Dell OpenManage™

Server Administrator

CIM Reference Guide

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Notes and Notices

NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

January 2005

Contents

1 Introduction

2 CIM_PhysicalElement

3 CIM_LogicalElement

5 CIM_Dependency

Tables

Figures

1

Introduction

This reference guide documents the Dell OpenManage™ Server Administrator Common Information Model (CIM) provider contained in the Management Object File (MOF) **dccim32.mof**.

CIM provides a conceptual model for describing manageable objects in a systems management environment. CIM is a modeling tool rather than a programming language. CIM provides the structure for organizing objects into a model of a managed environment. For modeling a managed environment, CIM makes available a set of abstract and concrete classes of objects. These classes model the basic characteristics of systems, networks, and applications, as well as groupings of management-related data.

For more information about CIM, see the Distributed Management Task Force (DMTF) website at **www.dmtf.org** and the Microsoft® website at **www.microsoft.com**.

Server Administrator

Server Administrator 1.0 or later provides a suite of systems management information for keeping track of your networked systems. In addition to providing systems management agents that are independent of the management console, Server Administrator supports these systems management standards: CIM and Simple Network Management Protocol (SNMP).

In addition to supporting systems management industry standards, Server Administrator provides additional systems management information about the specific components of your Dell™ system.

Documenting CIM Classes and Their Properties

The Dell CIM provider extends support to Dell-specific software and hardware components. The Dell MOF defines the classes for the Dell CIM provider. All of the supported classes and properties in the MOF are documented in this guide.

The following subsections define some of the basic building blocks of CIM classes that are used in describing the dccim32 provider name. These subsections also explain how the elements used in describing these classes are organized. This section does not document the entire CIM schema, but only those classes and properties supported by the dccim32 provider. The list of properties for each supported class varies greatly.

Base Classes

The classes listed in the Server Administrator CIM provider class hierarchy do not have a parent property. These base classes do not derive from another class. The base classes are:

- CIM_ManagedSystemElement
- CIM_Dependency
- DELL_Esm Log
- DELL_PostLog
- DELL_CMApplication
- DELL_CMDevice
- DELL_CMDeviceApplications
- DELL_CMInventory
- DELL_CMOS
- DELL_CMProductInfo

The CIM_ManagedSystemElement class is the base class for the system element hierarchy from which all other CIM classes are derived. As a result, CIM_ManagedSystemElement has no parent. Examples of managed system elements include software components such as files, devices such as hard drives and controllers, and physical subcomponents of devices such as chip sets and cards. For the CIM_ManagedSystemElement properties, see **Caption**, **CreationClassName**, **Description**, **Name**, and **Status** in Table 1-2, "Common Properties of Classes."

The Dell-defined classes are not defined in the official schema by the DMTF, the industry group that defines the standards for CIM, and hence do not have parent classes. CIM_Dependency does not have a parent class because it is a relationship or association between two managed system elements.

Parent Classes

Most classes in the dccim32 provider document both a **Class Name** and a **Parent Class** property. The parent class is the class from which any given class inherits its core properties. For example, the CIM_Controller class has the CIM_LogicalDevice class as its parent, and has various types of controllers (CIM_ParallelController, CIM_SerialController) as its children.

Classes That Describe Relationships

Classes that derive from CIM_Dependency have CIM_Dependency as their parent class, but they are documented in terms of *antecedent* and *dependent* elements in a relationship rather than in terms of common properties. Consider the following relationship between two CIM_ManagedSystemElements:

Antecedent	CIM_PackageCurrentSensor
Dependent	CIM_PhysicalPackage

The CIM_PackageCurrentSensor monitors an entire physical package, such as all the components contained in a given system chassis. The CIM_PhysicalPackage is dependent on the CIM_PackageCurrentSensor for this monitoring function.

Dell-defined Classes

Server Administrator has extended some CIM classes and has created new classes to assist in managing systems and their components. In the diagrams that appear in the documentation for each class, those classes created and populated by Dell are designated by the gold (lighter gray) triangle ▶ icon.

Typographical Conventions

The following example shows how most of the classes in the Dell CIM provider are documented. Table 1-1 shows a partial class description for the DELL_DMA class. (For a full class description, see Table 3-37, "CIM_DMA Properties.")

Class Name appears in `Courier` typeface and provides the string that names the class in the MOF.

Parent Class appears in `Courier` typeface and provides the name of the class from which the present class is derived.

Property denotes the name of the attribute that is being defined for this class.

Description includes text that defines the property.

Data Type stipulates the format that the values of this property must take. Common data types include Boolean, string, and various types of integer. Boolean indicates that the property must be expressed as one of two alternatives.

Table 1-1. CIM_DMA Properties

Class Name:	`CIM_DMA`	
Parent Class:	`CIM_SystemResource`	
Property	**Description**	**Data Type**
DMAChannel	A part of the object’s key value, the DMA channel number.	uint32
Availability	Availability of the DMA. **Availability** values are defined as follows: **1** Other **2** Unknown **3** Available **4** In Use/Not Available **5** In Use and Available/Shareable	uint16

Common Properties of Classes

Many classes have properties such as **Caption**, **Description**, and **CreationClassName**. Table 1-2 defines properties that have the same meaning in every class that has this property and are defined more than once in this guide.

Table 1-2. Common Properties of Classes

Property	Description	Data Type
Caption	Describes the object using a short textual description (one-line string).	string
CreationClassName	Indicates the name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified.	string
CSCreationClassName	Indicates the computer system's creation class name.	string
CSName	Indicates the computer system's name.	string
CurrentReading	Indicates the actual current value indicated by the sensor in amperes.	sint32
Description	Provides a textual description of the object.	string
LowerThresholdNonCritical	If current reading is between lower threshold noncritical and upper threshold noncritical, the current state is normal. See Figure 3-2.	sint32
LowerThresholdCritical	If the current reading is between upper threshold critical and upper threshold fatal, the current state is critical. See Figure 3-2.	sint32
IsLinear	Indicates that the sensor is linear over its dynamic range.	Boolean
Manufacturer	Provides the name of the organization responsible for producing the CIM_PhysicalElement or CIM_SoftwareElement. This may be the entity from whom the element is purchased, but not necessarily. Purchase information is contained in the **Vendor** property of CIM_Product.	string
Name	Defines the label by which the object is known. When subclassed, the **Name** property can be overridden to be a **Key** property.	string

Table 1-2. Common Properties of Classes *(continued)*

Property	Description	Data Type
Status	Provides a string indicating how well the component is functioning—comparable to "health." Status values for operational and nonoperational conditions include: **Operational Status Values:** **OK** indicates that the object is functioning normally. **Degraded** means that the item is functioning, but not optimally. **Stressed** indicates that the element is functioning, but needs attention. Examples of **Stressed** states are overloaded, overheated, and so on. **Nonoperational Status Values:** **Non-recover** means that a nonrecoverable error has occurred. **Error** means that an element has encountered an operational condition that is severe as compared to its normal mode of operation.	string
SystemCreationClassName	Indicates the system's creation class name.	string
UnitModifier	Provides the unit multiplier for the values returned by this sensor. All the values returned by this sensor are represented in units of 10 raised to the power of the unit modifier. If the unit modifier is –6, then the units of the values returned are microvolts. The units apply to all numeric properties of the sensor, unless explicitly overridden by the units' qualifier.	sint32
UpperThresholdCritical	If the current reading is between upper threshold critical and upper threshold fatal, the current status is critical. See Figure 3-2.	sint32
UpperThresholdNonCritical	If the current reading is between lower threshold noncritical and lower threshold critical, the current status is noncritical. See Figure 3-2.	sint32
Version	Version should be in the form *<major>.<minor>.<revision>* or *<major>.<minor><letter><revision>*; for example, 1.2.3 or 1.2a3.	string

Other Documents You May Need

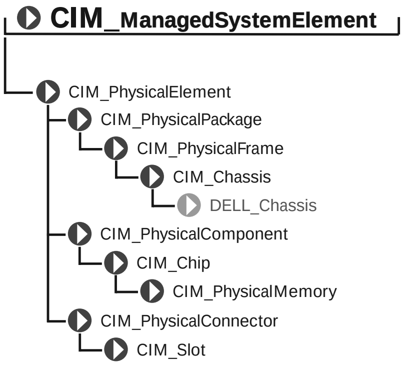
Besides this *Dell OpenManage Server Administrator CIM Reference Guide*, you can find the following guides either on the Dell Support website at **support.dell.com** or on the documentation CD:

- *Server Administrator Online Help* is context-sensitive help that you can access while running Server Administrator. Help screens provide step-by-step instructions on how to perform systems management tasks using Server Administrator.
- *Dell OpenManage Server Administrator User's Guide* documents the features, installation, and uninstallation of Server Administrator.
- *Dell OpenManage Installation and Security User's Guide* provides complete information on installation procedures and step-by-step instructions for installing, upgrading, and uninstalling Server Administrator for each operating system.
- *Dell OpenManage Server Administrator Command Line Interface User's Guide* explains how to perform tasks using the text-based command line interface.
- *Dell OpenManage Server Administrator Messages Reference Guide* lists the messages that you can receive on your systems management console or on your operating system's event viewer. This guide explains the text, severity, and cause of each message that the Server Administrator issues.
- *Dell OpenManage Server Administrator SNMP Reference Guide* documents the SNMP management information base (MIB). The SNMP MIB defines variables that cover the capabilities of Server Administrator systems management agents.

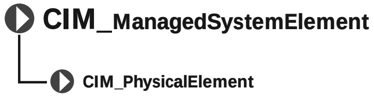
CIM_PhysicalElement

CIM_PhysicalElement is a CIM-defined class. The CIM_PhysicalElement class contains the subclasses shown in Figure 2-1.

Figure 2-1. CIM_PhysicalElement Class Structure



CIM_PhysicalElement

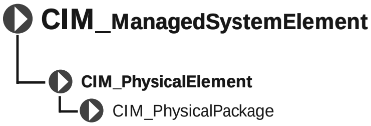


Subclasses of the CIM_PhysicalElement class listed in Table 2-1 define any component of a system that has a distinct physical identity. Physical elements are tangible managed system elements (usually actual hardware items) that have a physical manifestation of some sort. By contrast, processes, files, and logical devices are not classified as physical elements. A managed system element is not necessarily a discrete component. A single card (which is a type of physical element) can host more than one logical device. One card, for example, could implement both a modem and a local area network (LAN) adapter. In this case, the card would be represented by a single physical element associated with multiple logical devices.

Table 2-1. CIM_PhysicalElement Properties

Class Name:	`CIM_PhysicalElement`	
Parent Class:	`CIM_ManagedSystemElement`	
Property	**Description**	**Data Type**
CreationClassName	See Table 1-2, “Common Properties of Classes.”	
Manufacturer	See Table 1-2, “Common Properties of Classes.”	
Model	The name by which the physical element is generally known.	string
SerialNumber	A manufacturer-allocated number used to identify the physical element.	string
Tag	Uniquely identifies the physical element and serves as the element’s key. The **Tag** property can contain information such as asset tag or serial number data. The key for physical element is placed very high in the object hierarchy in order to identify the hardware/entity independently, regardless of physical placement in or on cabinets, adapters, and so on. For example, a hot-swappable or removable component can be taken from its containing (scoping) package and temporarily unused. The object still continues to exist and may even be inserted into a different scoping container. Therefore, the key for physical element is an arbitrary string that is defined independently of any placement or location-oriented hierarchy.	string

CIM_PhysicalPackage

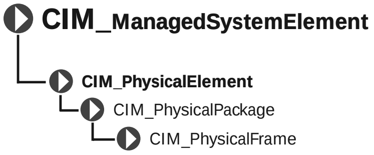


The CIM_PhysicalPackage class listed in Table 2-2 represents physical elements that contain or host other components. Examples are a rack enclosure or an adapter card with multiple functions.

