

Contents

1 Introduction

Audience	1-2
General Content	1-2

Introduction to the SNMP Reference Guide 1-2

How This Guide Defines Technical Terms	1-4
SNMP Basic Terminology	1-4
Frequently Used Terms in Variable Names	1-6
Tables	1-7
Reference Guide Content Tables	1-9
Section Organization	1-10
Other Documents You May Need	1-11

Introduction to the Server Administrator SNMP

Subagent 1-11

SNMP MIB OIDs	1-13
SNMP Security	1-14
Initiating Management Actions	1-14
SNMP Traps	1-14

2 Server Administrator MIB Group

MIB Major Version Number 2-2

MIB Minor Version Number 2-2

3 Systems Management Software Group

Systems Management Software	3-2
Systems Management Software Name	3-2
Systems Management Software Version Number Name	3-3
Systems Management Software Build Number	3-3
Systems Management Software Description Name	3-3
Systems Management Software Supported Protocol	3-3
Systems Management Software Preferred Protocol	3-4
Systems Management Software Update Level Name	3-4
Systems Management Software URL Name	3-4
Systems Management Software Language Name	3-4
Systems Management Software Global Version Name	3-5
Systems Management Software Variable Values	3-5

4 System State Group

System State Table	4-2
-------------------------------------	------------

5 Chassis Information Group

Chassis Information Group Tables	5-2
Chassis Information Table	5-2
UUID Table	5-14
POST Log Table	5-15
Event Log Table	5-17
System BIOS Table	5-20
Firmware Table	5-23
Intrusion Table	5-26
Base Board Table	5-29
Chassis Information Group Variable Values	5-33

6 Operating System Group

Operating System Table	6-2
Operating System Table Entry	6-2
Operating System State Capabilities	6-2
Operating System State Settings	6-3
Operating System Status	6-3
Operating System Is Primary	6-3
Operating System Name	6-4
Operating System Version Name	6-4
Operating System Memory Table	6-4
Operating System Memory Table Entry	6-5
Operating System Memory Chassis Index	6-5
Operating System Memory State Capabilities	6-5
Operating System Memory State Settings	6-5
Operating System Memory Status	6-6
Operating System Available Physical Size	6-6
Operating System Memory Total Page File Size	6-6
Operating System Memory Available Page File Size	6-7
Operating System Memory Total Virtual Size	6-7
Operating System Memory Total Virtual Size	6-7

7 System Resource Group

System Resource Group Tables	7-2
System Resource Map Table	7-2
System Resource Map Table Entry	7-3
System Resource Map Chassis Index	7-3
System Resource Map Index	7-3
System Resource Map State Capabilities	7-4
System Resource Map State Settings	7-4
System Resource Map Status	7-4
System Resource Map Type	7-4

System Resource Owner Table	7-5
System Resource Owner Table Entry	7-5
System Resource Owner Chassis Index	7-5
System Resource Owner Index	7-5
System Resource Owner State Capabilities	7-6
System Resource Owner State Settings	7-6
System Resource Owner Status	7-6
System Resource Owner Interface Type	7-6
System Resource Map Index Reference	7-7
System Resource Owner Description Name	7-7
System Resource Owner Interface Instance	7-7
System Resource Input/Output (I/O) Port Table	7-7
System Resource IO Port Table Entry	7-8
System Resource I/O Port Chassis Index	7-8
System Resource I/O Port Index	7-8
System Resource I/O Port State Capabilities	7-8
System Resource I/O Port State Settings	7-9
System Resource I/O Port Status	7-9
System Resource I/O Port Owner Index Reference	7-9
System Resource I/O Port Share Disposition	7-9
System Resource I/O Port Starting Address	7-10
System Resource I/O Port Ending Address	7-10
System Resource Memory Table	7-10
System Resource Memory Table Entry	7-11
System Resource Memory Chassis Index	7-11
System Resource Memory Index	7-11
System Resource Memory State Capabilities	7-11
System Resource Memory State Settings	7-12
System Resource Memory Status	7-12
System Resource Memory Owner Index Reference	7-12
System Resource Memory Share Disposition	7-12
System Resource Memory Starting Address	7-13
System Resource Memory Ending Address	7-13
System Resource Memory Flags	7-13

