Dell EMC OpenManage CIM Reference Guide

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DELL Technologies

Notes, cautions, and warnings

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

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

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

Contents

1

Introduction

This reference guide documents the 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 **dmtf.org** and the Microsoft website at **microsoft.com**.

NOTE: This document includes sections or data that is not applicable to the PowerEdge MX740x and PowerEdge MX840c.

Topics:

Server Administrator

Server Administrator 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 EMC device.

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.

The property values being presented could be NULL or empty string on some systems, although in general, some non-empty values can be expected. Key properties (listed below) always carry non-empty values. It is recommended that you use only the following properties as key attributes:

- `CIM_PhysicalElement`: CreationClassName, Tag
- `CIM_System`: CreationClassName, Name
- `CIM_LogicalDevice`: SystemCreationClassName, SystemName, CreationClassName, DeviceID
- `CIM_Dependency`: Antecedent, Dependent
- `CIM_SoftwareElement`: Name, Version, SoftwareElementState, SoftwareElementID, TargetOperatingSystem
- `CIM_SoftwareFeature`: IdentifyingNumber, ProductName, Vendor, Version, Name
- `CIM_IRQ`: CSCreationClassName, CSName, CreationClassName, IRQNumber
- `CIM_MemoryMappedIO`: CSCreationClassName, CSName, CreationClassName, StartingAddress

- CIM_DMA: CSCreationClassName, CSName, CreationClassName, DMAChannel
- CIM_RedundancyGroup: CreationClassName, Name
- DELL_EsmLog: RecordNumber
- DELL_PostLog: RecordNumber
- DELL_BIOSExtensions: systemBIOSCharacteristics
- DELL_BIOSSettings: DisplayName
- CIM_ServiceAccessPoint: SystemCreationClassName, SystemName, CreationClassName, Name

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_EsmLog
- DELL_PostLog

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 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:

Table 1. Classes That Describe Relationships

Element	Description	
Antecedent	CIM_PackageCurrentSensor	
Dependent	CIM_PhysicalPackage	

The CIM_PackageCurrentSensor class monitors an entire physical package, such as all the components contained in a given system chassis. The CIM_PhysicalPackage class is dependent on the CIM_PackageCurrentSensor class 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 this document, the illustrations of the classes created and populated by Dell are represented by an orange circle icon.

Common Properties of Classes

Many classes have properties such as *Caption*, *Description*, and *CreationClassName*. Common Properties of Classes defines properties that have the same meaning in every class that has this property and are defined more than once in this guide.

Table 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
Status	Provides a string indicating the status of the component. Status values include: Operational Status Values:	string

Table 2. Common Properties of Classes (continued)

Property	Description	Data Type
	• *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.	
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 EMC OpenManage Server Administrator CIM Reference Guide*, you can find the following documents on the Dell Support website at **dell.com/support/manuals**:

- *Dell EMC OpenManage Server Administrator User's Guide* documents the features, installation, and uninstallation of Server Administrator.
- *Dell EMC OpenManage Server Administrator Installation Guide* contains instructions to help you install Dell EMC OpenManage Server Administrator.
- *Dell EMC OpenManage Management Station Software Installation Guide* contains instructions to help you install Dell EMC OpenManage management station software that includes Baseboard Management Utility, iDRAC Tools, and Active Directory Snap-In.

- *Dell EMC OpenManage Server Administrator Command Line Interface User's Guide* explains how to perform tasks using the text-based command line interface.
- *Dell EMC 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 EMC 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.
- The *Glossary* for information on terms used in this document.

Typographical Conventions

The following example shows how most of the classes in the Dell CIM provider are documented. CIM_DMA Properties shows a partial class description for the DELL_DMA class.

NOTE: For a full class description, see 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.

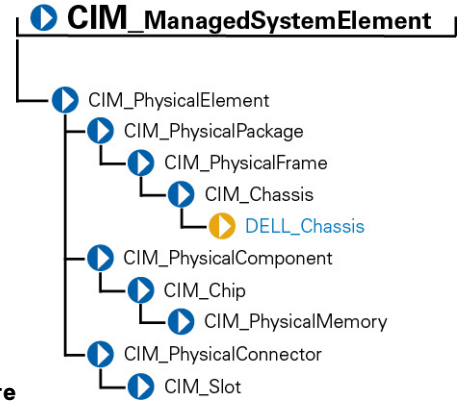
Description includes text that defines the property.

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.

2

CIM_Physical Element

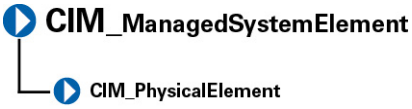
CIM_PhysicalElement is a CIM-defined class. The CIM_PhysicalElement class contains the subclasses shown in Figure



CIM_PhysicalElement Class Structure

Topics:

CIM_PhysicalElement



Subclasses of the CIM_PhysicalElement class listed in Table below 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.

The following table lists the CIM Class Name, Parent Class and describes the CIM physical element properties along with the data type.

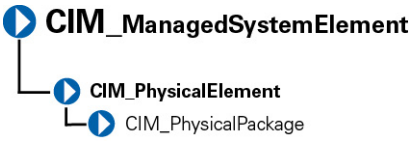
Class Name: CIM_PhysicalElement

Parent Class: CIM_ManagedSystemElement

Table 3. CIM_PhysicalElement Properties

Property	Description	Data Type
CreationClassName	See Common Properties of Classes	
Manufacturer	See 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 a physical element is placed very high in the object hierarchy in order to identify the hardware/entity independently, regardless of the physical placement in or on cabinets, adapters, and so on. For example, a hotswappable or removable component can be taken from its containing (scoping) package and be temporarily unused. The object still continues to exist and may even be inserted into a different scoping container. Therefore, the key for the 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 below represents physical elements that contain or host other components. Examples are a rack enclosure or an adapter card with multiple functions.

The following table lists the CIM_PhysicalPackage properties that represent the physical elements that contain or host other components.

Class Name:`CIM_PhysicalPackage`

Parent Class: `CIM_PhysicalElement`

Table 4. CIM_PhysicalPackage Properties

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,	Boolean

Table 4. CIM_PhysicalPackage Properties (continued)

Property	Description	Data Type
	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.	

CIM_PhysicalFrame

The `CIM_PhysicalFrame` class described in Table properties 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.

The following table describes the class, data type, and properties of CIM_Physical Frame.