Table 2-2. CIM_PhysicalPackage Properties

Class Name:	CIM_PhysicalPackage	
Parent Class:	CIM_PhysicalElement	
Property	**Description**	**Data Type**
Removable	A CIM_PhysicalPackage is removable if it is designed to be taken in and out of the physical container in which it is normally found without impairing the function of the overall package.	Boolean
Replaceable	A CIM_PhysicalPackage is replaceable if it is possible to substitute a physically different element for the original element, as in a field replaceable unit (FRU). For example, some computer systems allow the microprocessor to be upgraded to one of a higher clock rating. In this case, the microprocessor is said to be replaceable.	Boolean

CIM_PhysicalFrame



The CIM_PhysicalFrame class described in Table 2-3 contains other frame enclosures such as racks and chassis. Properties like **VisibleAlarm** or **AudibleAlarm**, and data related to security breaches are also members of this class.

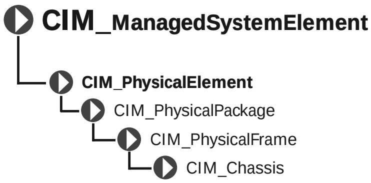
Table 2-3. CIM_Physical Frame Properties

Class Name:	CIM_PhysicalFrame	
Parent Class:	CIM_PhysicalPackage	
Property	**Description**	**Data Type**
LockPresent	Indicates whether the frame is protected with a lock.	Boolean
AudibleAlarm	Indicates whether the frame is equipped with an audible alarm.	Boolean
VisibleAlarm	Indicates that the equipment includes a visible alarm.	Boolean

Table 2-3. CIM_Physical Frame Properties *(continued)*

Class Name:	`CIM_PhysicalFrame`	
Parent Class:	`CIM_PhysicalPackage`	
Property	**Description**	**Data Type**
SecurityBreach	An enumerated, integer-valued property indicating that a physical breach of the frame is in progress. Values for the **SecurityBreach** property are as follows: **1** Other **2** Unknown **3** No breach **4** Breach attempted **5** Breach successful	uint16
IsLocked	Indicates that the frame is currently locked.	Boolean

CIM_Chassis

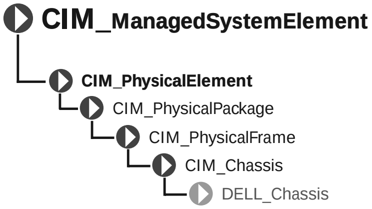


The CIM_Chassis class described in Table 2-4 represents the physical elements that enclose physical elements such as power supplies, fans, and processors.

Table 2-4. CIM_Chassis Parent Properties

Class Name:	`CIM_Chassis`	
Parent Class:	`CIM_PhysicalFrame`	
Property	**Description**	**Data Type**
ChassisTypes	Values for the **ChassisTypes** property are as follows: **1** Other **2** Unknown **3** Mini-tower **4** Tower **5** Space-saving **6** Main system chassis **7** Expansion chassis **8** Subchassis **9** Space-saving **10** Main system chassis **11** Expansion chassis **12** Subchassis **13** Bus expansion chassis **14** Peripheral chassis **15** Storage chassis **16** Rack-mount chassis	uint16

DELL_Chassis

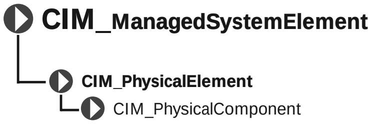


The DELL_Chassis class explained in Table 2-5 defines the identifying and status properties of the chassis. DELL_Chassis inherits from CIM-defined classes, but is populated by Dell™ properties.

Table 2-5. DELL_Chassis Properties

Class Name:	DELL_Chassis	
Parent Class:	CIM_Chassis	
Property	**Description**	**Data Type**
AssetTag	Indicates the container **AssetTag** string. This asset tag string is writable by the system administrator.	string
SystemClass	Refers to the system type that is installed and running the instrumentation. Values for the **SystemClass** property are as follows: **1** Other **2** Unknown **3** Workstation **4** Server **5** Desktop **6** Portable **7** Net PC	uint16
SystemID	Indicates the system identifier code	uint16
LogFormat	Defines whether the event log data is unicode formatted or binary (raw). Values for the event **LogFormat** property are as follows: **1** Formatted (event log only) **2** Unformatted **3** Events_and_POST_Formatted (both the event log and the power-on self-test (POST) log are unicode formatted)	uint16
FanStatus	Indicates the global status of fan sensors.	string
TempStatus	Indicates the global status of temperature sensors.	string
VoltStatus	Indicates the global status of voltage sensors.	string
AmpStatus	Indicates the global status of current sensors.	string
PsStatus	Indicates the global status of power supplies.	string
MemStatus	Indicates the global status of memory devices.	string
ProcStatus	Indicates the global status of processor devices.	string
FanRedStatus	Indicates the global status of the cooling unit.	string
PsRedStatus	Indicates the global status of the power unit.	string
IsDefaultThrSupported	Indicates whether resetting default thresholds are supported.	Boolean

CIM_PhysicalComponent

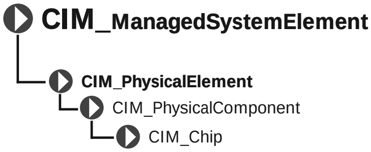


The CIM_PhysicalComponent class listed in Table 2-6 represents any low-level or basic component within a package. A component object either cannot or does not need to be broken down into its constituent parts. For example, an application specific integrated circuit (ASIC) cannot be broken down into smaller discrete parts.

Table 2-6. CIM_PhysicalComponent Properties

Class Name:	`CIM_PhysicalComponent`
Parent Class:	`CIM_PhysicalElement`

CIM_Chip

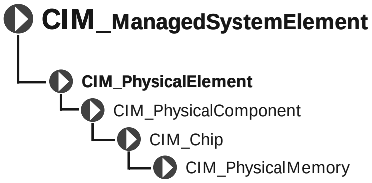


The CIM_Chip class listed in Table 2-7 represents any type of integrated circuit hardware, including ASICs, processors, memory chips, and so on.

Table 2-7. CIM_Chip Properties

Class Name:	`CIM_Chip`	
Parent Class:	`CIM_PhysicalComponent`	
Property	**Description**	**Data Type**
FormFactor	**0** Unknown	uint16
	1 Other	
	2 SIP	
	3 DIP	
	4 ZIP	
	5 SOJ	
	6 Proprietary	
	7 SIMM	
	8 DIMM	
	9 TSOP	
	10 PGA	
	11 RIMM	
	12 SODIMM	
	13 SRIMM	
	14 SMD	
	15 SSMP	
	16 QFP	
	17 TQFP	
FormFactor	**18** SOIC	uint16
	19 LCC	
	20 PLCC	
	21 BGA	
	22 FPBGA	
	23 LGA	

CIM_PhysicalMemory



The CIM_PhysicalMemory class described in Table 2-8 is a subclass of CIM_Chip, representing low-level memory devices, such as SIMMS, DIMMs, and so on.

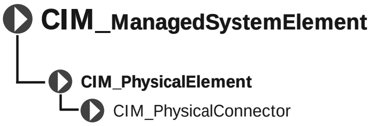
Table 2-8. CIM_PhysicalMemory Properties

Class Name:	`CIM_PhysicalMemory`	
Parent Class:	`CIM_Chip`	
Property	**Description**	**Data Type**
FormFactor	See Table 2-7, "CIM_Chip Properties."	uint16
MemoryType	Indicates the type of physical memory. Values for the **MemoryType** property are as follows: **0** Unknown **1** Other **2** DRAM **3** Synchronous DRAM **4** Cache DRAM **5** EDO **6** EDRAM **7** VRAM **8** SRAM **9** RAM **10** ROM **11** Flash **12** EEPROM **13** FEPROM **14** EPROM **15** CDRAM **16** 3DRAM **17** SDRAM **18** SGRAM **19** RDRAM	uint16
TotalWidth	Indicates the total width, in bits, of the physical memory, including check or error correction bits. If there are no error correction bits, the value in this property should match that specified for the **DataWidth** property.	uint16
DataWidth	Indicates the data width, in bits, of the physical memory. A data width of 0 and a total width of 8 would indicate that the memory is solely used to provide error correction bits.	uint16

Table 2-8. CIM_PhysicalMemory Properties *(continued)*

Class Name:	CIM_PhysicalMemory	
Parent Class:	CIM_Chip	
Property	**Description**	**Data Type**
Speed	Indicates the speed of the physical memory, in nanoseconds.	uint32
Capacity	Indicates the total capacity of this physical memory, in bytes.	uint64
BankLabel	A string identifying the physically labeled bank where the memory is located, for example, "Bank 0" or "Bank A."	string
PositionInRow	Specifies the position of the physical memory in a “row.” For example, if it takes two 8-bit memory devices to form a 16-bit row, then a value of 2 means that this memory is the second device. 0 is an invalid value for this property.	uint32
InterleavePosition	Indicates the position of this physical memory in an interleave. 0 indicates noninterleaved. 1 indicates the first position, 2 the second position and so on. For example, in a 2:1 interleave, a value of 1 indicates that the memory is in the “even” position.	uint32

CIM_PhysicalConnector



The CIM_PhysicalConnector class explained in Table 2-9 includes physical elements such as plugs, jacks, or buses that connect physical elements. Any object that can be used to connect and transmit signals or power between two or more physical elements is a member of this class. For example, slots and D-shell connectors are types of physical connectors. See Table 2-10 for a list of valid connector type values.

Table 2-9. CIM_PhysicalConnector Properties

Class Name:	`CIM_PhysicalConnector`	
Parent Class:	`CIM_PhysicalElement`	
Property	**Description**	**Data Type**
ConnectorPinout	A free-form string describing the pin configuration and signal usage of a physical connector.	string
ConnectorType	An array of integers defining the type of physical connector. An array is specified to allow the description of “combinations” of connector information. For example, one array entry could specify RS-232, another DB-25, and a third entry could define the connector as male. See Table 2-10 for the values of the **ConnectorType** property.	uint16

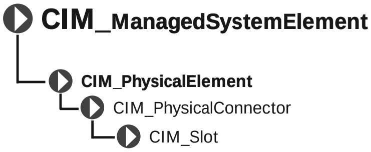
Table 2-10. Connector Type Values

0	Unknown	**30**	*unused*	**60**	Micro-DIN	**90**	On Board IDE Connector
1	Other	**31**	*unused*	**61**	PS/2	**91**	On Board Floppy Connector
2	Male	**32**	IEEE-48	**62**	Infrared	**92**	9 Pin Dual Inline
3	Female	**33**	AUI	**63**	*unused*	**93**	25 Pin Dual Inline
4	Shielded	**34**	UTP Category 3	**64**	Access. bus	**94**	50 Pin Dual Inline
5	Unshielded	**35**	UTP Category 4	**65**	*unused*	**95**	68 Pin Dual Inline
6	SCSI (A) High-Density (50 pins)	**36**	UTP Category 5	**66**	Centronics	**96**	On Board Sound Connector
7	SCSI (A) Low-Density (50 pins)	**37**	BNC	**67**	Mini-Centronics	**97**	Mini-jack
8	SCSI (P) High-Density (68 pins)	**38**	RJ11	**68**	Mini-Centronics Type-14	**98**	PCI-X
9	SCSI SCA-I (80 pins)	**39**	RJ45	**69**	Mini-Centronics Type-20	**99**	Sbus IEEE 1396-1993 32-bit
10	SCSI SCA-II (80 pins)	**40**	Fiber MIC	**70**	Mini-Centronics Type-26	**100**	Sbus IEEE 1396-1993 64-bit
11	Fibre Channel (DB-9 Copper)	**41**	*unused*	**71**	Bus Mouse	**101**	*unused*
12	Fibre Channel (Fiber Optical)	**42**	*unused*	**72**	ADB	**102**	GIO
13	Fibre Channel SCA-II (40 pins)	**43**	PCI	**73**	AGP	**103**	XIO
14	Fibre Channel SCA-II (20 pins)	**44**	ISA	**74**	VME Bus	**104**	HIO
15	Fibre Channel BNC	**45**	*unused*	**75**	VME64	**105**	NGIO

Table 2-10. Connector Type Values *(continued)*

16	ATA 3-1/2 Inch (40 pins)	**46**	VESA	**76**	Proprietary	**106**	PMC
17	ATA 2-1/2 Inch (44 pins)	**47**	*unused*	**77**	Proprietary Processor Card Slot	**107**	MTRJ
18	ATA-2	**48**	*unused*	**78**	Proprietary Memory Card Slot	**108**	VF-45
19	ATA-3	**49**	*unused*	**79**	Proprietary I/O Riser Slot	**109**	Future I/O
20	ATA/66	**50**	*unused*	**80**	PCI-66 MHz	**110**	SC
21	DB-9	**51**	*unused*	**81**	AGP2X	**111**	SG
22	DB-15	**52**	*unused*	**82**	AGP4X	**112**	Electrical
23	DB-25	**53**	USB	**83**	PC-98	**113**	Optical
24	DB-36	**54**	IEEE 1394	**84**	PC-98-Hireso	**114**	Ribbon
25	RS-232C	**55**	HIPPI	**85**	PC-H98	**115**	GLM
26	RS-422	**56**	HSSDC (6 pins)	**86**	PC-98Note	**116**	1x9
27	RS-423	**57**	GBIC	**87**	PC-98Full	**117**	Mini SG
28	RS-485	**58**	DIN	**88**	SSA SCSI	**118**	LC
29	RS-449	**59**	Mini-DIN	**89**	Circular	**119**	HSSC

CIM_Slot



The CIM_Slot class described in Table 2-11 represents connectors into which packages are inserted. For example, a physical package that is a hard drive can be inserted into an small computer system interface-single connector attachment (SCSI-SCA) slot. As another example, a card can be inserted into a 16-, 32-, or 64-bit expansion slot on a host board.