System Resource Interrupt Table	7-13
System Resource Interrupt Table Entry	7-14
System Resource Interrupt Chassis Index	7-14
System Resource Interrupt Index	7-14
System Resource Interrupt State Capabilities	7-14
System Resource Interrupt State Settings	7-15
System Resource Interrupt Status	7-15
System Resource Interrupt Owner Index Reference.	7-15
System Resource Interrupt Owner Share Disposition	7-15
System Resource Interrupt Level	7-16
System Resource Interrupt Type	7-16
System Resource Interrupt Trigger.	7-16
System Resource Direct Memory Access (DMA) Table	7-16
System Resource DMA Table Entry	7-17
System Resource DMA Chassis Index	7-17
System Resource DMA Index	7-17
System Resource DMA State Capabilities	7-18
System Resource DMA State Settings	7-18
System Resource DMA Status	7-18
System Resource DMA Owner Index Reference.	7-18
System Resource DMA Share Disposition	7-19
System Resource DMA Maximum Transfer Size	7-19
System Resource DMA Transfer Width.	7-19
System Resource DMA Bus Master	7-19
System Resource Group Variable Values	7-20

8 Power Group

Power Group Tables	8-2
Power Unit Table	8-2
Power Supply Table	8-4
Voltage Probe Table	8-7
Amperage Probe Table.	8-12

AC Power Switch Table	8-16
AC Power Cord Table	8-18

Power Group Variable Values 8-21

9 Thermal Group

Thermal Group Tables 9-2

Cooling Unit Table	9-2
Cooling Device Table	9-4
Temperature Probe Table	9-9

Thermal Group Variable Values 9-14

10 User Security Group

User Security Table 10-2

User Security Table Entry	10-2
User Security Chassis Index	10-2
User Security Index	10-3
User Security User Name	10-3
User Security Control Name	10-3
User Security Request Name	10-3

11 Remote Flash BIOS Group

Remote Flash BIOS Table 11-2

Remote Flash BIOS Table Entry	11-2
Remote Flash BIOS Chassis Index	11-2
Remote Flash BIOS Index	11-3
Remote Flash BIOS State Capabilities Unique	11-3
Remote Flash BIOS State Settings Unique	11-3
Remote Flash BIOS Status	11-3

Remote Flash BIOS Last BIOS Date Name	11-4
Remote Flash BIOS Completion Code	11-4
Remote Flash BIOS Minimum Contiguous Memory	11-4
Remote Flash BIOS Variable Values	11-5

12 Port Group

Port Group Tables	12-2
Pointing Port Table	12-2
Keyboard Port Table	12-5
Processor Port Table.	12-8
Memory Device Port Table.	12-10
Monitor Port Table	12-13
Parallel Port Table.	12-19
Serial Port Table	12-23
Universal Serial Bus (USB) Port Table	12-26
Port Group Variable Values	12-29

13 Device Group

Device Tables	13-2
Pointing Device Table	13-2
Keyboard Device Table.	13-5
Processor Device Table.	13-7
Cache Device Table	13-12
Memory Device Table	13-17
Memory Device Mapped Address Table	13-23
Generic Device Table.	13-26
PCI Device Table	13-29
PCI Device Configuration Space Table	13-32
Device Group Variable Values.	13-35

14 Slot Group

System Slot Table	14-2
System Slot Table Entry	14-2
System Slot Chassis Index	14-2
System Slot Index	14-3
System Slot State Capabilities Unique	14-3
System Slot State Settings Unique	14-3
System Slot Status	14-3
System Slot Current Usage	14-4
System Slot Type	14-4
System Slot External Slot Name	14-4
System Slot Length	14-4
System Slot ID	14-5
System Slot Category	14-5
System Slot Hot-Plug Bus Width	14-5
System Slot Hot-Plug Slot Speed	14-5
System Slot Hot-Plug Adapter Speed	14-6
System Slot Variable Values	14-6

15 Memory Group

Physical Memory Tables	15-2
Physical Memory Array	15-2
Physical Memory Array Mapped	15-7
Physical Memory Array Mapped Table	15-7
Physical Memory Configuration	15-10
Physical Memory Logging	15-12
Physical Memory Logging Table	15-12
Redundant Memory Unit	15-14
Memory Group Variable Values	15-16