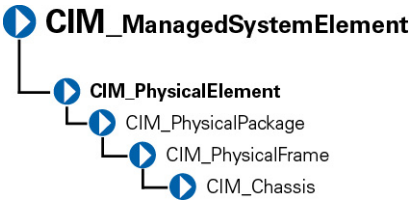
Class Name: `CIM_PhysicalFrame`

Parent Class: `CIM_PhysicalPackage`

Table 5. CIM_Physical Frame Properties

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
SecurityBreach	An enumerated, integer-valued property indicating that a physical breach of the frame is in progress. Values for the **SecurityBreach** property are: **1 -** Other **2 -** Unknown **3** - No breach **4** - Breach attempted **5** - Breach successful	uint16
SecurityBreachDriveBay	An enumerated, integer-valued property indicating that a physical breach of the frame is in progress. Values for the **SecurityBreachDriveBay** property are: **1** - Other **2** - Unknown **3** - No breach **4** - Breach attempted **5** - Breach successful **6** - Drive Bay open **7** - Drive Bay open extended	uint16
IsLocked	Indicates that the frame is currently locked.	Boolean

CIM_Chassis



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

The following table describes the class, data type, and properties of the CIM_Chassis Parent class.

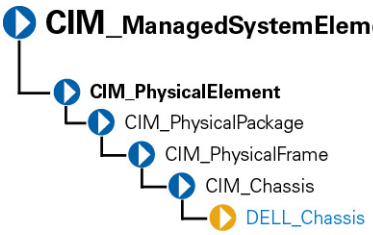
Class Name: `CIM_Chassis`

Parent Class:`CIM_PhysicalFrame`

Table 6. CIM_Chassis Parent Properties

Property	Description	Data Type
ChassisTypes	Values for the **ChassisTypes** property are: 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 below defines the identifying and status properties of the chassis. `DELL_Chassis` inherits from CIM-defined classes, but is populated by Dell properties.

The following table describes the properties and data type of the DELL Chassis class.

Class Name: `DELL_Chassis`

Parent Class: `CIM_Chassis`

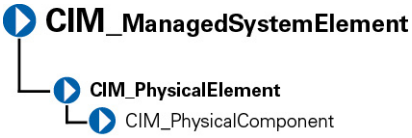
Table 7. DELL_Chassis Properties

Property	Description	Data Type
AssetTag	Indicates the container **AssetTag** string. This asset tag string is assigned by the system administrator.	string
SystemClass	Refers to the system type that is installed and running the instrumentation. Values for the **SystemClass** property are: **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: **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
ChassisSystemProperties	Indicates chassis characteristics, such as energy smart and so on.	uint16
ChassisSystemRevision	Indicates the chassis revision.	uint16
EsmLogStatus	Indicates the global status of ESM log.	string

Table 7. DELL_Chassis Properties (continued)

Property	Description	Data Type
MemoryRedStatus	Indicates the global status of memory redundancy.	string
ChassisExpressServiceCode	Indicates the chassis express service code.	string
ChassisNodeID	Chassis Node ID	string

CIM_PhysicalComponent



The `CIM_PhysicalComponent` class listed in Table below 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 8. CIM_PhysicalComponent Properties

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

CIM_Chip

The `CIM_Chip` class listed in Chip Properties represents any type of integrated circuit hardware, including ASICs, processors, memory chips, and so on.

The following table describes the properties and data type of the CIM Chip class.

Class Name: `CIM_Chip`

Parent Class: `CIM_PhysicalComponent`

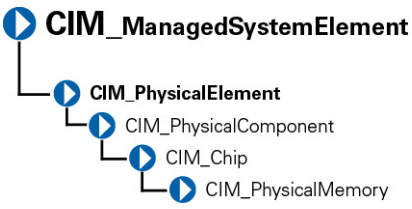
Table 9. CIM_Chip Properties

Property	Description	Data Type
FormFactor	**0** — Unknown **1** — Other **2** — SIP **3** — DIP **4** — ZIP **5** — SOJ	uint16

Table 9. CIM_Chip Properties

Property	Description	Data Type
	6 — Proprietary **7** — SIMM **8** — DIMM **9** — TSOP **10** — PGA **11** — RIMM **12** — SODIMM **13** — SRIMM **14** — SMD **15** — SSMP **16** — QFP **17** — TQFP **18** — SOIC **19** — LCC **20** — PLCC **21** — BGA **22** — FPBGA **23** — LGA **24** — FB-DIMM	

CIM_PhysicalMemory



The `CIM_PhysicalMemory` class listed in PhysicalMemoryProperties is a subclass of CIM_Chip, representing low-level memory devices, such as SIMMs, DIMMs, and so on.

The following table describes the properties and data type of the CIM PhysicalMemory class.

Class Name: `CIM_PhysicalMemory`

Parent Class: `CIM_Chip`

Table 10. CIM_PhysicalMemory Properties

Property	Description	Data Type
FormFactor	See Chip Properties	uint16
MemoryType	Indicates the type of physical memory. Values for the MemoryType property are: **0** - Unknown **1** - Other **2** - DRAM	uint16

Table 10. CIM_PhysicalMemory Properties (continued)

Property	Description	Data Type
	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 **20** - DDR **21** - DDR2 **22** - DDR2 FB-DIMM **24** - DDR3 **25** - FBD2 **26** - DDR4	
MemoryTechnology	Defines the Memory Technology type of the Memory Device. The technology values are: 01h - Other 02h - Unknown 03h - DRAM 04h - NVDIMM-N 05h - NVDIMM-F 06h - NVDIMM-P 07h - Intel persistent memory	uint32
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	uint16

Table 10. CIM_PhysicalMemory Properties (continued)

Property	Description	Data Type
	memory is solely used to provide error correction bits.	
Speed	Indicates the speed of the physical memory, in nanoseconds.	uint32
Rank	The Rank values of DIMM are: **0** - Unknown **1** - Single **2** - Dual **4** - Quad **8** - Octal **16** - Hexa	unit32
SpeedAsString	Indicates the accurate speed of the physical memory, in string format (with units).	string
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
Manufacturer	Indicates the manufacturer of the physical memory.	string
NonVolatileSize	The size of the Non-volatile portion of the memory device in Mega Bytes (MB)	uint64
VolatileSize	The size of the Volatile portion of the memory device in Mega Bytes (MB)	uint64
CacheSize	The size of the Cache portion of the memory device in Mega Bytes (MB)	uint64
RemainingRatedWriteEndurance	The Remaining life of persistent memory device in Percentage.	uint32
SerialNumber	Indicates the serial number of the physical memory.	string

CIM_PhysicalConnector

The `CIM_PhysicalConnector` class listed in Physical Connector Properties 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 Connector Type Values for a list of valid connector type values.

The following table describes the properties and data type of the CIM PhysicalConnector class.

Class Name: `CIM_PhysicalConnector`

Parent Class: `CIM_PhysicalElement`

Table 11. CIM_PhysicalConnector Properties

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 Connector Type Values for the values of the ConnectorType property.	uint16

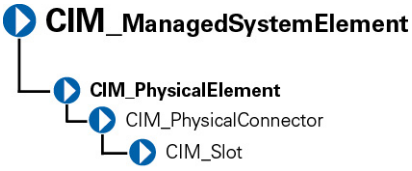
Table 12. Connector Type Values

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
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

Table 12. Connector Type Values (continued)

Connector Type Values			
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 SCAII (40 pins)	43 - PCI	73 - AGP	103 - XIO
14 - Fibre Channel SCAII (20 pins)	44 - ISA	74 - VME bus	104 - HIO
15 - Fibre Channel BNC	45 - unused	75 - VME64	105 - NGIO
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 that is listed in Table below represents connectors into which packages are inserted. For example, a physical package that is a hard drive can be inserted into a 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.