Table 2-11. CIM_Slot Properties

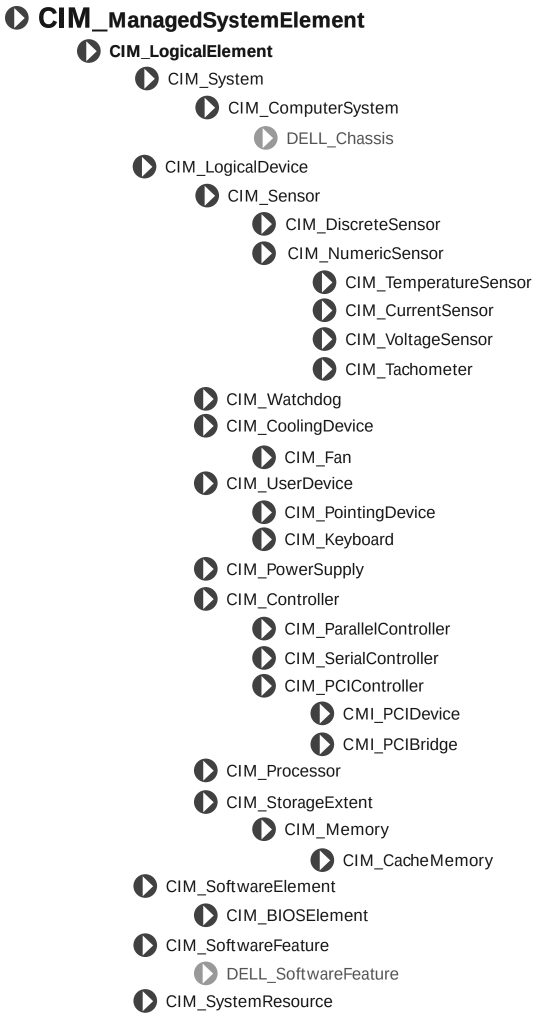
Class Name:	`class CIM_Slot`	
Parent Class:	`CIM_PhysicalConnector`	
Property	**Description**	**Data Type**
ConnectorType	See Table 2-10	uint16
SupportsHotPlug	Indicates whether the slot supports hot-plug adapter cards.	Boolean
MaxDataWidth	Indicates the maximum bus width in bits of adapter cards that can be inserted into this slot. Values for the **MaxDataWidth** property are as follows: **0** Unknown **1** Other **8** Bits **16** Bits **32** Bits **64** Bits **128** Bits	uint16

3

CIM_LogicalElement

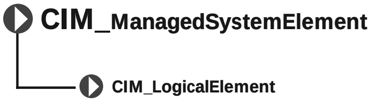
CIM_LogicalElement is a CIM-defined class containing the subclasses shown in Figure 3-1.

Figure 3-1. CIM_LogicalElement



  - CIM_IRQ
  - CIM_MemoryMappedIO
  - CIM_DMA
- CIM_RedundancyGroup
  - CIM_ExtraCapacityGroup
    - DELL_PSRedundancyGroup
    - DELL_FanRedundancyGroup
- CIM_EnabledLogicalElement
  - CIM_ServiceAccessPoint
    - CIM_RemoteServiceAccessPoint
      - DELL_RemoteServiceAccessPort

CIM_LogicalElement



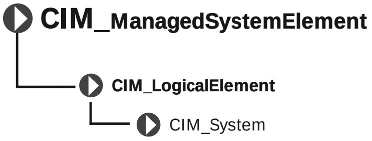
The Distributed Management Task Force (DMTF) identified in Table 3-1 lists the following characteristics for members of the CIM_LogicalElement class:

- Represent abstractions used to manage and coordinate aspects of a physical environment such as files, processes, systems, system capabilities, and network components in the form of logical devices
- Represent devices, where devices are abstractions of hardware entities that may or may not be realized in physical hardware

Table 3-1. CIM_LogicalElement Properties

Class Name:	`CIM_LogicalElement`
Parent Class:	`CIM_ManagedSystemElement`

CIM_System

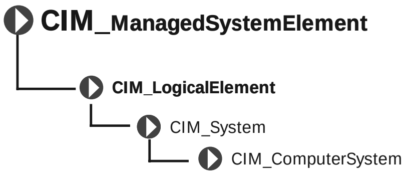


The CIM_System class shown in Table 3-2 defines a collection of managed system elements that operates as a functional whole. An instance of the CIM_System class contains a well-defined list of components that work together to perform a specific function.

Table 3-2. CIM_System Properties

Class Name:	`CIM_System`	
Parent Class:	`CIM_LogicalElement`	
Property	**Description**	**Data Type**
CreationClassName	See Table 1-2, "Common Properties of Classes."	string
Name	Indicates the name of a specific system, such as a particular storage system or server.	string
PrimaryOwnerContact	Provides information on how the primary system owner can be reached, for example, a phone number or e-mail address.	string
PrimaryOwnerName	Indicates the name of the primary system owner.	string
Roles	An array of strings that specifies the roles this system plays in the IT environment. For example, for an instance of a network system, the **Roles** property might contain the string "storage system."	string

CIM_ComputerSystem

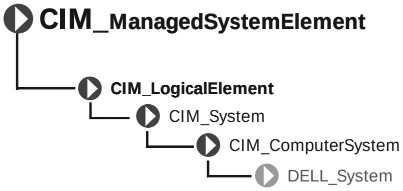


The CIM_ComputerSystem class listed in Table 3-3 contains some or all of the following CIM_ManagedSystemElements: file system, operating system, processor and memory (volatile and/or nonvolatile storage). For properties, see Table 3-2, "CIM_System Properties."

Table 3-3. CIM_ComputerSystem Properties

Class Name:	`CIM_ComputerSystem`
Parent Class:	`CIM_System`

DELL_System

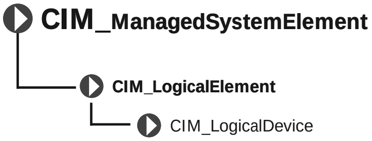


The DELL_System class listed in Table 3-4 is the set of all Dell™ instrumented systems, including server and storage systems. For properties, see Table 3-2, "CIM_System Properties."

Table 3-4. DELL_System Properties

Class Name:	`DELL_System`
Parent Class:	`CIM_ComputerSystem`

CIM_LogicalDevice

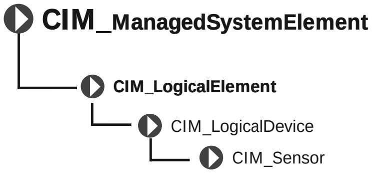


The CIM_LogicalDevice class described in Table 3-5 models a hardware entity that may be realized in physical hardware. CIM_LogicalDevice includes any characteristics of a logical device that manages its operation or configuration. An example of a logical device is a temperature sensor's reading of actual temperature.

Table 3-5. CIM_Logical Device Properties

Class Name:	`CIM_LogicalDevice`	
Parent Class:	`CIM_LogicalElement`	
Property	**Description**	**Data Type**
SystemCreationClassName	See Table 1-2, "Common Properties of Classes."	string
SystemName	Indicates the scoping system's name.	string
CreationClassName	See Table 1-2, "Common Properties of Classes."	string
DeviceID	Identifies an address or other identifying information to uniquely name the logical device.	string

CIM_Sensor

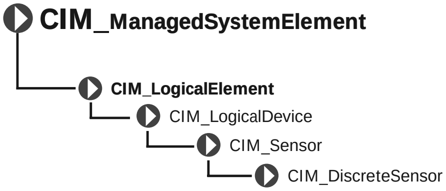


The CIM_Sensor class explained in Table 3-6 contains hardware devices capable of measuring the characteristics of some physical property, for example, the temperature or voltage characteristics of a computer system.

Table 3-6. CIM_Sensor Properties

Class Name:	`CIM_Sensor`	
Parent Class:	`CIM_LogicalDevice`	
Property	**Description**	**Data Type**
SensorType	The type of the sensor, for example, voltage or temperature sensor. Values for the **SensorType** property are as follows: **0** Unknown **1** Other **2** Temperature sensors measure the environmental temperature. **3** Voltage sensors measure electrical voltage. **4** Current sensors measure current readings. **5** Tachometers measure speed/revolutions of a device. For example, a fan device can have an associated tachometer that measures its speed.	uint16

CIM_DiscreteSensor

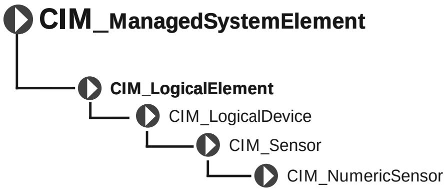


The CIM_DiscreteSensor class described in Table 3-7 has a set of legal string values that it can report. The CIM_DiscreteSensor will always have a "current reading" that corresponds to one of the enumerated values.

Table 3-7. CIM_DiscreteSensor Properties

Class Name:	`CIM_DiscreteSensor`	
Parent Class:	`CIM_Sensor`	
Property	**Description**	**Data Type**
CurrentReading	See Table 1-2, "Common Properties of Classes."	sint32
PossibleValues	Enumerates the string outputs that can be reported by the sensor.	sint32

CIM_NumericSensor



The CIM_NumericSensor class described in Table 3-8 returns numerical settings and may also support threshold settings. Figure 3-2 shows the relationship among upper and lower critical and upper and lower noncritical threshold values. The normal range falls between upper and lower noncritical thresholds.

Figure 3-2.   Ranges for Threshold Values

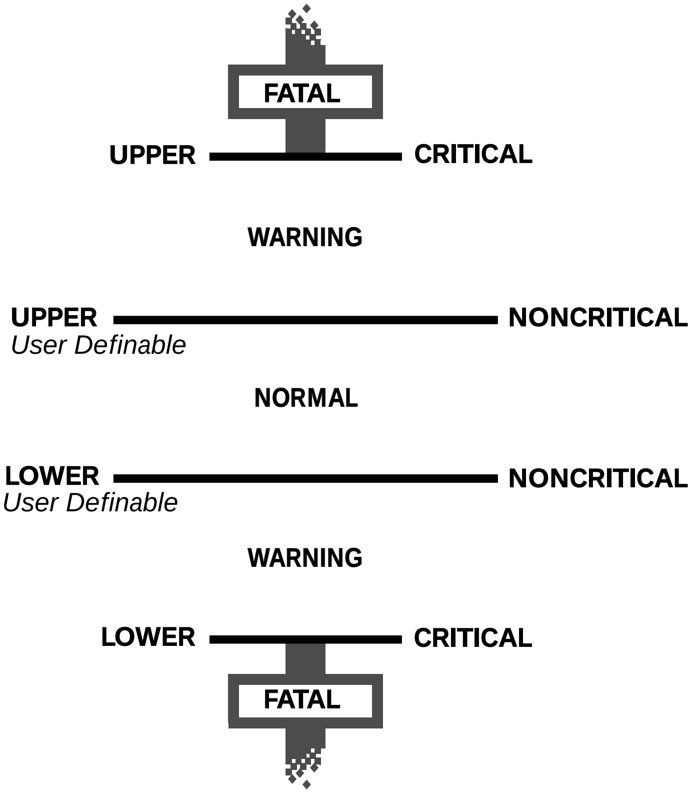


Table 3-8 provides definitions for **NumericSensor** properties.