16 BIOS Setup Control Group

BIOS Group Tables	16-2
BIOS Setup Control Table	16-2
SCSI Control Table	16-12
Parallel Port Control Table	16-14
Serial Port Control Table	16-16
USB Control Table	16-18
IDE Control Table	16-20
Diskette Control Table	16-22
Network Interface Control Table	16-24
BIOS Group Variable Values	16-26

17 Local Response Agent Group

LRA Group Tables	17-2
LRA Global Settings	17-2
LRA Global Settings Table	17-2
LRA Action Table	17-5
Local Response Agent Variable Values	17-7

18 Cost of Ownership Group

Cost of Ownership Tables	18-2
Cost of Ownership Table	18-2
COO Service Contract Table	18-13
COO Cost Event Log Table	18-15
COO Warranty Table	18-17
COO Lease Information Table	18-19
COO Schedule Number Table	18-22
COO Options Table	18-23
COO Maintenance Table	18-25

C00 Repair Table	18-27
C00 Support Information Table	18-29
C00 Trouble Ticket Table	18-31

Cost of Ownership Variable Values 18-33

19 Remote Access Group

Remote Access Tables 19-2

Remote Access Table	19-2
Remote User Administration Table	19-11
Remote SNMP Trap Table	19-19
Remote Dial-Up Table	19-23
Remote User Dial-In Configuration Table	19-27
Remote Dial-Out Table	19-30

Remote Access Variable Values 19-33

20 Cluster Group

Cluster Group 20-2

Cluster Table	20-2
-------------------------	------

Cluster Group Variable Values 20-5

21 Traps

Trap Variables 21-2

System	21-2
Table Index OID	21-3
Message	21-3
Current Status	21-3
Previous Status	21-3
Data	21-4

Understanding the Trap Description 21-4

Understanding Trap Severity	21-6
Server Administrator SNMP Traps	21-6
Miscellaneous Traps	21-6
Temperature Probe Traps	21-7
Cooling Device Traps	21-9
Voltage Probe Traps	21-11
Amperage Probe Traps	21-13
Chassis Intrusion Traps	21-15
Redundancy Unit Traps	21-16
Power Supply Traps	21-18
Memory Device Traps	21-19
Fan Enclosure Traps	21-20
AC Power Cord Traps	21-21
Hardware Log Traps	21-22

A Standard Data Type Definitions

Common Data Types	A-2
Variables with Data Types of State Capabilities and State Capabilities Unique	A-2
Dell Status Data Types	A-4
Dell Date	A-6
Full Dates	A-6

B SNMP Sample Output

Tables

Table 1-1.	Content of the Sections in This Guide	1-2
Table 1-2.	Where to Find Definitions for Technical Terms	1-4
Table 1-3.	Example Variable Type Definition Table	1-9

Table 3-1.	Systems Management Software Supported Standards	3-5
Table 5-1.	Log Format	5-33
Table 5-2.	Chassis Type.	5-34
Table 5-3.	Connection Status	5-35
Table 5-4.	Fan Control Capabilities	5-35
Table 5-5.	Front Panel LED Control Capabilities	5-35
Table 5-6.	Front Panel LED Control Settings	5-36
Table 5-7.	Hard Drive Fault LED Control Capabilities	5-36
Table 5-8.	Hard Drive Fault LED Control Settings	5-36
Table 5-9.	Chassis Identification Control Capabilities	5-37
Table 5-10.	Chassis Identification Control Settings.	5-37
Table 5-11.	Host Control Capabilities	5-38
Table 5-12.	Host Control Settings	5-39
Table 5-13.	Watchdog Control Capabilities.	5-39
Table 5-14.	Watchdog Control Settings	5-40
Table 5-15.	Watchdog Timer Capabilities	5-40
Table 5-16.	Power Button Control Capabilities	5-41
Table 5-17.	Power Button Control Settings.	5-41
Table 5-18.	Chassis System Class	5-41
Table 5-19.	Base Board Type.	5-42
Table 5-20.	Base Board Feature Flags	5-43
Table 7-1.	System Resource Map Type	7-20
Table 7-2.	Resource Owner Interface Type	7-20
Table 7-3.	Resource Share Disposition	7-21
Table 7-4.	Resource Memory Flags	7-21
Table 7-5.	Resource Interrupt Type	7-21
Table 7-6.	Resource Interrupt Trigger.	7-22
Table 7-7.	Resource DMA Bus Master	7-22
Table 7-8.	Resource Direct Memory Access (DMA) Transfer Width	7-22

