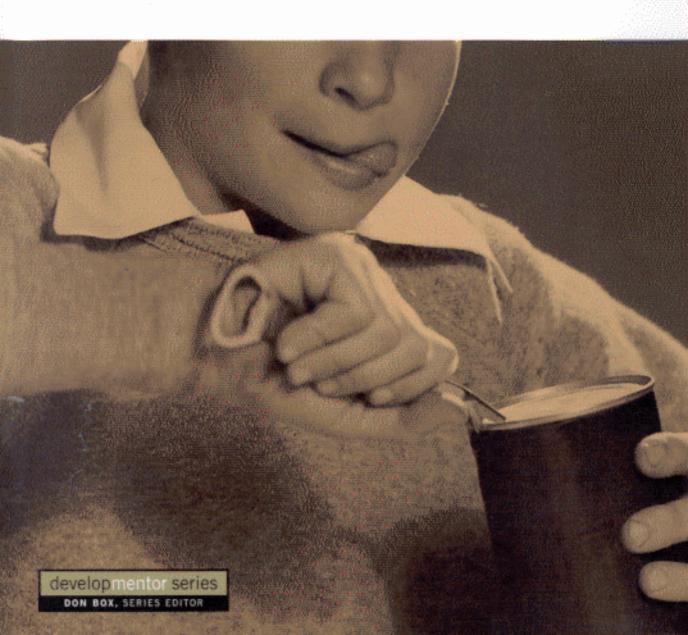
Programming Windows Security Keith Brown



Contents

Logon Session 999

Daemon Logon Sessions

Preface	xi
PART 1 * MODEL	1
1 The Players	3
Principals	3
Authorities	10
Machines as Principals	12
Authentication	12
Trust	18 24
Summary	
2 The Environment	27
Logon Sessions	28
Tokens	32 35
The System Logon Session Window Stations	35 37
Processes	41
Summary	42
3 Enforcement	45
Authorization	45
Discovering Authorization Attributes	51
Distributed Applications	52
Objects and Security Descriptors	54
Access Control Strategies	56
Choosing a Model	62
Caching Mechanisms	63
Summary	69
PART II * MECHANICS	71
4 Logon Sessions	73

76

80

	Network Logon Sessions	83
	Interactive Logon Sessions	84
	Network Credentials	86
	Tokens	86
	Memory Allocation and Error Handling Strategies	105
	Using Privileges	106
	Impersonation	112
	Restricting Authorization Attributes	128
	Terminating a Logon Session	133
	Summary	134
5	Window Stations and Profiles	137
	What Is a Window Station?	137
	Window Station Permissions	140
	Natural Window Station Allocation	142
	Daemons in the Lab	146
	Other Window Stations	147
	Exploring Window Stations	150
	Closing Window Station Handles	152
	Window Stations and Access Control	153
	Desktops	154
	Jobs, Revisited	164
	Processes	165
	Summary	177
6	Access Control and Accountability	179
	Permissions	180
	Anatomy of a Security Descriptor	184
	Where Do Security Descriptors Come From?	188
	Security Descriptor Usage Patterns	191
	How ACLs Work	194
	Security Descriptors and Built-in Objects	206
	Security Descriptors and Private Objects	208
	Hierarchical Object Models and ACL Inheritance	210
	ACL Programming	235
	Handles	247
	Summary	249
PART	III * DISTRIBUTION	253
7	Network Authentication	255
	The NTLM Authentication Protocol	256

	The Kerberos v5 Authentication Protocol	273
	SSPI	300
	SPNEGO: Simple and Protected Negotiation	306
	Summary	307
8	The File Server	309
	Lan Manager	309
	Lan Manager Sessions	310
	Clients and Sessions	315
	Use Records	318
	NULL Sessions	325
	Dealing with Conflict	327
	Drive Letter Mappings	328
	Named Pipes	329
	SMB Signing	333
	Summary	334
9	COM(+)	337
	The MSRPC Security Model	338
	The COM Security Model	355
	COM Interception	370
	Activation Requests	377
	More COM Interception: Access Control	383
	Plugging Obscure Security Holes	385
	Security in In-process Servers?	386
	Surrogates and Declarative Security	387
	COM Servers Packaged as Services	390
	Legacy Out-of-Process Servers	392
	Launching Servers via the COM SCM	394
	A Note on Choosing a Server Identity	399
	Access Checks in the Middle Tier	400
	The COM+ Security Model: Configured Components	401
	Catalog Settings	404
	Applications and Role-Based Security	407
	Making Sense of COM+ Access Checks	416
2	Which Components Need Role Assignments?	422
·	Security in COM+ Library Applications	423
	Fine-Grained Access Control: IsCallerInRole	426
	Call Context Tracking	428
	Tips for Debugging COM Security Problems	429
	Summary	432

10	115	435
	Authentication on the Web	436
	Public Key Cryptography	440
	Certificates	442
	Secure Sockets Layer	448
	Certificate Revocation	452
	From Theory to Practice: Obtaining and Installing	
	a Web Server Certificate	453
	Requiring HTTPS via the IIS Metabase	457
	Managing Web Applications	460
	Client Authentication	465
	Server Applications	475
	IIS as a Gateway into COM+	482
	Miscellaneous Topics	486
	Where to Get More Information	489
	Summary	490
	Appendix: Some Parting Words	493
	Well-Known SIDs	494
	Printing SIDs in Human Readable Form	495
	Adding Domain Principals in Windows 2000	498
	Adding Groups in Windows 2000	500
	Adding Local Accounts and Aliases	504
	Privileges and Logon Rights	505
	Secrets: The Windows Password Stash	507
	Glossary	517
	Bibliography	541
	Index	543