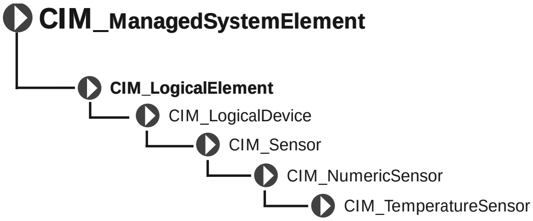
Table 3-8.   CIM_NumericSensor Properties

Class Name:	`CIM_NumericSensor`	
Parent Class:	`CIM_Sensor`	
Property	**Description**	**Data Type**
UnitModifier	See Table 1-2, "Common Properties of Classes."	sint32
CurrentReading	See Table 1-2, "Common Properties of Classes."	sint32
IsLinear	See Table 1-2, "Common Properties of Classes."	Boolean
LowerThresholdNonCritical	See Table 1-2, "Common Properties of Classes."	sint32
UpperThresholdNonCritical	See Table 1-2, "Common Properties of Classes."	sint32
LowerThresholdCritical	See Table 1-2, "Common Properties of Classes."	sint32

Table 3-8. CIM_NumericSensor Properties *(continued)*

Class Name:	`CIM_NumericSensor`	
Parent Class:	`CIM_Sensor`	
Property	**Description**	**Data Type**
UpperThresholdCritical	See Table 1-2, "Common Properties of Classes."	sint32
SupportedThresholds	An array representing the thresholds supported by this sensor. The supported values are as follows: **1** LowerThresholdNonCritical **2** UpperThresholdNonCritical **3** LowerThresholdCritical **4** UpperThresholdCritical	uint16
EnabledThresholds	An array representing the thresholds that are currently enabled for this sensor. Enabled threshold values are as follows: **1** LowerThresholdNonCritical **2** UpperThresholdNonCritical **3** LowerThresholdCritical **4** UpperThresholdCritical	uint16
SettableThresholds	An array representing the writable thresholds supported by sensor. Settable threshold values are as follows: **1** LowerThresholdNonCritical **2** UpperThresholdNonCritical	uint16

CIM_TemperatureSensor

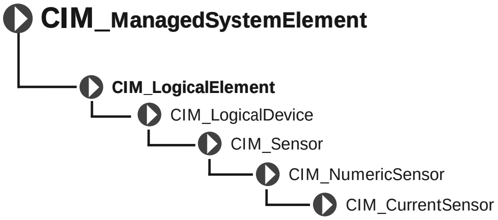


The CIM_TemperatureSensor class listed in Table 3-9 contains sensors that sample ambient temperature and return a value in degrees Celsius.

Table 3-9. CIM_TemperatureSensor Properties

Class Name:	`CIM_TemperatureSensor`	
Parent Class:	`CIM_NumericSensor`	
Property	**Description**	**Data Type**
UnitModifier	See Table 1-2, "Common Properties of Classes."	sint32
CurrentReading	See Table 1-2, "Common Properties of Classes."	sint32
IsLinear	See Table 1-2, "Common Properties of Classes."	Boolean
LowerThresholdNonCritical	See Table 1-2, "Common Properties of Classes."	sint32
UpperThresholdNonCritical	See Table 1-2, "Common Properties of Classes."	sint32
LowerThresholdCritical	See Table 1-2, "Common Properties of Classes."	sint32
UpperThresholdCritical	See Table 1-2, "Common Properties of Classes."	sint32

CIM_CurrentSensor

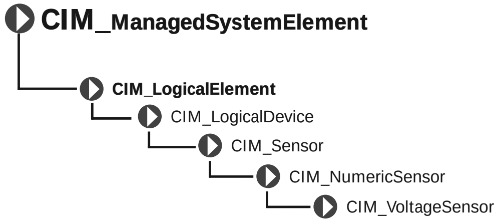


The CIM_CurrentSensor class listed in Table 3-10 contains sensors that measure amperage and returns a value in amperes.

Table 3-10. CIM_CurrentSensor Properties

Class Name:	`CIM_CurrentSensor`	
Parent Class:	`CIM_NumericSensor`	
Property	**Description**	**Data Type**
UnitModifier	See Table 1-2, "Common Properties of Classes."	sint32
CurrentReading	See Table 1-2, "Common Properties of Classes."	sint32
IsLinear	See Table 1-2, "Common Properties of Classes."	Boolean
LowerThresholdNonCritical	See Table 1-2, "Common Properties of Classes."	sint32
UpperThresholdNonCritical	See Table 1-2, "Common Properties of Classes."	sint32
LowerThresholdCritical	See Table 1-2, "Common Properties of Classes."	sint32
UpperThresholdCritical	See Table 1-2, "Common Properties of Classes."	sint32

CIM_VoltageSensor

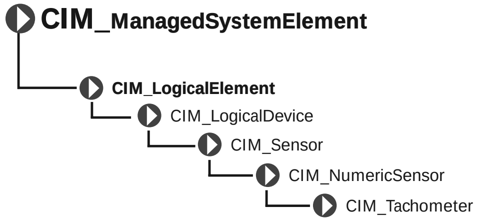


The CIM_VoltageSensor class shown in Table 3-11 contains sensors that measure voltage and return a value in volts.

Table 3-11. CIM_VoltageSensor Properties

Class Name:	`CIM_VoltageSensor`	
Parent Class:	`CIM_NumericSensor`	
Property	**Description**	**Data Type**
UnitModifier	See Table 1-2, "Common Properties of Classes."	sint32
CurrentReading	See Table 1-2, "Common Properties of Classes."	sint32
IsLinear	See Table 1-2, "Common Properties of Classes."	Boolean
LowerThresholdNonCritical	See Table 1-2, "Common Properties of Classes."	sint32
UpperThresholdNonCritical	See Table 1-2, "Common Properties of Classes."	sint32
LowerThresholdCritical	See Table 1-2, "Common Properties of Classes."	sint32
UpperThresholdCritical	See Table 1-2, "Common Properties of Classes."	sint32

CIM_Tachometer

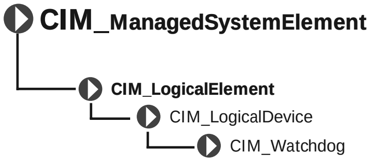


The CIM_Tachometer class listed in Table 3-12 contains devices that measure revolutions per minute (RPM) of a fan and return the value in RPMs.

Table 3-12. CIM_Tachometer Properties

Class Name:	CIM_Tachometer	
Parent Class:	CIM_NumericSensor	
Property	**Description**	**Data Type**
SensorType	See Table 1-2, "Common Properties of Classes."	uint16
UnitModifier	See Table 1-2, "Common Properties of Classes."	sint32
CurrentReading	See Table 1-2, "Common Properties of Classes."	sint32
IsLinear	See Table 1-2, "Common Properties of Classes."	Boolean
LowerThresholdNonCritical	See Table 1-2, "Common Properties of Classes."	sint32
UpperThresholdNonCritical	See Table 1-2, "Common Properties of Classes."	sint32

CIM_WatchDog

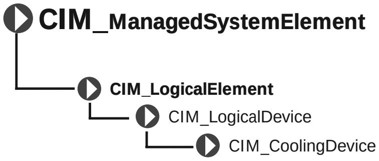


The CIM_WatchDog class described in Table 3-13 represents a timer that is implemented in system hardware. The watchdog feature allows the hardware to monitor the state of the operating system, BIOS, or a software component installed on the system. If the monitored component fails to rearm the timer before its expiration, the hardware assumes that the system is in a critical state and could reset the system. This feature can also be used as an application watchdog timer for a mission-critical application. In this case, the application would assume responsibility for rearming the timer before expiration.

Table 3-13. CIM_WatchDog Properties

Class Name:	CIM_WatchDog	
Parent Class:	CIM_LogicalDevice	
Property	**Description**	**Data Type**
MonitoredEntity	Indicates the entity that is currently being monitored by the watchdog feature. This property is used to identify the module that is responsible for rearming the watchdog at periodic intervals. Values for the **MonitoredEntity** property are as follows: **1** Unknown **2** Other **3** Operating System	uint16
MonitoredEntity Description	A string describing additional textual information about the monitored entity.	string
TimeoutInterval	Indicates the time-out interval used by the watchdog, in microseconds.	uint32
TimerResolution	Indicates the resolution of the watchdog timer. For example, if this value is 100, then the timer can expire anytime between –100 microseconds and +100 microseconds.	uint32

CIM_CoolingDevice

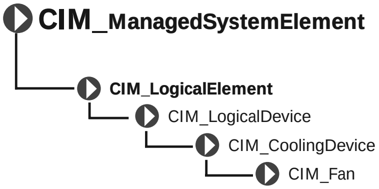


The CIM_CoolingDevice class described in Table 3-14 contains a set of devices that work to keep the ambient internal temperature of the system at a safe value.

Table 3-14. CIM_CoolingDevice Properties

Class Name:	`CIM_CoolingDevice`	
Parent Class:	`CIM_LogicalDevice`	
Property	**Description**	**Data Type**
ActiveCooling	Specifies whether the device provides active (as opposed to passive) cooling.	Boolean

CIM_Fan

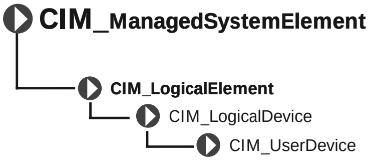


The CIM_Fan class explained in Table 3-15 contains a set of devices that work to keep the ambient internal temperature of the system at a safe value by circulating air.

Table 3-15. CIM_Fan Properties

Class Name:	`CIM_Fan`	
Parent Class:	`CIM_CoolingDevice`	
Property	**Description**	**Data Type**
VariableSpeed	Specifies whether the fan supports variable speeds.	Boolean
DesiredSpeed	Indicates the currently requested fan speed, defined in RPM. When the value = TRUE, the fan supports variable speeds. When a variable speed fan is supported (**VariableSpeed Boolean = TRUE**), the actual speed is determined using a sensor (CIM_Tachometer) that is associated with the fan.	uint64

CIM_UserDevice

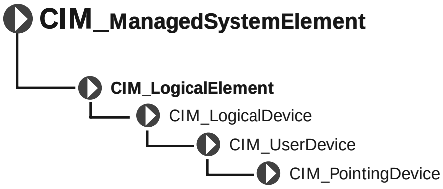


The CIM_UserDevice class shown in Table 3-16 contains logical devices that allow a computer system's users to input, view, or hear data. Classes derived from CIM_UserDevice include CIM_Keyboard and CIM_PointingDevice.

Table 3-16. CIM_UserDevice Properties

Class Name:	`CIM_UserDevice`	
Parent Class:	`CIM_LogicalDevice`	
Property	**Description**	**Data Type**
IsLocked	Indicates whether the device is locked, preventing user input or output.	Boolean

CIM_PointingDevice



The CIM_PointingDevice class described in Table 3-17 includes those devices used to point to regions of a display. Examples are a mouse or a trackball.

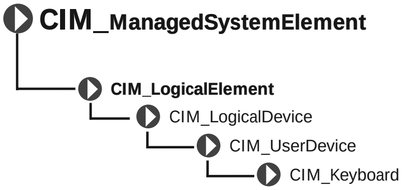
Table 3-17. CIM_PointingDevice Properties

Class Name:	`CIM_PointingDevice`	
Parent Class:	`CIM_UserDevice`	
Property	**Description**	**Data Type**
PointingType	Indicates the type of pointing device. Values for the **PointingType** property are as follows: **1** Other **2** Unknown **3** Mouse **4** Trackball **5** Trackpoint **6** Glidepoint **7** Touch pad **8** Touch screen **9** Mouse—optical sensor	Boolean

Table 3-17. CIM_PointingDevice Properties *(continued)*

Class Name:	CIM_PointingDevice	
Parent Class:	CIM_UserDevice	
Property	**Description**	**Data Type**
NumberOfButtons	Indicates the number of buttons. If the CIM_PointingDevice has no buttons, a value of 0 is returned.	uint8
Handedness	Integer indicating whether the CIM_PointingDevice is configured for right- or left-handed operation. Values for the **Handedness** property are as follows: **0** Unknown **1** Not applicable **2** Right-handed operation **3** Left-handed operation	uint16

CIM_Keyboard



The CIM_Keyboard class explained in Table 3-18 includes devices that allow users to enter data.

