



Part of the five-volume
Networking Services Developer's Reference Library

Microsoft®

The essential reference set for developing with
Microsoft® Windows® networking technologies

David Iseminger

Series Editor

www.isevinger.com



Networking Services

**New Protocols
and Interfaces**

Surrogate University of Technology



31051000651100

BASED ON
msdn library

Contents

Acknowledgements	iii
------------------------	-----

Part 1

Chapter 1: Getting Around in the Networking Services Library	1
How the Networking Services Library Is Structured	2
How the Networking Services Library Is Designed	3
Chapter 2: What's In This Volume?	5
Domain Name System	6
Dynamic Host Configuration Protocol	6
Multicast Address Dynamic Client Allocation Protocol	6
Internet Authentication Service	6
NetBIOS	7
Synchronization Manager	7
System Event Notification Service	8
IP Helper	8
Simple Network Management Protocol	8
WinSNMP	8
Network Management	8
Chapter 3: Using Microsoft Reference Resources	9
The Microsoft Developer Network	10
Comparing MSDN with MSDN Online	11
MSDN Subscriptions	13
MSDN Library Subscription	13
MSDN Professional Subscription	14
MSDN Universal Subscription	14
Purchasing an MSDN Subscription	14
Using MSDN	15
Navigating MSDN	16
Quick Tips	18
Using MSDN Online	20
Navigating MSDN Online	22
MSDN Online Features	23

MSDN Online Registered Users	29
The Windows Programming Reference Series.....	30
Chapter 4: Finding the Developer Resources You Need.....	31
Developer Support	31
Online Resources.....	33
Internet Standards.....	34
Learning Products	35
Conferences.....	37
Other Resources	37
Chapter 5: Getting the Most Out of This Volume	39
DNS Resource Record (RR) Reference	39
SOA Resource Records.....	40
NS Resource Records	41
PTR Resource Records.....	41
A Resource Records.....	42
MX Resource Records.....	42
CNAME Resource Records	42
WINS Resource Records.....	43
WINS-R Resource Records.....	43
SRV Resource Records.....	44
Load Sharing Resource Records.....	45

Part 2

Chapter 6: Domain Name System (DNS).....	47
DNS Overview.....	47
DNS Standards Documents.....	48
DNS Reference	48
Chapter 7: Dynamic Host Configuration Protocol (DHCP).....	69
DHCP Overview	69
DHCP Standards.....	69
DHCP Examples	70
DHCP Functions	73
Chapter 8: Multicast Address Dynamic Client Allocation Protocol (MADCAP).....	81
MADCAP Overview.....	81
MADCAP Functions	81
MADCAP Structures	88

Chapter 9: Internet Authentication Service (IAS)	93
IAS Overview	93
Scope	93
Authentication and Accounting.....	94
Implementing DLLs to Extend IAS	95
Setting Up the Extension and Authorization DLLs	95
Authentication and Authorization Process	95
User Identification Attributes	99
RADIUS Accounting Packets	100
Working With a State Server.....	101
State Server Design Considerations	101
Using Internet Authentication Service	102
Internet Authentication Service Reference	106
Internet Authentication Service Functions.....	106
Internet Authentication Service Structures.....	110
Internet Authentication Service Enumerated Types.....	111
Chapter 10: The NetBIOS Interface	123
NetBIOS Interface Overview	123
NetBIOS Operation	124
NetBIOS LANA Numbers	125
NetBIOS Name Table.....	126
NetBIOS Session	127
NetBIOS Enhancements	127
NetBIOS Commands	128
Name Support	129
Session Support.....	130
Data-Transfer Support.....	132
Datagram Support.....	135
General Support	136
Extension Support.....	139
Using the NetBIOS Interface	141
Listing All NetBIOS Names on a LANA.....	141
Getting the MAC Address for an Ethernet Adapter	144
NetBIOS Reference.....	145
NetBIOS Functions.....	145
NetBIOS Structures.....	147