The following table describes the properties and data type of the CIM Slot class.

Class Name: `class CIM_Slot`

Parent Class: `CIM_PhysicalConnector`

Table 13. CIM_Slot Properties

Property	Description	Data Type
ConnectorType	See Connector Type Values	uint16

Table 13. CIM_Slot Properties (continued)

Property	Description	Data Type
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
SystemSlotType	Indicates the type of system slot. Values for the **SystemSlotType** property are as follows: **1** - Other **2** - Unknown **3** - ISA **4** - MCA **5** - EISA **6** - PCI **7** - PCMCIA **8** - VL-VESA **9** - Proprietary **10** - Processor card Slot **11**- Proprietary memory card slot **12**- I/O Riser card slot **13** - NuBus **14**- PCI - 66MHz capable **15** - AGP **16** - AGP 2X **17** - AGP 4X **18** - PCI-X **19** - AGP 8X **20** - M.2 Socket 1-DP (Mechanical Key A) **21** - M.2 Socket 1-SD (Mechanical Key E) **22** - M.2 Socket 2 (Mechanical Key B) **23** - M.2 Socket 3 (Mechanical Key M) **24** - MXM Type I **25** - MXM Type II **26** - MXM Type III (standard connector)	

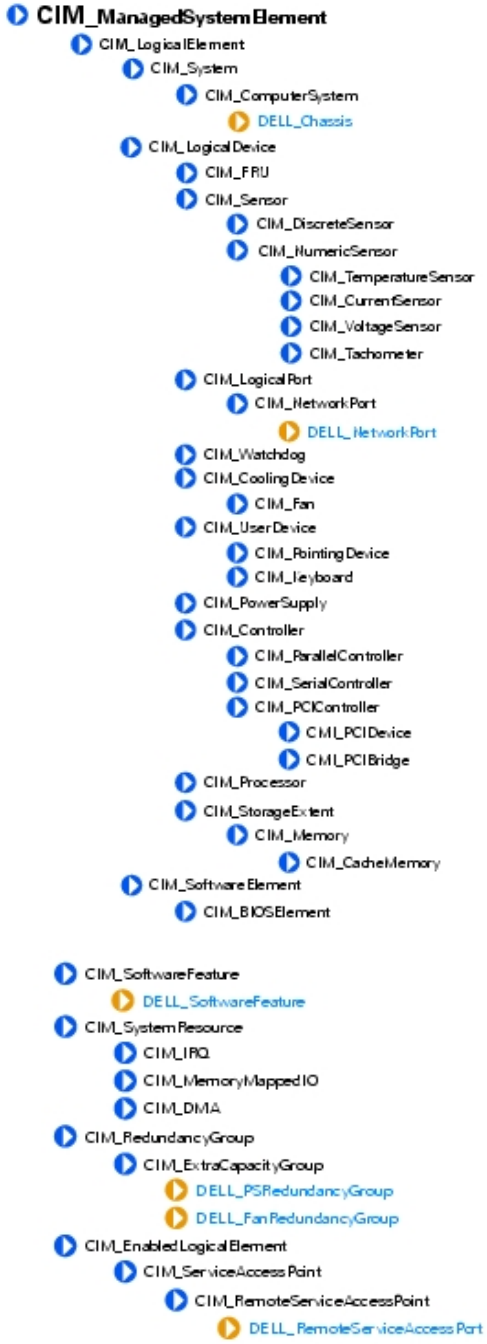
Table 13. CIM_Slot Properties (continued)

Property	Description	Data Type
	27 - MXM Type III (HE connector) **28** - MXM Type IV **29** - MXM 3.0 Type A **30** - MXM 3.0 Type B **31** - PCI Express Gen 2 SFF-8639 **32** - PCI Express Gen 3 SFF-8639 **33** - PCI Express Mini 52-pin with bottom-side keep-outs **34** - PCI Express Mini 52-pin without bottom-side keep-outs **35** - PCI Express Mini 76-pin	
SystemSlotType	**160** - PC-98/C20 **161** - PC-98/C24 **162** - PC-98/E **163** - PC-98/Local bus **164** - PC-98/Card **165** - PCI Express **166** - PCI Express x1 **167** - PCI Express x2 **168** - PCI Express x4 **169** - PCI Express x8 **170** - PCI Express x16 **171** - PCI Express Gen 2 **172** - PCI Express Gen 2 x1 **173** - PCI Express Gen 2 x2 **174** - PCI Express Gen 2 x4 **175** - PCI Express Gen 2 x8 **176** - PCI Express Gen 2 x16 **177** - PCI Express Gen 3 **178** - PCI Express Gen 3 x1 **179** - PCI Express Gen 3 x2 **180** - PCI Express Gen 3 x4 **181** - PCI Express Gen 3 x8 **182** - PCI Express Gen 3 x16 **184** - PCI Express Gen 4 **185** - PCI Express Gen 4 x1 **186** - PCI Express Gen 4 x2 **187** - PCI Express Gen 4 x4 **188** - PCI Express Gen 4 x8 **189** - PCI Express Gen 4 x16	

3

CIM_LogicalElement

`CIM_LogicalElement` is a CIM-defined class containing the subclasses described in below Figure.



Topics:

- CIM_LogicalElement
- CIM_System
- CIM_ComputerSystem
- DELL_System

- CIM_LogicalDevice
- CIM_FRU
- CIM_Sensor
- CIM_DiscreteSensor
- CIM_NumericSensor
- CIM_TemperatureSensor
- CIM_CurrentSensor
- CIM_VoltageSensor
- CIM_Tachometer
- CIM_WatchDog
- CIM_CoolingDevice
- CIM_Fan
- CIM_UserDevice
- CIM_PointingDevice
- CIM_Keyboard
- CIM_PowerSupply
- CIM_Controller
- CIM_ParallelController
- CIM_SerialController
- CIM_PCIController
- CIM_PCIDevice
- CIM_PCIBridge
- CIM_Processor
- CIM_StorageExtent
- CIM_Memory
- CIM_CacheMemory
- DELL_SoftwareFeature
- CIM_BIOSElement
- CIM_SoftwareFeature
- DELL_SoftwareFeature
- CIM_SystemResource
- CIM_IRQ
- CIM_MemoryMappedIO
- CIM_DMA
- CIM_RedundancyGroup
- CIM_ExtraCapacityGroup
- DELL_PSRedundancyGroup
- DELL_FanRedundancyGroup
- CIM_EnabledLogicalElement
- CIM_ServiceAccessPoint
- CIM_RemoteServiceAccessPoint
- DELL_RemoteServiceAccessPort

CIM_LogicalElement

Table properties list 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 14. CIM_LogicalElement Properties

Properties	
Class Name:	CIM_LogicalElement
Parent Class:	CIM_ManagedSystemElement

CIM_System

The CIM_System class described in Table below 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.