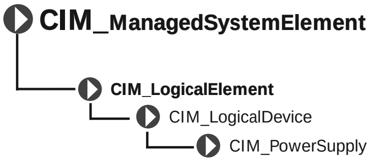
Table 3-18. CIM_Keyboard Properties

Class Name:	CIM_Keyboard	
Parent Class:	CIM_UserDevice	
Property	**Description**	**Data Type**
NumberOfFunctionKeys	Indicates the number of function keys on the keyboard.	uint16
Layout	A free-form string indicating the format and layout of the keyboard.	string

Table 3-18. CIM_Keyboard Properties *(continued)*

Class Name:	CIM_Keyboard	
Parent Class:	CIM_UserDevice	
Property	**Description**	**Data Type**
Password	An integer indicating whether a hardware-level password is enabled at the keyboard, preventing local input. Values for the **Password** property are as follows: **1** Other **2** Unknown **3** Disabled **4** Enabled **5** Not implemented	uint16

CIM_PowerSupply



The CIM_PowerSupply class described in Table 3-19 contains devices that provide current and voltage for the operation of the system and its components.

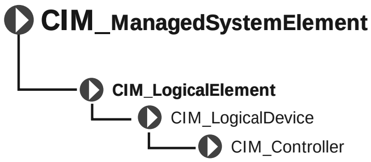
Table 3-19. CIM_PowerSupply Properties

Class Name:	CIM_PowerSupply	
Parent Class:	CIM_LogicalDevice	
Property	**Description**	**Data Type**
IsSwitchingSupply	Indicates that the power supply is a switching power supply and not a linear power supply.	Boolean
Range1InputVoltageLow	Indicates the low voltage in millivolts of input voltage range 1 for this power supply. A value of 0 denotes unknown.	uint32
Range1InputVoltageHigh	Indicates the high voltage in millivolts of input voltage range 1 for this power supply. A value of 0 denotes unknown.	uint32

Table 3-19. CIM_PowerSupply Properties *(continued)*

Class Name:	`CIM_PowerSupply`	
Parent Class:	`CIM_LogicalDevice`	
Property	**Description**	**Data Type**
ActiveInputVoltage	Indicates which input voltage range is currently in use. Range 1, 2, or both can be specified using the values 3, 4, or 5, respectively. If the supply is not drawing power, a value of 6 (neither) can be specified. This information is necessary in the case of an uninterruptible power supply (UPS), a subclass of power supply. Values for the **ActiveInputVoltage** property are as follows: **1** Other **2** Unknown **3** Range 1 **4** Range 2 **5** Both range 1 and range 2 **6** Neither range 1 nor range 2	uint16
TotalOutputPower	Represents the total output power of the power supply in milliwatts. A value of 0 denotes that the power output is unknown.	uint32

CIM_Controller

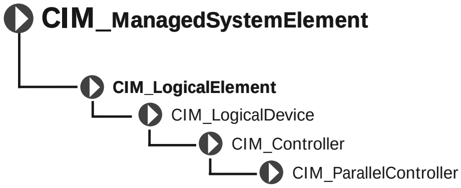


The CIM_Controller class shown in Table 3-20 groups miscellaneous control-related devices. Examples of controllers are small computer system interface (SCSI) controllers, Universal Serial Bus (USB) controllers, and serial controllers.

Table 3-20. CIM_Controller Properties

Class Name:	`CIM_Controller`	
Parent Class:	`CIM_LogicalDevice`	
Property	**Description**	**Data Type**
ProtocolSupported	The protocol used by the controller to access controlled devices. Values for the **ProtocolSupported** property are as follows: **1** Other **2** Unknown **3** PCI **4** Parallel protocol	uint16

CIM_ParallelController

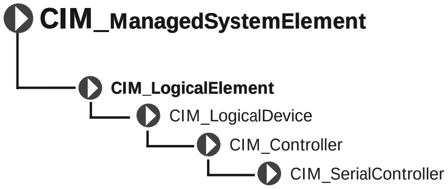


The CIM_ParallelController class identified in Table 3-21 contains a set of objects that control parallel devices. Parallel controllers transfer 8 or 16 bits of data at a time to the devices they control, for example, a parallel port controlling a printer.

Table 3-21. CIM_ParallelController Properties

Class Name:	`CIM_ParallelController`	
Parent Class:	`CIM_Controller`	
Property	**Description**	**Data Type**
DMASupport	Set to TRUE if the parallel controller supports DMA.	Boolean
Security	An enumeration indicating the operational security for the controller. Values for the **Security** property are as follows: **1** Other **2** Unknown **3** None **4** External interface locked out **5** External interface enabled **6** Boot bypass	uint16

CIM_SerialController

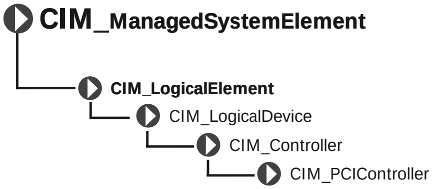


The CIM_SerialController class explained in Table 3-22 contains controllers that transfer data one bit at a time to the devices they control, for example, a serial port controlling a modem.

Table 3-22. CIM_SerialController Properties

Class Name:	`CIM_SerialController`	
Parent Class:	`CIM_Controller`	
Property	**Description**	**Data Type**
MaxBaudRate	Indicates the maximum baud rate in bits per second supported by the serial controller.	uint32
Security	An enumeration indicating the operational security for the controller. Values for the **Security** property are as follows: **1** Other **2** Unknown **3** None **4** External interface locked out **5** External interface enabled **6** Boot bypass	uint16

CIM_PCIController

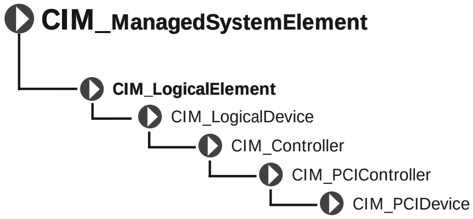


The CIM_PCIController class listed in Table 3-23 contains a set of devices that follow the Peripheral Component Interconnect (PCI) protocol defined by the Personal Computer Memory Card International Association (PCMCIA). The PCI protocol defines how data is transferred between devices. The CIM_PCIController class contains PCI adapters and bridges.

Table 3-23. CIM_PCIController Properties

Class Name:	`CIM_PCIController`	
Parent Class:	`CIM_Controller`	
Property	**Description**	**Data Type**
CommandRegister	The current contents of the register that provides basic control over the device's ability to respond to, and/or perform PCI accesses. The data in the capabilities array is gathered from the PCI status register and the PCI capabilities list as defined in the PCI specification. Values for the **CommandRegister** property are as follows: **0** Unknown **1** Other **2** Supports 66 MHz **3** Supports user-definable features **4** Supports fast back-to-back transactions **5** PCI-X capable **6** PCI power management supported **7** Message signaled interrupts supported **8** Parity error recovery capable **9** AGP supported **10** Vital product data supported **11** Provides slot identification **12** Hot swap supported	uint16

CIM_PCIDevice

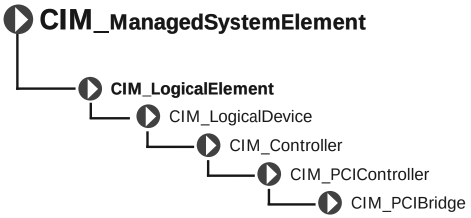


The CIM_PCIDevice class shown in Table 3-24 describes the capabilities and management of a PCI device controller on an adapter card.

Table 3-24. CIM_PCIDevice Properties

Class Name:	CIM_PCIDevice	
Parent Class:	CIM_PCIController	
Property	**Description**	**Data Type**
BaseAddress	Identifies an array of up to six double-word base memory addresses.	uint32
SubsystemID	Identifies a subsystem identifier code.	uint16
SubsystemVendorID	Identifies a subsystem vendor ID. ID information is reported from a PCI device via protocol-specific requests. This information is also present in the CIM_PhysicalElement class (the manufacturer property) for hardware, and the CIM_Product class (the vendor property) for information related to product acquisition.	uint16
ExpansionROMBaseAddress	Identifies a double-word expansion ROM base memory address.	uint32

CIM_PCIBridge

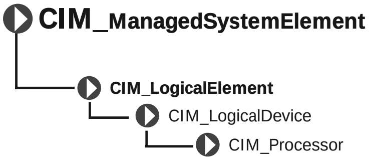


The CIM_PCIBridge class shown in Table 3-25 describes the capabilities and management of a PCI controller providing bridge-to-bridge capability. An example is a PCI to Industry-Standard Architecture (ISA) bus bridge.

Table 3-25. CIM_PCIBridge Properties

Class Name:	`CIM_PCIBridge`	
Parent Class:	`CIM_PCIController`	
Property	**Description**	**Data Type**
BaseAddress	Identifies an array of double-word base memory addresses.	uint32
BridgeType	Indicates the type of bridge. A bridge is PCI to <*value*>, except for the Host, which is a host-to-PCI bridge. Values for the **BridgeType** property are as follows: **0** Host **1** ISA **128** Other	uint16
BaseAddress	Identifies an array of double-word base memory addresses.	uint32

CIM_Processor



The CIM_Processor class described in Table 3-26 contains devices that interpret and execute demands, for example, the Intel® Xeon™ microprocessor.

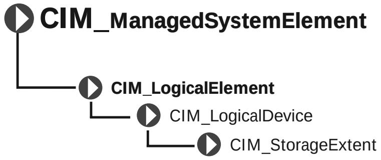
Table 3-26. **CIM_Processor Properties**

Class Name:	`CIM_Processor`	
Parent Class:	`CIM_LogicalDevice`	
Property	**Description**	**Data Type**
Role	A string describing the role of the microprocessor, for example, central microprocessor or math processor.	string
UpgradeMethod	Provides microprocessor socket information including data on how this microprocessor can be upgraded (if upgrades are supported). This property is an integer enumeration. Values for the **UpgradeMethod** property are as follows: **1** Other **2** Unknown **3** Daughter board **4** ZIF socket **5** Replacement/piggy back **6** None **7** LIF socket **8** Slot 1 **9** Slot 2 **10** 370-pin socket	uint16
MaxClockSpeed	Indicates the maximum speed (in MHz) of this microprocessor.	uint32
CurrentClockSpeed	Indicates the current speed (in MHz) of this microprocessor.	uint32
DataWidth	Indicates the processor data width in bits.	uint16
AddressWidth	Indicates the processor address width in bits.	uint16
Stepping	Indicates the revision level of the processor within the microprocessor family.	string
UniqueID	Identifies a globally unique identifier for the microprocessor. This identifier may only be unique within a microprocessor family.	string
CPUStatus	Indicates the current status of the microprocessor. For example, it may be disabled by the user via the BIOS or disabled due to a POST error. Values for the **CPUStatus** property are as follows: **0** Unknown **1** Microprocessor enabled **2** Microprocessor disabled by user via BIOS setup **3** Microprocessor disabled by BIOS (POST error) **4** Microprocessor is idle **5** Other	uint16

Table 3-26. CIM_Processor Properties *(continued)*

Class Name:	`CIM_Processor`	
Parent Class:	`CIM_LogicalDevice`	
Property	**Description**	**Data Type**
Family	Refers to the processor family type. Values for the **Family** property are as follows: **1** Other **2** Unknown **11** Pentium® family **12** Pentium PRO **13** Pentium II **14** Pentium MMX™ **15** Celeron® **16** Xeon (Pentium II) **17** Pentium III **25** K5 family **26** K6 family **27** K6-2 **28** K6-3 **29** K7 **176** Xeon (Pentium II)\\ **177** 960™ **260** SH-3 **261** SH-4 **280** ARM **281** StrongARM **300** 6x86 **301** MediaGX **302** MII **320** WinChip **350** DSP **500** Video processor	uint16

CIM_StorageExtent

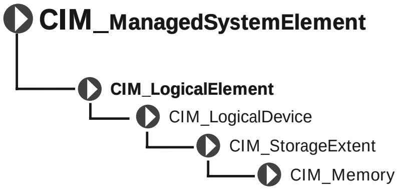


CIM_StorageExtent identified in Table 3-27 contains devices that manage data storage, for example, hard drives or microprocessor memory.