Table 8-1.	Power Supply State Capabilities Unique	8-21
Table 8-2.	Power Supply State Settings Unique	8-21
Table 8-3.	Power Supply Type Definitions	8-22
Table 8-4.	Voltage Probe Type	8-23
Table 8-5.	Amperage Probe Definitions	8-24
Table 8-6.	AC Power Switch Capabilities.	8-25
Table 8-7.	AC Power Switch Settings	8-25
Table 8-8.	AC Power Switch Redundancy Mode	8-25
Table 8-9.	AC Power Cord State Capabilities.	8-26
Table 8-10.	AC Power Cord State Settings	8-26
Table 9-1.	Cooling Device Type.	9-14
Table 9-2.	Cooling Device Subtype	9-15
Table 9-3.	Temperature Probe Type	9-15
Table 11-1.	Remote Flash BIOS State Capabilities Unique	11-5
Table 11-2.	Remote Flash BIOS State Settings	11-5
Table 11-3.	Remote Flash BIOS Completion Code	11-6
Table 12-1.	Pointing Port Connector Type	12-29
Table 12-2.	Keyboard Port Connector Types.	12-30
Table 12-3.	Processor Port Connector Types.	12-31
Table 12-4.	Memory Device Port Connector Types.	12-32
Table 12-5.	Monitor Port Connector Types	12-33
Table 12-6.	SCSI Port Connector Types	12-33
Table 13-1.	Pointing Device Type	13-35
Table 13-2.	Processor Device Status State.	13-36
Table 13-3.	Processor Device Type	13-36
Table 13-4.	Processor Upgrade Information.	13-36
Table 13-5.	Processor Device Family	13-37
Table 13-6.	Cache Device Type	13-38
Table 13-7.	Cache Device Level	13-39
Table 13-8.	Cache Device Write Policy	13-39
Table 13-9.	Cache Device Status State	13-39

Table 13-10.	Cache Device ECC Type	13-40
Table 13-11.	Cache Device Associativity	13-40
Table 13-12.	Cache Device Location	13-41
Table 13-13.	Cache Device Static Random-Access Memory (SRAM) Type	13-41
Table 13-14.	Memory Device Type Form Factor	13-41
Table 13-15.	Memory Device Type	13-42
Table 13-16.	Memory Device Type Details	13-43
Table 13-17.	Generic Device Type	13-44
Table 13-18.	MemoryDeviceFailureModes	13-44
Table 14-1.	System Slot State Capabilities	14-6
Table 14-2.	System Slot State Settings	14-7
Table 14-3.	System Slot Type	14-9
Table 14-4.	System Slot Usage	14-10
Table 14-5.	System Slot Length	14-10
Table 14-6.	System Slot Category	14-11
Table 14-7.	Hot-Plug Bus Width	14-11
Table 15-1.	Physical Memory Array Location	15-16
Table 15-2.	Physical Memory Array ECC Type Definitions	15-17
Table 15-3.	Physical Memory Configuration State Capabilities	15-18
Table 15-4.	Physical Memory Configuration State Settings	15-18
Table 15-5.	Physical MemoryConfiguration Redundant Capabilities	15-18
Table 15-6.	Physical Memory Configuration Redundant Settings	15-19
Table 15-7.	Physical Memory Logging Capabilities	15-19
Table 15-8.	Physical Memory Logging Settings	15-19
Table 16-1.	Speaker Control Capabilities Unique	16-26
Table 16-2.	Speaker Control Settings Unique	16-27
Table 16-3.	Network Interface (NIF) Wakeup on LAN Capabilities Unique	16-27