The following table describes the properties and data type of the CIM System class.

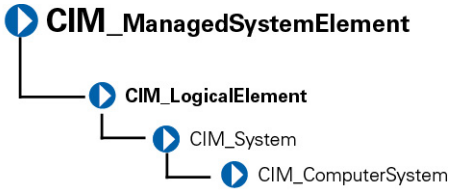
Class Name: CIM_System

Parent Class:CIM_LogicalElement

Table 15. CIM_System Properties

Property	Description	Data Type
CreationClassName	See 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 about 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

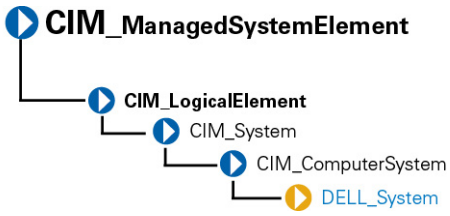


The CIM_ComputerSystem class described in Table below contains some or all of the following CIM_ManagedSystemElements: file system, operating system, processor, and memory (volatile and/or nonvolatile storage). For properties, see CIM_System Properties.

Table 16. CIM_ComputerSystem Properties

Properties	
Class Name:	CIM_ComputerSystem
Parent Class:	CIM_System

DELL_System



The DELL_System class described in Table below is the set of all Dell instrumented systems, including server, and storage systems. For properties, see CIM_System Properties

Table 17. DELL_System Properties

Properties	
Class Name:	DELL_System
Parent Class:	CIM_ComputerSystem

CIM_LogicalDevice

The CIM_LogicalDevice class described below Table 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 the actual temperature.

The following table describes the properties and data type of the CIM Logical Device class.

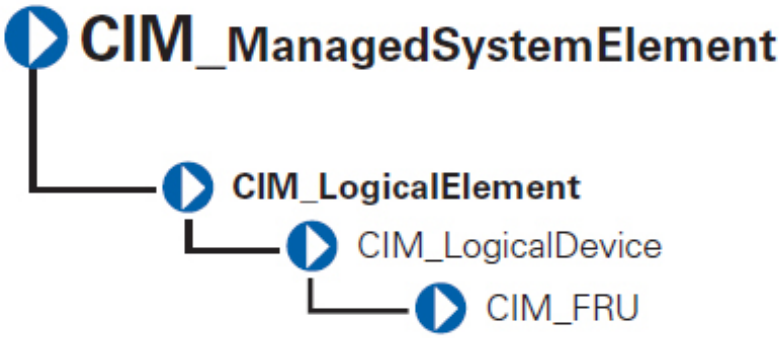
Class Name: CIM_LogicalDevice

Parent Class: CIM_LogicalElement

Table 18. CIM_Logical Device Properties

Property	Description	Data Type
SystemCreationClassName	See Common Properties of Classes	string
SystemName	Indicates the scoping system's name.	string
CreationClassName	See Common Properties of Classes	string
DeviceID	Identifies an address or other identifying information to uniquely name the logical device.	string

CIM_FRU



The `CIM_FRU` class described in FRU Properties contains manufacturing information related to the Field Replaceable Units (FRU) of a system such as a system planar or I/O riser card.

The following table describes the properties and data type of the CIM FRU class.

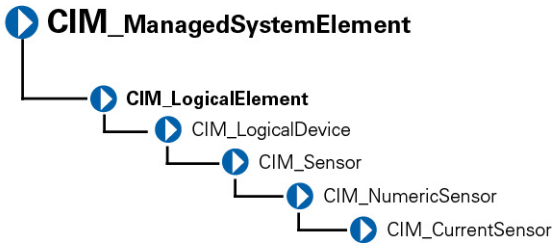
Class Name: `CIM_FRU`

Parent Class: `CIM_LogicalDevice`

Table 19. CIM_FRU Properties

Property	Description	Data Type
FRUInformationState	Indicates the state and availability of FRU information.	uint 16
FRUDeviceName	Indicates the device name of the FRU.	string
FRUManufacturingDateName	Indicates the manufacturing date of the FRU in ticks.	datetime
FRUManufacturerName	Indicates the name of the manufacturer.	string
FRUPartNumberName	Indicates the FRU part number.	string
FRUSerialNumberName	Indicates the FRU serial number.	string
FRURevisionName	Indicates the FRU revision number.	string

CIM_Sensor



The `CIM_Sensor` class described in Table below contains hardware devices capable of measuring the characteristics of some physical property, for example, the temperature or voltage characteristics of a computer system

The following table describes the properties and data type of the CIM Sensor class.

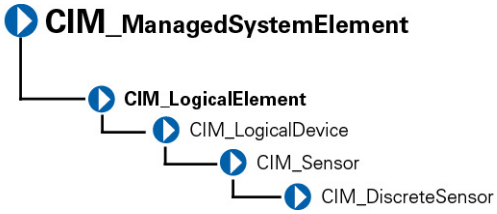
Class Name: `CIM_Sensor`

Parent Class: `CIM_LogicalDevice`

Table 20. CIM_Sensor Properties

Property	Description	Data Type
SensorType	Indicates the type of the sensor, for example, voltage or temperature sensor. Values for the SensorType property are: **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. **6** - Batteries maintain the time and date and save the system's BIOS configuration when the system is turned off.	uint16
OtherSensorType	Description Indicates the type of sensor when the SensorType property is set to **Other**.	string
PossibleStates	Enumerates the string outputs of the sensor. For example, a NumericSensor can report states based on threshold readings.	string
CurrentState	Indicates the current state of the sensor. This value is always one of the Possible States.	string
PollingInterval	Indicates the polling interval, in nanoseconds, that the sensor hardware or instrumentation uses to determine the current state of the sensor.	uint64

CIM_DiscreteSensor



The `CIM_DiscreteSensor` class described in Table below has a set of legal string values that it can report. The `CIM_DiscreteSensor` always has a "current reading" that corresponds to one of the enumerated values.

The following table describes the properties and data type of the CIM Discrete Sensor class.