Table 3-27. CIM_StorageExtent Properties

Class Name:	`CIM_StorageExtent`
Parent Class:	`CIM_LogicalDevice`

CIM_Memory

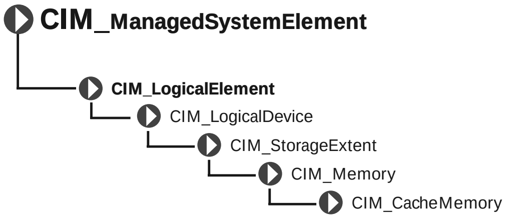


The CIM_Memory class identified in Table 3-28 describes the capabilities and management of storage extent devices, for example, cache memory or system memory.

Table 3-28. CIM_Memory Properties

Class Name:	`CIM_Memory`
Parent Class:	`CIM_StorageExtent`

CIM_CacheMemory



The CIM_CacheMemory class explained in Table 3-29 describes the capabilities and management of cache memory. Cache memory allows a microprocessor to access data and instructions faster than normal system memory.

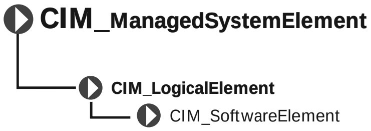
Table 3-29. CIM_CacheMemory Properties

Class Name:	`CIM_CacheMemory`	
Parent Class:	`CIM_Memory`	
Property	**Description**	**Data Type**
Level	Defines whether this is the primary, secondary, or tertiary cache. Values for the **Level** property are as follows: **1** Other **2** Unknown **3** Primary **4** Secondary **5** Tertiary **6** Not applicable	uint16
WritePolicy	Either defines whether this cache is a write-back or write-through cache or whether this information varies with address or is defined individually for each input/output (I/O). Values for the **WritePolicy** property are as follows: **1** Other **2** Unknown **3** Write-back **4** Write-through **5** Varies with address **6** Determination per I/O	uint16

Table 3-29. CIM_CacheMemory Properties *(continued)*

Class Name:	CIM_CacheMemory	
Parent Class:	CIM_Memory	
Property	**Description**	**Data Type**
CacheType	Defines whether this cache is for instruction caching, data caching, or both (unified). Values for the **CacheType** property are as follows: **1** Other **2** Unknown **3** Instruction **4** Data **5** Unified	uint16
LineSize	Indicates the size, in bytes, of a single cache bucket or line.	uint32
ReadPolicy	Defines the policy used by the cache for handling read requests. Values for the **ReadPolicy** property are as follows: **1** Other **2** Unknown **3** Read **4** Read-ahead **5** Read and read-ahead **6** Determination per I/O	uint16

CIM_SoftwareElement

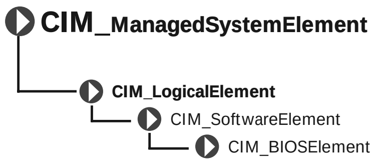


The CIM_SoftwareElement class described in Table 3-30 is used to define a CIM_SoftwareFeature. The CIM_SoftwareElement class consists of individually manageable or deployable parts for a particular platform. A software element's platform is uniquely identified by its underlying hardware architecture and operating system (for example, a system running Microsoft® Windows NT® on an Intel microprocessor). A software element's implementation on a particular platform depends on the platform's operating system.

Table 3-30. CIM_SoftwareElement Properties

Class Name:	`CIM_SoftwareElement`	
Parent Class:	`CIM_LogicalElement`	
Property	**Description**	**Data Type**
Name	Indicates the name that identifies this software element.	string
Version	Provides the version in the form *<major>*.*<minor>*.*<revision>* or *<major>*.*<minor><letter><revision>*; for example, 1.2.3 or 1.2a3.	string
Manufacturer	See Table 1-2, "Common Properties of Classes."	string
BuildNumber	Indicates the internal identifier for this build of the software element.	string
IdentificationCode	Provides the manufacturer's identifier for this software element. Often this will be a stock keeping unit (SKU) or a part number.	string

CIM_BIOSElement



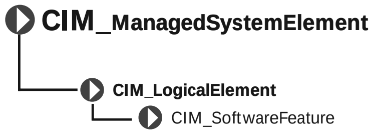
The CIM_BIOSElement class listed in Table 3-31 describes the BIOS for the system. The BIOS controls the following:

- Communications between the microprocessor and peripheral devices, such as the keyboard and the video adapter
- Miscellaneous functions, such as system messages

Table 3-31. CIM_BIOSElement Properties

Class Name:	`CIM_BIOSElement`	
Parent Class:	`CIM_SoftwareElement`	
Property	**Description**	**Data Type**
Version	Provides the product version information.	string
Manufacturer	See Table 1-2, "Common Properties of Classes."	string
PrimaryBIOS	Specifies whether a given BIOS is the primary BIOS for the system. When the value = TRUE, the BIOS is the primary BIOS.	Boolean

CIM_SoftwareFeature

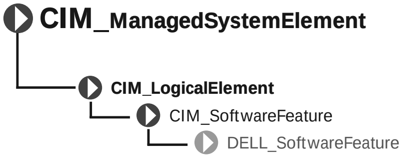


The CIM_SoftwareFeature class shown in Table 3-32 defines a particular function or capability of a product or application system. This class is intended to be meaningful to a consumer, or user of a product, rather than to explain how the product is built or packaged. When a software feature can exist on multiple platforms or operating systems (for example, a client component of a three-tiered client/server application might run on Windows NT), a software feature is a collection of all the software elements for these different platforms. The users of the model must be aware of this situation because typically they will be interested in a subcollection of the software elements required for a particular platform.

Table 3-32. CIM_SoftwareFeature Properties

Class Name:	`CIM_SoftwareFeature`	
Parent Class:	`CIM_LogicalElement`	
Property	**Description**	**Data Type**
IdentifyingNumber	Provides product identification such as a serial number on software.	string
ProductName	Identifies the commonly used product name.	string
Vendor	Identifies the name of the product's supplier. Corresponds to the vendor property in the product object in the DMTF solution exchange standard.	string
Version	Identifies the product version information. Corresponds to the version property in the product object in the DMTF solution exchange standard.	string
Name	Defines the label by which the object is known to the users. This label is a user-defined name that uniquely identifies the element.	string

DELL_SoftwareFeature

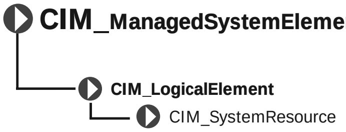


DELL_SoftwareFeature described in Table 3-33 defines the universal resource locator (URL) of the systems management software and the language in which systems management information displays. Defining these properties enables users to manage a system using an Internet browser. You can access Server Administrator using the secure hypertext transfer protocol (https) and a preassigned port number of 1311, or you can specify a port number of your own choosing.

Table 3-33. DELL_SoftwareFeature Properties

Class Name:	`DELL_SoftwareFeature`	
Parent Class:	`CIM_SoftwareFeature`	
Property	**Description**	**Data Type**
OmsaURL	Defines the URL for Server Administrator.	string
Language	Sets the language for systems management information.	string

CIM_SystemResource

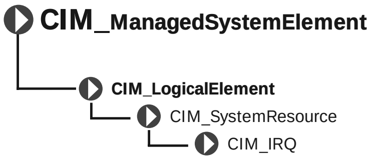


The CIM_SystemResource class listed in Table 3-34 provides access to system resources from an operating system. SystemResources consist of interrupt requests (IRQs) and direct memory access (DMA) capabilities.

Table 3-34. CIM_SystemResource Properties

Class Name:	`CIM_SystemResource`
Parent Class:	`CIM_LogicalElement`

CIM_IRQ



The CIM_IRQ class described in Table 3-35 contains IRQ information. An IRQ is a signal that data is about to be sent to or received by a peripheral device. The signal travels by an IRQ line to the microprocessor. Each peripheral connection must be assigned an IRQ number. For example, the first serial port in your computer (COM1) is assigned to IRQ4 by default.

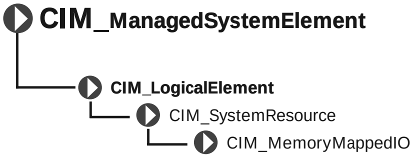
Table 3-35. CIM_IRQ Properties

Class Name:	`CIM_IRQ`	
Parent Class:	`CIM_SystemResource`	
Property	**Description**	**Data Type**
CSCreationClassName	See Table 1-2, "Common Properties of Classes."	string
CSName	See Table 1-2, "Common Properties of Classes."	string
CreationClassName	See Table 1-2, "Common Properties of Classes."	string
IRQNumber	Identifies the interrupt request number.	uint32
Availability	Indicates the availability of the IRQ. Values for the **Availability** property are as follows: **1** Other **2** Unknown **3** Available **4** In use/not available **5** In use and available	uint16
TriggerLevel	Indicates whether the interrupt is triggered by the hardware signal going high or low. Values for the **TriggerLevel** property are as follows: **1** Other **2** Unknown **3** Active low **4** Active high	uint16

Table 3-35. CIM_IRQ Properties *(continued)*

Class Name:	CIM_IRQ	
Parent Class:	CIM_SystemResource	
Property	**Description**	**Data Type**
TriggerType	Indicates whether edge (value=4) or level triggered (value=3) interrupts occur. **1** Other **2** Unknown **3** Level **4** Edge	uint16
Shareable	Indicates whether the IRQ can be shared. A value of TRUE indicates that the IRQ can be shared.	Boolean
Hardware	Indicates whether the interrupt is hardware- or software-based. (A value of TRUE indicates that the interrupt is hardware based.) On a personal computer, a hardware IRQ is a physical wire to a programmable interrupt controller (PIC) chip set through which the microprocessor can be notified of time critical events. Some IRQ lines are reserved for standard devices such as the keyboard, diskette drive, and the system clock. A software interrupt is a programmatic mechanism to allow an application to get the attention of the processor.	Boolean

CIM_MemoryMappedIO

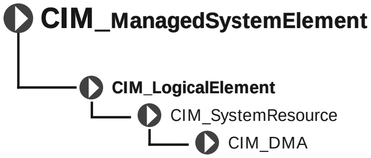


The CIM_MemoryMappedIO class explained in Table 3-36 addresses both memory and port I/O resources for personal computer architecture memory mapped I/O.

Table 3-36. CIM_MemoryMappedIO Properties

Class Name:	`CIM_MemoryMappedIO`	
Parent Class:	`CIM_SystemResource`	
Property	**Description**	**Data Type**
CSCreationClassName	See Table 1-2, "Common Properties of Classes."	string
CSName	See Table 1-2, "Common Properties of Classes."	string
CreationClassName	See Table 1-2, "Common Properties of Classes."	string
StartingAddress	Identifies the starting address of memory mapped I/O.	uint64
EndingAddress	Identifies the ending address of memory mapped I/O.	uint64
MappedResource	Indicates the type of memory mapped I/O. MappedResource defines whether memory or I/O is mapped, and for I/O, whether the mapping is to a memory or a port space. Memory mapped I/O values are as follows: **1** Other **2** Mapped memory **3** I/O mapped to memory space **4** I/O mapped to port space	uint16

CIM_DMA

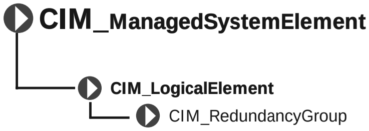


The CIM_DMA class explained in Table 3-37 contains DMA information. A DMA channel allows certain types of data transfer between RAM and a device to bypass the microprocessor.

Table 3-37. CIM_DMA Properties

Class Name:	`CIM_DMA`	
Parent Class:	`CIM_SystemResource`	
Property	**Description**	**Data Type**
CSCreationClassName	See Table 1-2, "Common Properties of Classes."	string
CSName	See Table 1-2, "Common Properties of Classes."	string
CreationClassName	See Table 1-2, "Common Properties of Classes."	string
DMAChannel	Identifies a part of the object's key value, the DMA channel number.	uint32
Availability	Indicates the availability of the DMA. Values for the **Availability** property are as follows: **1** Other **2** Unknown **3** Available **4** In use/not available **5** In use and available/shareable	uint16

CIM_RedundancyGroup



The CIM_RedundancyGroup class explained in Table 3-38 is a set of components that provide more instances of a critical component than are required for the system's operation. The extra components are used in case of critical component failure. For example, multiple power supplies allow a working power supply to take over when another power supply has failed.