Chapter 11: Synchronization Manager	163
Synchronization Manager Overview	163
Mobile Computing Configurations.....	163
Application Scenarios	164
Synchronization Manager Architecture	164
Using Synchronization Manager from a Program.....	164
SyncMgr Reference	166
 Chapter 12: System Event Notification Service	 205
System Event Notification Service Overview	205
Mobile Computing Configurations for SENS.....	205
Application Scenarios for SENS	206
Notifications.....	206
SENS Architecture	206
SENS Reference.....	208
IsDestinationReachable	208
IsNetworkAlive	210
SENS Object.....	211
 Chapter 13: IP Helper	 233
IP Helper Overview	233
Retrieving Information About Network Configuration	233
Managing Network Adapters.....	234
Managing Interfaces	234
Managing IP Addresses.....	234
Using the Address Resolution Protocol	235
Retrieving Information on the Internet Protocol and the Internet Control Message Protocol	235
Managing Routing.....	236
Receiving Notification of Network Events	236
Retrieving Information About the Transmission Control Protocol and the User Datagram Protocol	236
IP Helper Function Reference.....	237
IP Helper Functions	237
Alphabetical Listing.....	237
Categorical Listing	238
IP Helper Structures.....	277

Chapter 14: Simple Network Management Protocol (SNMP)	283
New SNMP Programming Elements	283
About SNMP	285
How SNMP Works.....	285
The SNMP Management Information Base (MIB).....	285
MIB Name Tree	286
Relevant RFCs	286
System Files for SNMP	287
SNMP Utilities.....	288
Configuring the SNMP Service.....	288
Community Names.....	289
Host Names and IP Addresses	289
Configuring SNMP Security	289
Configuring SNMP Agent Information	289
SNMP Reference.....	289
SNMP Functions	289
SNMP Structures.....	336
 Chapter 15: The WinSNMP API	 343
New WinSNMP Programming Elements	344
About the WinSNMP API.....	344
About the WinSNMP 2.0 Addendum.....	345
About SNMP Versions.....	345
RFCs Relevant to WinSNMP	345
Software Requirements for the WinSNMP API	346
The WinSNMP Model.....	347
About the Microsoft WinSNMP Implementation	347
The WinSNMP Database	348
Levels of SNMP Support.....	348
WinSNMP Sessions	349
WinSNMP Data Management Concepts	349
Object Identifiers	349
WinSNMP Descriptors.....	349
Resource Handle Objects	350
C-Style Strings	350
Allocating WinSNMP Memory Objects.....	351
WinSNMP Communications Management Concepts.....	351
About SNMP Messages	351
About Traps and Notifications	352

About Retransmission	353
WinSNMP Programming Tasks	354
Opening and Closing a WinSNMP Application	355
Opening and Closing a WinSNMP Session	356
Managing Traps and Notifications	356
Multiple Trap Registrations	357
Working with Variable Binding Lists	358
Creating a Variable Binding List	358
Managing a Variable Binding List	358
Working with Protocol Data Units	359
Creating a PDU	359
Updating a PDU	360
Duplicating a PDU	360
Validating a PDU	360
Matching Response and Request PDUs	360
Sending SNMP Messages	361
Receiving SNMP Messages	361
General WinSNMP Programming Tasks	362
Managing Object Identifiers	362
Freeing WinSNMP Descriptors	362
Setting the Entity and Context Translation Mode	363
Managing the Retransmission Policy	365
Writing WinSNMP Applications with Multiple Threads	366
Registering an SNMP Agent Application	367
WinSNMP API Reference	367
WinSNMP Data Types	367
WinSNMP Error Codes	368
WinSNMP Common Error Codes	368
Network Transport Errors	369
WinSNMP Function Return Values	369
WinSNMP Functions	370
WinSNMP Structures	458
Chapter 16: Network Management	465
About Network Management	465
Network Management Function Groups	465
Access Functions	466
Alert Functions	467
ApiBuffer Functions	468