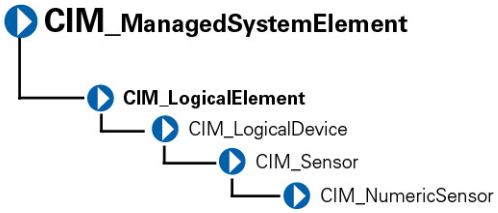
Class Name: `CIM_DiscreteSensor`

Parent Class: `CIM_Sensor`

Table 21. CIM_DiscreteSensor Properties

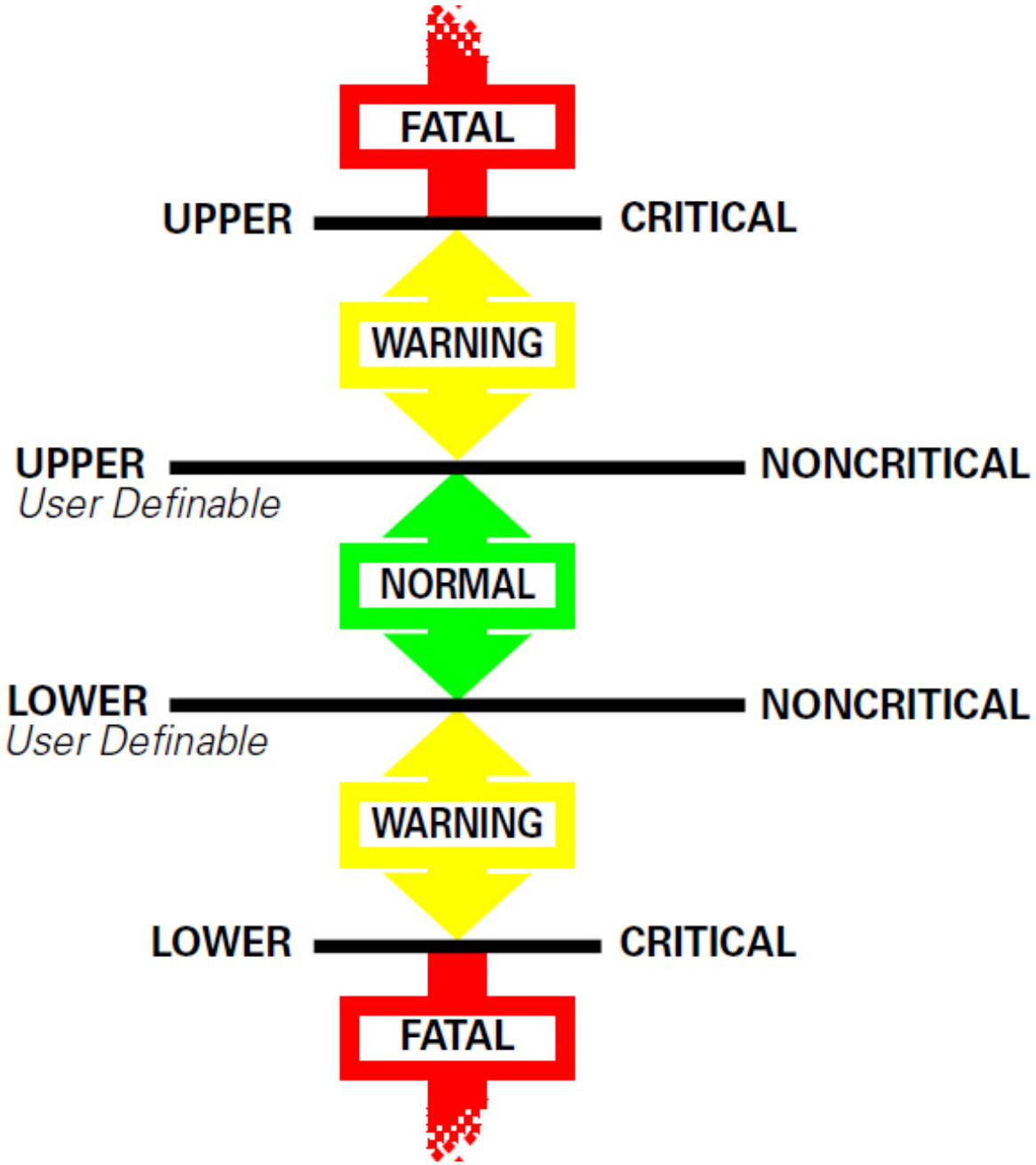
Property	Description	Data Type
CurrentReading	See Common Properties of Classes	sint32
PossibleValues	Enumerates the string outputs that can be reported by the sensor.	sint32

CIM_NumericSensor



The `CIM_NumericSensor` class described in NumericSensor Properties returns numeric settings and may also support threshold settings. Figure below shows the relationship among upper and lower critical and upper and lower non-critical threshold values. The normal range falls between upper and lower non-critical thresholds.

Figure: Ranges for Threshold Values



The following table describes the properties and data type of the CIM Numeric Sensor class.

Class Name: `CIM_NumericSensor`

Parent Class: `CIM_Sensor`

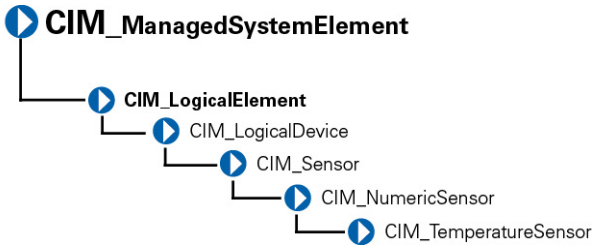
Table 22. CIM_NumericSensor Properties

Property	Description	Data Type
UnitModifier	See Common Properties of Classes	sint32
CurrentReading	See Common Properties of Classes	sint32
IsLinear	See Common Properties of Classes	Boolean
LowerThresholdNonCritical	See Common Properties of Classes	sint32
UpperThresholdNonCritical	See Common Properties of Classes	sint32
LowerThresholdCritical	See Common Properties of Classes	sint32

Table 22. CIM_NumericSensor Properties (continued)

Property	Description	Data Type
UpperThresholdCritical	See 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 this sensor. Settable threshold values are: 1 - LowerThresholdNonCritical 2 - UpperThresholdNonCritical	uint16

CIM_TemperatureSensor



The `CIM_TemperatureSensor` class described in Table below contains sensors that sample ambient temperature and return a value in degrees celsius.

The following table describes the properties and data type of the CIM Temperature Sensor class.

Class Name: `CIM_TemperatureSensor`

Parent Class: `CIM_NumericSensor`

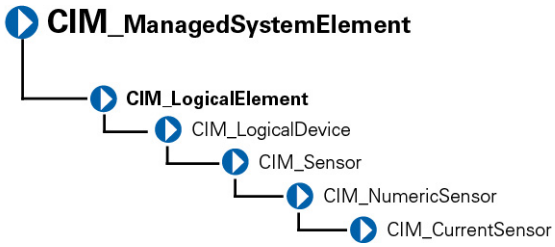
Table 23. CIM_TemperatureSensor Properties

Property	Description	Data Type
UnitModifier	See Common Properties of Classes	sint32
CurrentReading	See Common Properties of Classes	sint32
IsLinear	See Common Properties of Classes	Boolean
LowerThresholdNonCritical	See Common Properties of Classes	sint32

Table 23. CIM_TemperatureSensor Properties (continued)

Property	Description	Data Type
UpperThresholdNonCritical	See Common Properties of Classes	sint32
LowerThresholdCritical	See Common Properties of Classes	sint32
UpperThresholdCritical	See Common Properties of Classes	sint32

CIM_CurrentSensor



The `CIM_CurrentSensor` class described in Properties Table below contains sensors that measure amperage and return a value in amperes and watts.