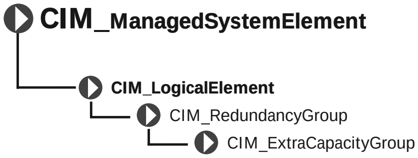
Table 3-38. CIM_RedundancyGroup Properties

Class Name:	`CIM_RedundancyGroup`	
Parent Class:	`CIM_LogicalElement`	
Property	**Description**	**Data Type**
CreationClassName	See Table 1-2, "Common Properties of Classes."	string
Name	Serves as the key for the redundancy group's instance in an enterprise environment.	string

Table 3-38. CIM_RedundancyGroup Properties *(continued)*

Class Name:	`CIM_RedundancyGroup`	
Parent Class:	`CIM_LogicalElement`	
Property	**Description**	**Data Type**
RedundancyStatus	Provides information on the state of the redundancy group. Values for the **RedundancyStatus** property are as follows: **0** Unknown **1** Other **2** Fully redundant. Fully redundant means that all of the configured redundancy is still available. **3** Degraded redundancy. Degraded redundancy means that some failures have been experienced but some reduced amount of redundancy is still available. **4** Redundancy lost. Redundancy lost means that a sufficient number of failures have occurred so that no redundancy is available and the next failure experienced will cause overall failure.	uint16

CIM_ExtraCapacityGroup

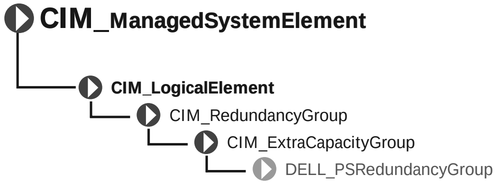


The CIM_ExtraCapacityGroup class explained in Table 3-39 applies to systems that have more capability and components than are required for normal operation, for example, systems that have extra fans or power supplies.

Table 3-39. CIM_ExtraCapacityGroup Properties

Class Name:	`CIM_ExtraCapacityGroup`	
Parent Class:	`CIM_RedundancyGroup`	
Property	**Description**	**Data Type**
MinNumberNeeded	Specifies the smallest number of elements that must be operational in order to have redundancy. For example, in an *N*+1 redundancy relationship, the **MinNumberNeeded** property should be set to N.	uint32

DELL_PSRedundancyGroup

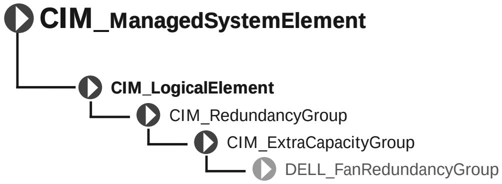


The DELL_PSRedundancyGroup described in Table 3-40 is a Dell-specific extension of the CIM_PowerSupply class. The DELL_PSRedundancyGroup class defines what constitutes power supply redundancy in a system.

Table 3-40. DELL_PSRedundancyGroup Properties

Class Name:	`DELL_PSRedundancyGroup`
Parent Class:	`CIM_ExtraCapacityGroup`

DELL_FanRedundancyGroup

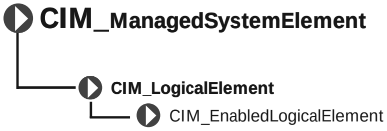


The DELL_FanRedundancyGroup described in Table 3-41 defines what constitutes fan redundancy in a system.

Table 3-41. DELL_FanRedundancyGroup Properties

Class Name:	`DELL_FanRedundancyGroup`
Parent Class:	`CIM_ExtraCapacityGroup`

CIM_EnabledLogicalElement Group

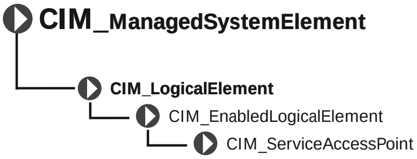


The CIM_EnabledLogicalElementGroup class described in Table 3-42 extends the CIM_LogicalElementGroup class to abstract the concept of an element that is enabled or disabled, such as a LogicalDevice or ServiceAccessPoint.

Table 3-42. CIM_EnabledLogicalElementGroup Properties

Class Name:	`CIM_EnabledLogicalElementGroup`
Parent Class:	`CIM_LogicalElementGroup`

CIM_ServiceAccessPoint

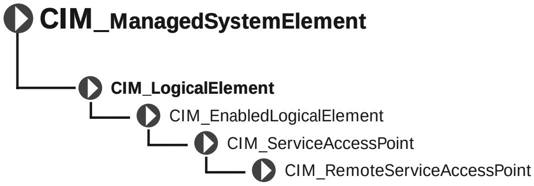


The CIM_ServiceAccessPointGroup class described in Table 3-43 represents the ability to utilize or invoke a service. Access points indicate that a service is available to other entities for use.

Table 3-43. CIM_ServiceAccessPointGroup Properties

Class Name:	`CIM_ServiceAccessPointGroup`
Parent Class:	`CIM_EnabledLogicalElement`

CIM_RemoteServiceAccessPoint

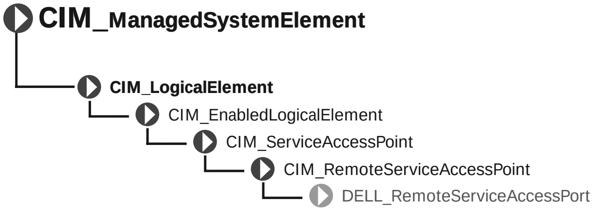


The CIM_RemoteServiceAccessPointGroup class identified in Table 3-44 describes the accessing and addressing of information for a remote connection that is known to a "local" network element. This information is contained in the "local" network element since this is the context in which it is "remote". The relevance of the remote service access point and information on its use are described by subclassing or associating to the CIM_RemoteServiceAccessPointGroup class.

Table 3-44. CIM_RemoteServiceAccessPointGroup Properties

Class Name:	`CIM_RemoteServiceAccessPointGroup`	
Parent Class:	`CIM_ServiceAccessPointGroup`	
Property	**Description**	**Data Type**
AccessInfo	Describes accessing or addressing of information for a remote connection. This can be a host name, network address, and other similar information.	string
InfoFormat	Indicates an enumerated integer describing the format and interpretation of the AccessInfo property. This property can have the following values: • "Other" • "Host Name" • "Ipv4 Address" • "Ipv6 Address" • "IPX Address" • "DECnet Address" • "SNA Address" • "Autonomous System Number" • "MPLS Label" • "DMTF Reserved" • "Dial String" • "Ethernet Address" • "Token Ring Address" • "ATM Address" • "Frame Relay Address" • "DMTF Reserved" • "URL" • "Vendor Specific"	uint16

DELL_RemoteServiceAccessPort


CIM_ManagedSystemElement
CIM_LogicalElement
CIM_EnabledLogicalElement
CIM_ServiceAccessPoint
CIM_RemoteServiceAccessPoint
DELL_RemoteServiceAccessPort

The DELL_RemoteServiceAccessPortGroup class described in Table 3-45 is an extended class of the CIM_RemoteServiceAccessPointGroup class. The DELL_RemoteServiceAccessPortGroup class provides information about Dell implementation-specific attributes.

Table 3-45. DELL_RemoteServiceAccessPortGroup Properties

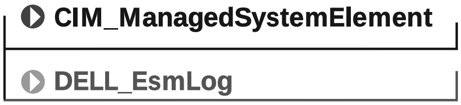
Class Name:	`DELL_RemoteServiceAccessPortGroup`	
Parent Class:	`CIM_RemoteServiceAccessPointGroup`	
Property	**Description**	**Data Type**
PortName	Displays the name of the service access port.	string
VerisionString	Indicates the version of the access point service.	string

4

Dell-defined Classes

The Dell-defined classes are defined and populated by Dell rather than by CIM. None of these classes have a parent class and are on the same level as CIM_ManagedSystemElement. For information on how the logs are formatted, see Table 2-5, “DELL_Chassis Properties.”

DELL_EsmLog

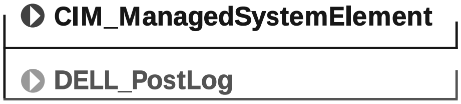


The DELL_EsmLog class described in Table 4-1 records failure threshold violations collected by Server Administrator’s embedded server management (ESM) capabilities.

Table 4-1. DELL_EsmLog Properties

Class Name:	`DELL_EsmLog`	
Parent Class:	`None`	
Property	**Description**	**Data Type**
RecordNumber	Provides an index to the ESM table.	uint32
LogRecord	Provides the ESM message content.	string
EventTime	Indicates the time that the message is generated.	datetime
Status	Indicates the severity of the event that caused the log to be generated.	string

DELL_PostLog



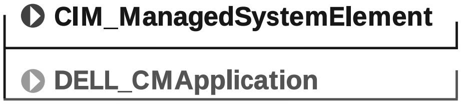
The DELL_PostLog identified in Table 4-2 is a record of the system's power-on self-test (POST). When you turn on a system, the POST tests various system components, such as random-access memory (RAM), the hard drives, and the keyboard.

Table 4-2. DELL_PostLog Properties

Class Name:	`DELL_PostLog`
Parent Class:	`None`

DELL_CMApplication

NOTE: Dell-updateable components, such as BIOS and FW, are considered applications.

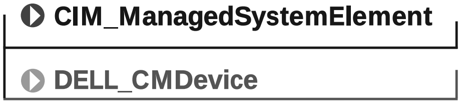


The DELL_CMApplication class identified in Table 4-3 contains information related to the Dell Change Management applications.

Table 4-3. DELL_CMApplication Properties

Class Name:	`DELL_CMApplications`	
Parent Class:	`None`	
Property	**Description**	**Data Type**
Product ID	Indicates the product ID number	string
Name	Indicates the name of the product	string
Description	Provides a short description of the product	string
Vendor	Indicates the name of the product manufacturer	string
Version	Indicates the current version of the product	string

DELL_CMDevice

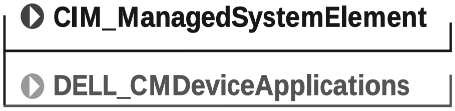


The DELL_CMDevice identified in Table 4-4 contains information related to the Dell Change Management device.

Table 4-4. DELL_CMDevice Properties

Class Name:	`DELL_CMDevice`	
Parent Class:	`None`	
Property	**Description**	**Data Type**
Component ID	Defines a component string	string
Name	Indicates the name of the device	string
VendorID	Defines an ID for vendor supplying the device	string
DeviceID	Indicates the ID of the device	string
SubDevice ID	Indicates the ID for additional device	string
Bus	Indicates the PCI bus number	string
Device	Indicates the PCI device number	string
Function	Indicates the PCI Function number	string

DELL_CMDeviceApplication

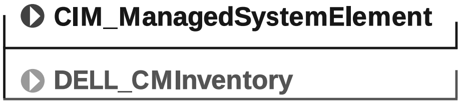


The DELL_CMDeviceApplication class identified in Table 4-5 contains information related to the Dell Change Management association between the device and application.

Table 4-5. DELL_CMDeviceApplication Properties

Class Name:	`DELL_CMDeviceApplication`	
Parent Class:	`None`	
Property	**Description**	**Data Type**
Antecedent	Refers to the device	string
Dependent	Refers to the application	string

DELL_CMInventory

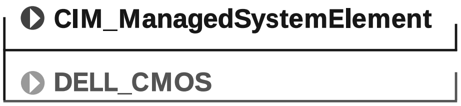


The DELL_CMInventory identified in Table 4-6 contains information related to the Dell Change Management inventory.

Table 4-6. DELL _CMInventory Properties

Class Name:	`DELL_CMInventory`	
Parent Class:	`None`	
Property	**Description**	**Data Type**
Local	Indicates the locale of the system	string
SchemaVersion	Indicates the Inventory schema implemented by the system	string
SystemID	Defines the System ID	string

DELL_CMOS

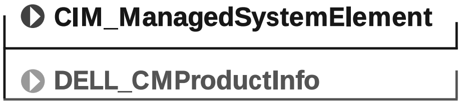


The DELL_CMOS class identified in Table 4-7 contains information related to the Dell Change Management operating system.