Audit Functions.....	469
Configuration Functions	469
Directory Service Functions	469
Distributed File System (Dfs) Functions.....	470
Error Logging Functions	472
Get Functions	472
Group Functions	473
Local Group Functions	474
Message Functions	475
NetFile Functions	476
NetService Functions	477
Remote Utility Functions	477
Schedule Functions.....	482
Server Functions	482
Server and Workstation Transport Functions	484
Session Functions	485
Share Functions	486
Statistics Functions	488
Use Functions	488
User Functions	489
User Modal Functions	491
Workstation and Workstation User Functions	492
Network Management Data.....	493
Network Management Function Buffers.....	493
Network Management Function Buffer Lengths.....	494
API Data Alignment.....	494
Embedded Strings.....	494
Enumeration Resume Handles	495
Function Status	495
NLS Support.....	495
Parameter Error Reporting.....	495
RPC Buffer Allocation Errors.....	495
Obsolete Information Fields	495
Platform Support	496
Windows 95/98 Support	496
Functions That Only Have Support for Remoting to LAN Manager 2.x.....	497
Requests from 16-bit LAN Manager Clients.....	497
Calling 16-bit LAN Manager Servers.....	498
Security Requirements for the Network Management Functions.....	498

Using Network Management.....	500
Looking Up a User's Full Name	500
Forcing a User to Change the Logon Password.....	501
Changing Elements of User Information.....	503
Creating a New Computer Account	507
Creating a Local Group and Adding a User.....	510
Determining the Validating Server on Windows 95/98	513
Looking Up Text for Error Code Numbers	520
Windows 95/98 Network Management Code Samples	523
NetConnectionEnum Sample (Windows 95/98)	523
NetFileEnum Sample (Windows 95/98).....	525
NetSecurityGetInfo Sample (Windows 95/98)	528
NetServerGetInfo Sample (Windows 95/98).....	529
NetSessionDel Sample (Windows 95/98).....	531
NetSessionEnum Sample (Windows 95/98).....	532
NetSessionGetInfo Sample (Windows 95/98)	535
NetShareAdd Sample (Windows 95/98).....	537
NetShareDel Sample (Windows 95/98)	538
NetShareEnum Sample (Windows 95/98).....	539
NetShareGetInfo Sample (Windows 95/98).....	541
NetShareSetInfo Sample (Windows 95/98).....	543
Chapter 17: Network Management Reference.....	547
Network Management Functions	547
Alert Functions	547
API Buffer Functions	547
Directory Service Functions	547
Distributed File System (Dfs) Functions	548
Get Functions.....	548
Group Functions	548
Local Group Functions.....	548
Message Functions	549
NetFile Functions	549
Remote Utility Functions	549
Replicator Functions	549
Schedule Functions	549
Server Functions	549
Server and Workstation Transport Functions	550
Session Functions.....	550

Share Functions	550
Statistics Function	550
Use Functions	550
User Functions	551
User Modals Functions.....	551
Workstation and Workstation User Functions	551
Access and Security Functions (Windows 95/98 only)	551
Obsolete Functions	551
Network Management Structures.....	552
Alert Structures.....	552
Distributed File System (Dfs) Structures	552
File Structures	552
Get Structures	552
Group Structures	552
Local Group Structures	553
Message Structures	553
Remote Utility Structure	553
Replicator Structures.....	553
Schedule Structures	553
Server Structures	554
Server and Workstation Transport Structures.....	554
Session Structures	554
Share Structures	554
Statistics Structures.....	555
Use Structures.....	555
User Structures	555
User Modals Structures.....	555
Workstation and Workstation User Structures	556
Windows 95/98 Structures	556
Network Management Macros	556
Mapping ADSI Interfaces to the Network Management Functions	556

Part 3

Index: Networking Services Programming Elements – Alphabetical Listing.....	559
---	-----