcp-wrappers	267
	ipchains	268
	Summary	269
Chapter 12	The Domain Name System	271
	Understanding DNS	271
	Installing the Software	274
	Understanding Types of Domain Servers	275

	Examining Server Configuration Files	277
	The named.conf file	278
	Options	278
	The named.ca file	286
	The named.local file	286
	Zone files	287
	The reverse zone file	289
	Configuring a Caching Server	290
	Configuring a Slave Server	292
	Configuring a Master Server	293
	Using DNS Tools	296
	Summary	300
Chapter 13	Configuring FTP Services	301
	What FTP Software is Available?	301
	Red Hat Linux's choice: WU-FTP	302
	Alternative FTP servers	302
	Installing WU-FTP	303
	Installing the binary RPM	304
	Installing and building the source RPM	304
	Installing and building the source distribution	304
	Installing the anonftp package	306
	Configuring the Server	307
	Configuring user and host access	308
	Configuring ftpd	310
	The enhanced /etc/ftpaccess file	320
	Administering WU-FTP with KWuFTPd	321
	Maintaining the Server	326
	Strengthening FTP Security	330
	Understanding and mitigating the risks	331
	Reconfiguring the system log	331
	Monitoring the server	334
	Summary	334
Chapter 14	Configuring Mail Services	335
	E-Mail Explained	335
	Mail User Agent (MUA)	336
	Mail Transfer Agent (MTA)	336
	Local Delivery Agent (LDA)	337
	Introducing SMTP	337
	Understanding POP3	338
	Understanding IMAP4	338
	Configuring Sendmail	339
	Checking that Sendmail is installed and running	339
	Configuring Sendmail	340
	The m4 Macro Processor	341
	Understanding and managing the mail queue	341
	Configuring POP3	342

	Configuring IMAP4	343
	Setting up aliases to make life easier	343
	Using other files and commands with Sendmail	345
	Configuring the E-Mail Client	346
	Configuring Netscape Messenger	346
	Filling Out the Messenger Forms	347
	Using Netscape Messenger	349
	Sending e-mail from the command line	351
	Reading mail with Mail	352
	Using Elm	354
	Creating mail aliases in elm	355
	Using Pine	355
	Working with Pine attachments	356
	Maintaining E-Mail Security	357
	Protecting against eavesdropping	357
	Using encryption	357
	Using a firewall	357
	Don't get bombed, spammed, or spoofed	358
	Be careful with SMTP	358
	Using Newsgroups	359
	Configuring the NNTP server	359
	Reading newsgroups in Pine	360
	Configuring Netscape for news	361
	Summary	364
Chapter 15	Configuring a Web Server	365
	Introducing Apache	365
	A short history of Apache	365
	Apache features	367
	Finding more information about Apache	369
	How Web Servers Work	370
	Installing Apache	371
	Installing the binary RPMs	371
	Installing and building the source RPMs	372
	Installing and building the source distribution	372
	Additional packages to install	375
	Configuring Apache	376
	Apache's startup process	376
	Configuring global Apache behavior	377
	Configuring the default server	380
	Configuring virtual servers	391
	Configuring Apache for SSI	392
	Enabling SSI	392
	Testing the configuration	393
	CGI Scripts	394
	Creating a Secure Server with SSL	396
	Generating the encryption key	397

Generating a self-signed certificate	398
Testing the self-signed certificate	399
Summary	400

Part IV Red Hat Linux System Maintenance

Chapter 16	Using the Red Hat Network	403
	Registering Your System	403
	Configuring the Red Hat Update Agent	407
	Using the Red Hat Update Agent	410
	Using the Red Hat Network via the Internet	413
	Red Hat Network Main page tab	414
	Your Network page tab	414
	Search Errata Alerts tab	417
	Preferences tab	417
	Help Desk tab	418
	Summary	418
Chapter 17	Upgrading and Customizing the Kernel	419
	Should You Upgrade to a New Kernel?	419
	Upgrading versus customizing	421
	Checking your current kernel version	421
	Building a New Kernel	423
	Obtaining the latest kernel version	424
	Patching the kernel	430
	Customizing the kernel	433
	Compiling and installing the new kernel	459
	Configuring GRUB	460
	Booting the custom kernel	460
	Summary	461
Chapter 18	Configuring the System on the Command Line	463
	Administering a System at the Command Line	463
	Administering Users and Groups	465
	Working with user accounts	465
	Working with group accounts	469
	Modifying multiple accounts simultaneously	470
	Viewing login and process information	471
	Managing the File System	472
	Creating and maintaining file systems	472
	Working with files and directories	478
	Managing disk space usage	481
	Administering Processes	484
	Obtaining process information	484
	Terminating processes	488
	Modifying process priorities	489
	Tracking and Controlling System Usage	490