Table 4-7. DELL_CMOS Properties

Class Name:	`DELL_CMOS`	
Parent Class:	`None`	
Property	**Description**	**Data Type**
Vendor	Indicates the vendor of the operating system	string
MajorVersion	Indicates the major version of the operating system	string
MinorVersion	Indicates the minor version of the operating system	string
spMajorVersion	Indicates the current service pack number for the operating system's major version	string
spMinorVersion	Indicates the current service pack number for the operating system's minor version	string

DELL_CMProductInfo



The DELL_CMProductInfo identified in Table 4-8 contains information related to the Dell Change Management product.

Table 4-8. DELL_CMProductInfo Properties

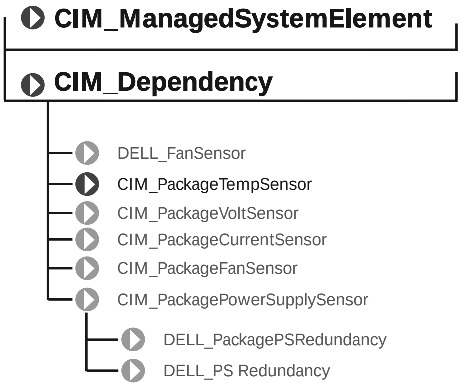
Class Name:	`DELL_CMProductInfo`	
Parent Class:	`None`	
Property	**Description**	**Data Type**
ProductID	Indicates the product ID number	string
Name	Indicates the name of the product	string
Description	Provides a short description of the product	string
Vendor	Indicates the name of the product manufacturer	string
Version	Indicates the current version number of the product	string

5

CIM_Dependency

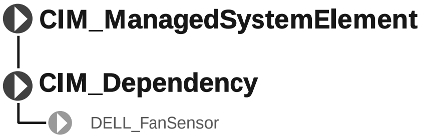
The CIM_Dependency class is an association used to establish dependency relationships between two managed system elements. CIM_Dependency shown in Figure 5-1 does not have a parent class because it is a relationship or association between two elements.

Figure 5-1. CIM_Dependency Class Structure



Each class derived from CIM_Dependency has an element called an antecedent that represents the independent object in this association, and another element called a dependent that represents the object that is dependent on the antecedent. For example, consider two managed system elements: Chassis1 and PowerSupply3. Chassis1 is the antecedent element because a managed power supply would always be either contained in, or grouped with, a chassis.

DELL_FanSensor

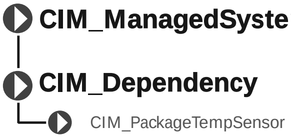


The DELL_FanSensor class described in Table 5-1 defines a Dell-specific association between a fan and a sensor. The CIM_PackageFanSensor class contains fans that assist in cooling the entire package as opposed to a fan that is dedicated to cooling only some of the components in the package.

Table 5-1. DELL_FanSensor Properties

Class Name:	`DELL_FanSensor`
Parent Class:	`CIM_Dependency`
Property	**Description**
Antecedent	CIM_Tachometer refers to the tachometer (fan sensor) that measures the RPM of the fan.
Dependent	CIM_Fan refers to the fan whose revolutions are measured by the tachometer.

CIM_PackageTempSensor

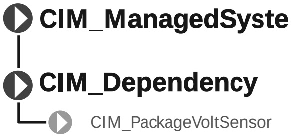


The CIM_PackageTempSensor class listed in Table 5-2 contains temperature sensors that are often installed in a package such as a chassis or a rack to assist in the monitoring of the package in general. This relationship is described by the CIM_PackageTempSensor association.

Table 5-2. CIM_PackageTempSensor Properties

Class Name:	`CIM_PackageTempSensor`
Parent Class:	`CIM_Dependency`
Property	**Description**
Antecedent	CIM_TempSensor refers to the temperature sensor for the package.
Dependent	CIM_PhysicalPackage refers to the physical package whose environment is being monitored.

CIM_PackageVoltSensor

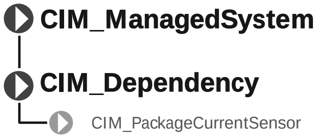


The CIM_PackageVoltSensor identified in Table 5-3 contains voltage sensors that are often installed in a package such as a chassis or a rack to assist in the monitoring of the package in general. This relationship is described by the CIM_PackageVoltSensor association.

Table 5-3. CIM_PackageVoltage Properties

Class Name:	`CIM_PackageVoltSensor`
Parent Class:	`CIM_Dependency`
Property	**Description**
Antecedent	CIM_PackageVoltSensor refers to the voltage sensor for the package.
Dependent	CIM_PhysicalPackage refers to the physical package whose voltages are being monitored.

CIM_PackageCurrentSensor

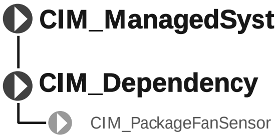


The CIM_PackageCurrentSensor shown in Table 5-4 contains amperage sensors that are often installed in a package such as a chassis or a rack to assist in the monitoring of the package in general. This relationship is described by the CIM_PackageCurrentSensor association.

Table 5-4. CIM_PackageCurrentSensor Properties

Class Name:	`CIM_PackageCurrentSensor`
Parent Class:	`CIM_Dependency`
Property	**Description**
Antecedent	CIM_CurrentSensor refers to the amperage sensor for the package.
Dependent	CIM_PhysicalPackage refers to the physical package whose amperage is being monitored.

CIM_PackageFanSensor

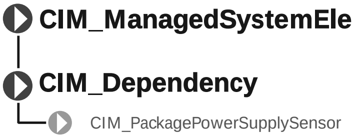


The CIM_PackageFanSensor class described in Table 5-5 contains fan sensors that monitor the whole package.

Table 5-5. CIM_PackageFanSensor Properties

Class Name:	`CIM_PackageFanSensor`
Parent Class:	`CIM_Dependency`
Property	**Description**
Antecedent	CIM_Fan refers to the cooling device for the package.
Dependent	CIM_PhysicalPackage refers to the physical package whose environment is being monitored.

CIM_PackagePowerSupplySensor

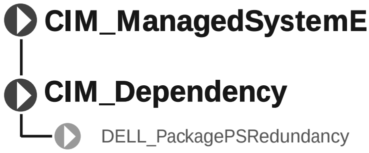


The CIM_PackagePowerSupplySensor class described in Table 5-6 contains power supplies that provide power to the whole package.

Table 5-6. CIM_PackagePowerSupplySensor Properties

Class Name:	`CIM_PackagePowerSupplySensor`
Parent Class:	`CIM_Dependency`
Property	**Description**
Antecedent	CIM_PowerSupplySensor refers to the power supply sensor that monitors wattage for the entire package.
Dependent	CIM_PhysicalPackage refers to the package whose wattage is being monitored.

DELL_PackagePSRedundancy

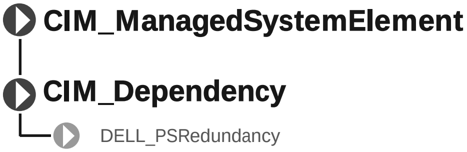


The DELL_PackagePSRedundancy class listed in Table 5-7 defines what constitutes power supply redundancy for an entire package.

Table 5-7. DELL_PackagePSRedundancy Properties

Class Name:	`DELL_PackagePSRedundancy`
Parent Class:	`CIM_Dependency`
Property	**Description**
Antecedent	DELL_PSRedundancyGroup refers to power supplies that deliver wattage for the entire package.
Dependent	CIM_PhysicalPackage refers to the package to which the wattage is being supplied.

DELL_PSRedundancy



The DELL_PSRedundancy class shown in Table 5-8 defines what constitutes power supply redundancy for Dell™ systems.

Table 5-8. DELL_PSRedundancy Properties

Class Name:	`DELL_PSRedundancy`
Parent Class:	`CIM_Dependency`
Property	**Description**
Antecedent	CIM_PowerSupplySensor refers to the power supply sensor that monitors wattage for the entire package.
Dependent	CIM_PhysicalPackage refers to the package whose wattage is being monitored.

Glossary

The following list defines or identifies technical terms, abbreviations, and acronyms used in user documents.

Array Manager
A systems management application that allows you to manage and configure SCSI and Fibre Channel RAID controllers through a common user interface.

asset tag code
An individual code assigned to a computer, usually by a system administrator, for security or tracking purposes.

attribute
An attribute, or property, contains a specific piece of information about a manageable component. For example, a component can have attributes for settings, capabilities, and status.

CIM
Acronym for Common Information Model, which is a model for describing management information from the DMTF. CIM is implementation independent, allowing different management applications to collect the required data from a variety of sources. CIM includes schemas for systems, networks, applications, and devices. It provides mapping techniques for interchange of CIM data with MIB data from SNMP agents.

CIMOM
Acronym for common information model object manager.

CI/O
Acronym for comprehensive input/output.

class
For the purposes of the Dell CIM provider, a class is a set of managed system elements that can be monitored and managed using a systems management console capable of receiving CIM information. Managed system elements can have various levels of complexity, from rack systems containing multiple servers and storage systems, to individual fans, power supplies, processors, and chips. Physical objects that contain systems can be associated with the CIM_PhysicalPackage class. Managed objects of intermediate complexity can be represented by such classes as CIM_SoftwareElement or CIM_PowerSupplyRedundancy. Simple managed system elements can be represented by classes such as CIM_Processor.

component
Manageable components are operating systems, computer systems, expansion cards, or peripherals that are compatible with a systems management standard such as CIM and SNMP. Each component is made up of groups and attributes that are defined as relevant to that component.

controller
A chip that controls the transfer of data between the microprocessor and memory or between the microprocessor and a peripheral device such as a disk drive or the keyboard.

DMTF
Abbreviation for Distributed Management Task Force, a consortium of companies representing hardware and software providers.

***ix*86**
Variable used to represent microprocessors such as Intel® i386™, i486™, and so forth.

IHV

Acronym for independent hardware vendor. IHVs often develop their own SNMP MIBs for components that they manufacture.

IT Assistant

A comprehensive systems management application that integrates event management, configuration management, and asset management for systems distributed throughout an enterprise.

MIB

Acronym for management information base. A MIB is used to send detailed status/commands from or to an SNMP managed device.

MOF

Acronym for managed object format, which is an ASCII file that contains the formal definition of a CIM schema.

NIC

Acronym for network interface controller.

property

A property is a capability or characteristic of a CIM class. The temperature probe class, for example, has a property that describes its thresholds for normal, lower critical, and upper critical ranges of operation. Defining where normal operation ends and where critical temperatures begin determines when warnings should be sent to the systems manager for corrective action.

Every property has a Description and a Data Type. The Description provides a brief explanation of what a particular managed object does. The Data Type specifies the form that the values of a property must take. For example, some values are bit fields and others are integers or strings.

provider

A provider is an extension of a CIM schema that communicates with managed objects. The provider accesses data and generates event notifications from a variety of sources. The Dell CIM provider extends the standard CIM schema to make it easier to manage systems.

MOF

A MOF is a management object file that models objects in a systems management environment. The MOF models the relationships between different managed objects. For example, the CIM_RedundancyGroup is a parent class for components that are so critical to the proper functioning of a system that the system is designed to have additional critical components. When a critical component fails, redundancy allows the system to continue operation because there are other components that can compensate for the loss. The DELL_PowerSupply and DELL_FanRedundancy classes are derived from the CIM redundancy group. The relationship is one of child to parent.

RAID

Acronym for redundant array of independent disks.

response file

The file that records the features that an administrator wants to incorporate into an unattended installation is called a “response file” or an “answer file.”

set operation

An operation used to write or “set” data to MIB variables maintained by the SNMP agent.

SNMP

Abbreviation for Simple Network Management Protocol. SNMP is an industry-standard interface that allows a network manager to remotely monitor and manage workstations.

unattended installation

An unattended installation requires far less operator involvement than an interactive installation. Also called a “silent installation,” unattended installation programs record the administrator’s preferences about which features of an application program to install. The file that records these installation feature preferences is called a “response file” or an “answer file.” System administrators typically create packages that include the response file and any other files needed to install the program, distribute the package to multiple systems, and activate the unattended installation.

Index