The following table describes the properties and data type of the CIM Current Sensor class.

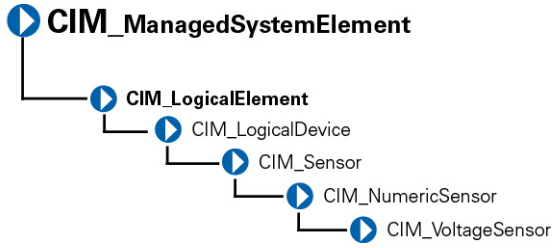
Class Name: `CIM_CurrentSensor`

Parent Class: `CIM_NumericSensor`

Table 24. CIM_CurrentSensor Properties

Property	Description	Data Type
UnitModifier	See Common Properties of Classes	sint32
CurrentReading	See Common Properties of Classes	sint32
IsLinear	See Common Properties of Classes	Boolean
LowerThresholdNonCritical	See Common Properties of Classes	sint32
UpperThresholdNonCritical	See Common Properties of Classes	sint32
LowerThresholdCritical	See Common Properties of Classes	sint32
UpperThresholdCritical	See Common Properties of Classes	sint32

CIM_VoltageSensor



The `CIM_VoltageSensor` class described in Table below contains sensors that measure voltage and return a value in volts.

The following table describes the properties and data type of the CIM Voltage Sensor class.

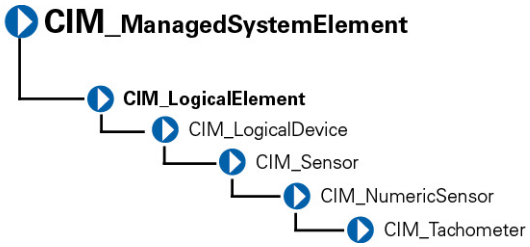
Class Name: `CIM_VoltageSensor`

Parent Class: `CIM_NumericSensor`

Table 25. CIM_VoltageSensor Properties

Property	Description	Data Type
UnitModifier	See Common Properties of Classes	sint32
CurrentReading	See Common Properties of Classes	sint32
IsLinear	See Common Properties of Classes	Boolean
LowerThresholdNonCritical	See Common Properties of Classes	sint32
UpperThresholdNonCritical	See Common Properties of Classes	sint32
LowerThresholdCritical	See Common Properties of Classes	sint32
UpperThresholdCritical	See Common Properties of Classes	sint32

CIM_Tachometer



The `CIM_Tachometer` class described in Table below contains devices that measure revolutions per minute (RPM) of a fan and return the value in RPMs.

The following table describes the properties and data type of the CIM Tachometer class.

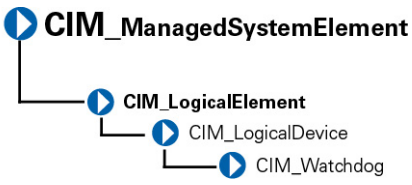
Class Name: `CIM_Tachometer`

Parent Class: `CIM_NumericSensor`

Table 26. CIM_Tachometer Properties

Property	Description	Data Type
SensorType	See Common Properties of Classes	uint16
UnitModifier	See Common Properties of Classes	sint32
CurrentReading	See Common Properties of Classes	sint32
IsLinear	See Common Properties of Classes	Boolean
LowerThresholdNonCritical	See Common Properties of Classes	sint32
UpperThresholdNonCritical	See Common Properties of Classes	sint32

CIM_WatchDog



The `CIM_WatchDog` class described in Table below 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.

The following table describes the properties and data type of the CIM WatchDog class.

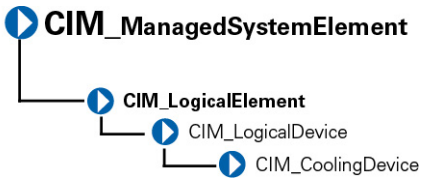
Class Name: `CIM_WatchDog`

Parent Class: `CIM_LogicalDevice`

Table 27. CIM_WatchDog Properties

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: **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 CIM_CoolingDevice contains a set of devices that work to keep the ambient internal temperature of the system at a safe value.

The following table describes the properties and data type of the CIM Cooling Device class.

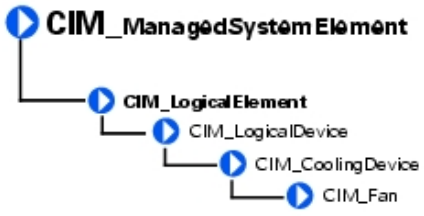
Class Name: `CIM_CoolingDevice`

Parent Class: `CIM_LogicalDevice`

Table 28. CIM_CoolingDevice Properties

Property	Description	Data Type
ActiveCooling	Specifies whether the device provides active (as opposed to passive) cooling.	Boolean

CIM_Fan



The `CIM_Fan class` described in below Table contains a set of devices that work to keep the ambient internal temperature of the system at a safe value by circulating air.

The following table describes the properties and data type of the CIM_Fan class.

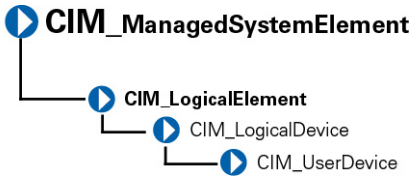
Class Name: `CIM_Fan`

Parent Class: `CIM_CoolingDevice`

Table 29. CIM_Fan Properties

Property	Description	Data Type
VariableSpeed	Specifies if the fan supports variable speeds.	Boolean
DesiredSpeed	Indicates the currently requested fan speed, defined in RPM. When the VariableSpeed value is TRUE, the fan supports variable speeds. When a variable speed fan is supported (VariableSpeed is TRUE), the actual speed is determined using a sensor (CIM_Tachometer) that is associated with the fan.	uint64

CIM_UserDevice



The `CIM_UserDevice` class described in Table below contains logical devices that allow a system's users to input or view data. Classes derived from `CIM_UserDevice` include `CIM_Keyboard` and `CIM_PointingDevice`.

The following table describes the properties and data type of the CIM User Device class.