Table 16-4.	NIF Wakeup on LAN Control Settings Unique	16-28
Table 16-5.	Boot Sequence Control Capabilities Unique	16-28
Table 16-6.	Boot Sequence Control Settings Unique	16-29
Table 16-7.	BIOS Password Control Capabilities	16-29
Table 16-8.	BIOS Password Control Settings Unique	16-29
Table 16-9.	BIOS Password Control Settings	16-30
Table 16-10.	Parallel Port Control Capabilities.	16-30
Table 16-11.	Parallel Port Control Settings.	16-31
Table 16-12.	Parallel Port Control Mode Settings	16-31
Table 16-13.	Serial Port Control Capabilities.	16-32
Table 16-14.	Serial Port Control Settings.	16-33
Table 16-15.	IDE Control Capabilities	16-33
Table 16-16.	Diskette Control Settings	16-34
Table 16-17.	Network Interface Control Capabilities	16-34
Table 16-18.	Network Interface Control Settings	16-34
Table 17-1.	LRA Capabilities Definitions	17-7
Table 17-2.	LRA Thermal Shutdown Capabilities Unique	17-8
Table 17-3.	Local Response Agent Settings Unique	17-9
Table 18-1.	C00 Codes	18-33
Table 18-2.	C00 Hour Day Duration Type	18-34
Table 19-1.	Remote Access Type	19-33
Table 19-2.	Remote Access Control Capabilities.	19-34
Table 19-3.	Remote Access Control Settings.	19-35
Table 19-4.	Remote Access Monitor Capabilities	19-35
Table 19-5.	Remote Access Monitor Settings	19-36
Table 19-6.	Remote Access Local Area Network (LAN) Capabilities	19-36
Table 19-7.	Remote Access LAN Settings	19-37

Table 19-8.	Remote Access Host Capabilities	19-37
Table 19-9.	Remote Access Host Settings	19-38
Table 19-10.	Remote Access Out-Of-Band Simple Network Management Protocol (SNMP) Capabilities	19-38
Table 19-11.	Remote Access Out-Of-Band Simple Network Management Protocol (SNMP) Settings	19-39
Table 19-12.	Remote User Admin State Capabilities.	19-39
Table 19-13.	Remote User Admin State Settings	19-40
Table 19-14.	Remote User Admin Control Capabilities	19-40
Table 19-15.	Remote User Admin Control Settings	19-41
Table 19-16.	Remote User Admin Alpha Protocol Type	19-41
Table 19-17.	Remote User Admin Alpha Baud Type	19-42
Table 19-18.	Remote SNMP Trap State Capabilities	19-42
Table 19-19.	Remote SNMP Trap State Settings	19-43
Table 19-20.	Remote SNMP Trap Control Capabilities	19-43
Table 19-21.	Remote SNMP Trap Control Settings	19-43
Table 19-22.	Remote Dial-Up State Capabilities.	19-44
Table 19-23.	Remote Dial-Up State Settings	19-45
Table 19-24.	Remote Dial-Up Modem Dial Type	19-45
Table 19-25.	Remote User Dial-In State Capabilities	19-46
Table 19-26.	Remote User Dial-In State Settings	19-46
Table 19-27.	Remote Dial-Out State Capabilities	19-47
Table 19-28.	Remote Dial-Out State Settings	19-48
Table 20-1.	Cluster Type	20-5
Table 21-1.	Trap Description Reference	21-4
Table 21-2.	Miscellaneous Traps	21-7
Table 21-3.	Temperature Probe Traps	21-8
Table 21-4.	Cooling Device Traps.	21-9
Table 21-5.	Voltage Probe Traps.	21-11

Table 21-6.	Amperage Probe Traps	21-13
Table 21-7.	Chassis Intrusion Traps	21-15
Table 21-8.	Redundancy Unit Traps	21-16
Table 21-9.	Power Supply Traps.	21-18
Table 21-10.	Memory Device Messages.	21-19
Table 21-11.	Fan Enclosure Traps	21-20
Table 21-12.	AC Power Cord Traps.	21-21
Table 21-13.	Hardware Log Traps	21-22
Table A-1.	Common Data Types	A-2
Table A-2.	Dell State Capabilities	A-3
Table A-3.	Dell State Settings	A-3
Table A-4.	Dell Probe Capabilities	A-4
Table A-5.	Dell Status	A-4
Table A-6.	Dell Status Redundancy.	A-5
Table A-7.	Dell Status Probe.	A-5