	Maintaining the Date and Time	492
	Creating and Restoring Backups	497
	Summary	501
Chapter 19	Using Scripts to Automate Tasks	503
	Understanding Bash Programming	504
	Wildcards and special characters	504
	Using variables	508
	Bash operators	511
	Flow control	522
	Shell functions	530
	Processing input and output	532
	Working with command line arguments	537
	Using Processes and Job Control	538
	Creating Backups	543
	Automating Scripts	545
	Using at for one-shot jobs	545
	Using cron for regularly scheduled jobs	546
	Writing, Testing, and Debugging Scripts	548
	Selecting a Scripting Language	549
	Summary	550
Chapter 20	Performance Monitoring	551
	Diagnosing Performance Problems	552
	Overall System Status	553
	Monitoring Running Processes	556
	Monitoring Memory Utilization	558
	Monitoring Disk Usage and Performance	563
	Tracking CPU Usage	568
	Monitoring Network Traffic	572
	Summary	574
Chapter 21	Administering Users and Groups	575
	Understanding the Root Account	575
	Implementing Sudo	576
	Deciphering Sudo's configuration file	578
	Sudo configuration and usage tips	581
	Working With Users and Groups	581
	Understanding user private groups	582
	Adding, modifying, and deleting users	584
	Adding, modifying, and deleting groups	597
	Using the Red Hat User Manager	601
	Using File System Quotas	607
	Preparing the system for quotas	608
	Creating the quota files	608
	Enabling quotas	609

	Setting and modifying quotas	609
	Reviewing quota utilization	611
	Summary	613
Chapter 22	Backing up and Restoring the File System	615
	What Should Be Backed Up?	615
	Choosing Media for Backups	616
	Understanding Backup Methods	617
	Using Backup Tools	619
	Command line tools	619
	Advanced tools	627
	Summary	642
Chapter 23	Installing and Upgrading Software Packages	643
	Using the Red Hat Package Manager	643
	General options	644
	Query mode	645
	Package installation and removal	654
	Verifying RPMs	657
	Building RPMs	660
	RPM administrative commands	661
	Checking Software Versions	663
	Obtaining Newer Software	665
	Using rpmfind.org	666
	Using Freshmeat	667
	Using Ibiblio.org	668
	Using Gnome-RPM	669
	Additional software repositories	670
	Installing Software	671
	Installing software from source	671
	Building and installing source RPMs	677
	Using RPM with source tarballs	680
	Summary	681

Part V Security and Problem Solving

Chapter 24	Security Basics	685
	Introducing Basic Security Concepts	685
	Security as loss prevention	686
	Security: a distributed venture	688
	The fundamental mindset: shades of grey	689
	Understanding the enemy	690
	Developing a Security Policy	690
	Beware the security assertions ploy	691
	Creating the policy: a first iteration	692
	The policy itself	695

	Recovery plans	697
	Social engineering	699
	Finding Security-Related Resources	701
	Web sites	701
	Recommended reading	702
	Links	702
	Summary	703
Chapter 25	Implementing Local Security	705
	Exploring the Nature of Physical Security	706
	Building construction	707
	Boot security	708
	Maintaining User and Password Security	715
	Passwords: theory and practice	716
	Those pesky users	722
	Checking logs	723
	Securing File Integrity	725
	Using Tripwire	726
	Not for everybody, or every computer	726
	Setting up Tripwire	727
	Fine-tuning Tripwire	728
	Summary	730
Chapter 26	Firewalls and Internet Security	731
	Limiting Network Services	731
	What services are running?	732
	Stopping running services	736
	Monitoring network traffic	740
	A Firewall Primer	743
	Firewall policy	743
	Basic layout	745
	Designing the firewall	746
	Summary	748
Chapter 27	Detecting Intrusions	749
	Understanding Host-Based Intrusion Detection Software	749
	Using Tripwire	750
	Installing Tripwire	751
	Configuring Tripwire	751
	Running Tripwire	756
	Detecting intrusions using Tripwire	757
	Additional Tripwire resources	758
	Using LogWatch	758
	Detecting Intrusions with ipchains	762
	Detecting Intrusions with iptables	764
	Summary	765

Chapter 28	Troubleshooting and Problem Solving	767
	Solving Installation Problems	768
	Unable to log in after installation	768
	Installing Star Office	768
	Hardware-related installation problems	769
	Solving File System Problems	772
	Cannot delete a file	772
	Commands with multi-word arguments	773
	Accessing Windows file systems	774
	Working with floppy disks	774
	Cannot mount a partition	774
	Avoiding file system checks at each system reboot	775
	Getting a Zip drive to work	775
	Solving Networking Problems	776
	Getting online with a modem	777
	What to do when the boot process hangs	779
	Using two Ethernet cards	779
	Solving Boot Problems	780
	Solving Miscellaneous Problems	783
	Getting sound to work	783
	Using screensavers and power management	784
	Starting the X Window System	785
	Summary	785
	Appendix: What's on the CD-ROM?	787
	Index	791
	End-User License Agreement	847