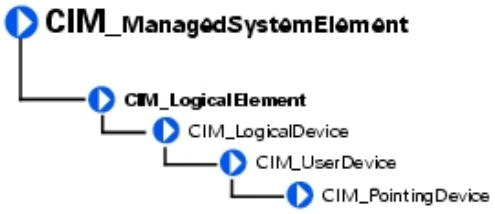
Class Name: `CIM_UserDevice`

Parent Class: `CIM_LogicalDevice`

Table 30. CIM_UserDevice Properties

Property	Description	Data Type
IsLocked	Indicates if the device is locked, preventing user input or output.	Boolean

CIM_PointingDevice



The `CIM_PointingDevice` class described in Table below includes those devices used to point to regions of a display. Examples of such devices are a mouse or a trackball.

The following table describes the properties and data type of the CIM Pointing Device class.

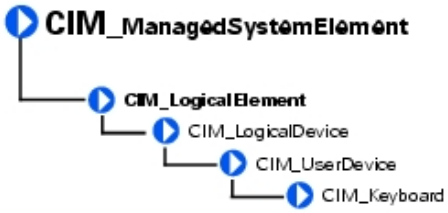
Class Name: `CIM_PointingDevice`

Parent Class: `CIM_UserDevice`

Table 31. CIM_PointingDevice Properties

Property	Description	Data Type
PointingType	Indicates the type of pointing device. Values for the **PointingType** property are: **1** — Other **2** — Unknown **3** — Mouse **4** — Trackball **5** — Trackpoint **6** — Glidepoint **7** — Touch pad **8** — Touch screen **9** — Mouse — optical sensor	uint16
NumberOfButtons	Indicates the number of buttons. If the CIM_PointingDevice has no buttons, a value of 0 is returned.	uint8
Handedness	Integer indicating if 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 described in Table below includes devices that allow users to enter data.

The following table describes the properties and data type of the CIM Keyboard class.

Class Name: `CIM_Keyboard`

Parent Class: `CIM_UserDevice`

Table 32. CIM_Keyboard Properties

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
Password	An integer indicating if a hardware-level password is enabled at the keyboard, preventing local input. Values for the **Password** property are: **1** — Other **2** — Unknown **3** — Disabled **4** — Enabled **5** — Not implemented	uint16

CIM_PowerSupply

The `CIM_PowerSupply` class described in Table below contains devices that provide current and voltage for the operation of the system and its components

The following table describes the properties and data type of the CIM Power Supply CLASS.

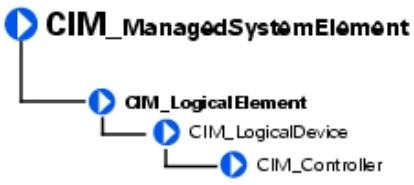
Class Name: `CIM_PowerSupply`

Parent Class: `CIM_LogicalDevice`

Table 33. CIM_PowerSupply Properties

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
ActiveInputVoltage	Indicates which input voltage range is currently in use. Range 1, range 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: **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	Defines the maximum sustained output wattage of the power supply (in tenths of Watts) 0 denotes 'unknown'.	uint32
InputRatedPower	Defines the rated input wattage of the power supply (in tenths of Watts).	uint32
PMCapable	Indicates the Power Monitoring capability.	Boolean

CIM_Controller



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

The following table describes the properties and data type of the CIM Controller class.

Class Name: `CIM_Controller`

Parent Class: `CIM_LogicalDevice`

Table 34. CIM_Controller Properties

Property	Description	Data Type
ProtocolSupported	The protocol used by the controller to access controlled devices. Values for the **ProtocolSupported** property are: **1** — Other **2** — Unknown **3** — PCI **4** — Parallel protocol	uint16

CIM_ParallelController

The `CIM_ParallelController` class described in below 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.

The following table describes the properties and data type of the CIM Parallel Controller class.

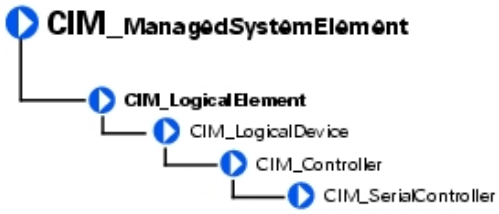
Class Name: `CIM_ParallelController`

Parent Class: `CIM_Controller`

Table 35. CIM_ParallelController Properties

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: **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 described in Table below contains controllers that transfer data one bit at a time to the devices they control, for example, a serial port controlling a modem.

The following table describes the properties and data type of the CIM Serial Controller class.

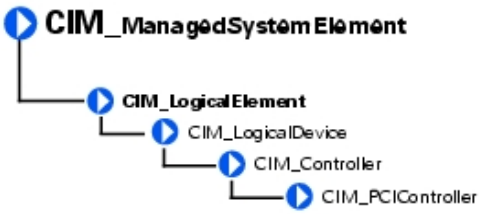
Class Name: `CIM_SerialController`

Parent Class: `CIM_Controller`

Table 36. CIM_SerialController Properties

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: **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 described in Table below 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.

The following table describes the properties and data type of the CIM PCI Controller class.

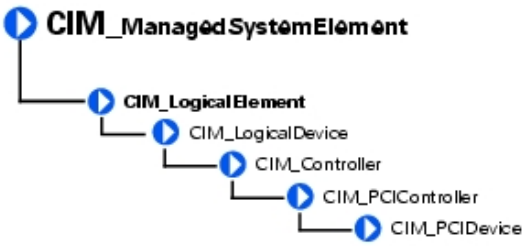
Class Name: `CIM_PCIController`

Parent Class: `CIM_Controller`

Table 37. CIM_PCIController Properties

Property	Description	Data Type
CommandRegister	The current contents of the register that provide 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: **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 below describes the capabilities and management of a PCI device controller on an adapter card.

The following table describes the properties and data type of the CIM PCI Device class.

Class Name: `CIM_PCIDevice`

Parent Class: `CIM_PCIController`

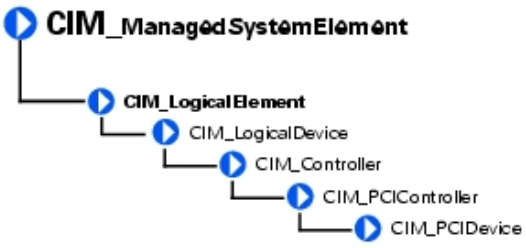
Table 38. CIM_PCIDevice Properties

Property	Description	Data Type
BaseAddress	Identifies an array of up to six double-word base memory addresses.	uint32

Table 38. CIM_PCIDevice Properties (continued)

Property	Description	Data Type
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 described in PCIBridge Properties 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.

The following table describes the properties and data type of the CIM PCI Bridge class.

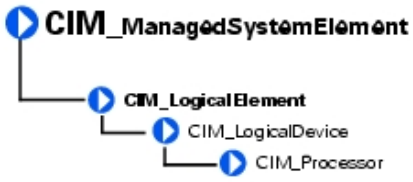
Class Name: `CIM_PCIBridge`

Parent Class: `CIM_PCIController`

Table 39. CIM_PCIBridge Properties

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 below contains devices that interpret and execute commands, for example, the Intel Xeon microprocessor.

The following table describes the properties and data type of the CIM Processor class.

Class Name: `CIM_Processor`

Parent Class: `CIM_LogicalDevice`

Table 40. CIM_Processor Properties

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 **19** - Socket mPGA604 **20** - Socket LGA771 **21** - Socket LGA775 **22** - Socket S1 **23** - Socket AM2 **24** - Socket F (1207) **25**— Socket LGA1366	uint16
MaxClockSpeed	Indicates the maximum speed (in MHz) of this microprocessor.	uint32
Core count	Indicates the number of core processors detected.	uint16

Table 40. CIM_Processor Properties (continued)

Property	Description	Data Type
CoreEnabledCount	Indicates the number of core processors enabled.	uint16
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
Brand	Indicates the brand name of the processor.	string
Model	Indicates the model name of the processor.	string
ExtendedCharacteristics	Indicates the extended capabilities of the processor. This attribute is a bit field. The following are the definitions of a bit when set to one: Bit 0 — Virtualization Technology (VT) supported Bit 1 — Demand-Based Switching (DBS) supported Bit 2 — eXecute Disable (XD) supported Bit 3 — Hyper Threading (HT) supported	uint16
ExtendedStates	Indicates the setting of the extended capabilities of the processor. This attribute is a bit field. The following are the definitions of a bit when set to one: Bit 0 — Virtualization Technology (VT) enabled Bit 1 — Demand-Based Switching (DBS) enabled Bit 2 — eXecute Disable (XD) enabled Bit 3 — Hyper Threading (HT) enabled	uint16
CPUStatus	Indicates the current status of the microprocessor. For example, it may be disabled by the user through the BIOS or disabled due to a POST error. Values for the CPUStatus property are as follows: **0** - Unknown **1** - Microprocessor enabled	uint16

Table 40. CIM_Processor Properties (continued)

Property	Description	Data Type
	2 - Microprocessor disabled by user through BIOS setup **3** - Microprocessor disabled by BIOS (POST error) **4** - Microprocessor is idle **5** - Other	
Family	Refers to the processor family type. Values for the **Family** property are as follows: **1** - Other **2** - Unknown **3** - 8086 **4** - 80286 **5** - 80386 **6** - 80486 **7** - 8087 **8** - 80287 **9** - 80387 **10** - 80487 **11** - Pentium Brand **12** - Pentium Pro **13** - Pentium II **14** - Pentium processor with MMX technology **15** - Celeron **16** - Pentium II Xeon **17** - Pentium III **18** - M1 family **19** - M2 family **24** — AMD Duron processor **25** — K5 family **26** - K6 family **27** - K6 -2 **28** - K6-3 **29** - AMD Athlon processor family **30** - AMD29000 family **31** - K6-2+ **32** - Power PC family **33** - Power PC 601 **34** - Power PC 603 **35** - Power PC 603+ **36** - Power PC 604	uint16

Table 40. CIM_Processor Properties (continued)

Property	Description	Data Type
	37 - Power PC 620 **38**- Power PC X704 **39**- Power PC 750 **40** - Intel Core Duo processor **41** - Intel Core Duo mobile processor **42** - Intel Core Solo mobile processor **43** - Intel Atom processor **48** - Alpha family **49** - Alpha 21064 **50** - Alpha 21066 **51** - Alpha 21164 **52** - Alpha 21164 **53** - Alpha 21164a **54** - Alpha 21264 **55** - Alpha 21364 **60** - AMD Opteron 4100 Series processor **64** - MIPS family **65** - MIPS R4000 **66** - MIPS R4200 **67** - MIPSR4400 **68** - MIPS R4600 **69** - MIPS R10000 **80** - SPARC family **81** - SuperSPARC **82** - microSPARC II **83** - microSPARC IIep **84** - UltraSPARC **85** - UltraSPARC II **86** - UltraSPARC IIi **87** - UltraSPARC III **88** - UltraSPARC IIIi **96** - 68040 **97** - 68xxx family **98** - 68000 **99** - 68010 **100** - 68020 **101** - 68030 **112** - Hobbit family **120** - Crusoe 5000 family **121** - Crusoe 3000 family	

Table 40. CIM_Processor Properties (continued)

Property	Description	Data Type
	122 - Efficeon 8000 family **128** - Weitek **130** - Itanium processor **131** - AMD Athlon 64 processor family **132** - AMD Opteron processor family **133** - AMD Sempron processor family **134** - AMD Turion 64 Mobile technology **135** - Dual-Core AMD Opteron processor family **136** - AMD Athlon 64 X2 Dual-Core processor family **137** - AMD Turion 64 X2 Mobile technology **138** - Quad-Core AMD Opteron processor family **139** - Third-Generation AMD Opteron processor family **140** - AMD Phenom FX Quad-Core processor family **141** - AMD Phenom X4 Quad-Core processor family **142** - AMD Phenom X2 Dual-Core processor family **143** - AMD Athlon X2 Dual-Core processor family **144** - PA-RISC family **145** - PA-RISC 8500 **146** - PA-RISC 8000 **147** - PA-RISC 7300LC **148** - PA-RISC 7200 **149** - PA-RISC 7100LC **150** - PA-RISC 7100 **160** - V30 family **161** - Quad-Core Intel Xeon processor 3200 Series **162** - Dual-Core Intel Xeon processor 3000 Series **163** - Quad-Core Intel Xeon processor 5300 Series **164** - Dual-Core Intel Xeon processor 5100 Series **165** - Dual-Core Intel Xeon processor 5000 Series **166** - Dual-Core Intel Xeon processor LV **167** - Dual-Core Intel Xeon processor ULV	

Table 40. CIM_Processor Properties (continued)

Property	Description	Data Type
	168 - Dual-Core Intel Xeon processor 7100 Series **169** - Quad-Core Intel Xeon processor 5400 Series **170** - Quad-Core Intel Xeon processor **171**- Dual-Core Intel Xeon processor 5200 Series **172**- Dual-Core Intel Xeon processor 7200 Series **173** - Quad-Core Intel Xeon processor 7300 Series **174**- Quad-Core Intel Xeon processor 7400 Series **175**- Multi-Core Intel Xeon processor 7400 Series **176** - Pentium III Xeon **177** - Pentium III Processor with Intel SpeedStep **178**- Technology **179** - Pentium 4 **180** - Intel Xeon **181**- AS400 family **182** - Intel Xeon Processor MP **183** - AMD Athlon XP family **184** - AMD Athlon MP family **185** - Intel Itanium 2 **186**- Intel Pentium M processor **187** - Intel Celeron D processor **188** - Intel Pentium D processor **189** - Intel Pentium Extreme Edition processor **190**- Intel Core 2 processor **192** - Intel Core 2 Solo processor **193** - Intel Core 2 Extreme processor **194**- Intel Core 2 Quad processor **195** - Intel Core 2 Extreme mobile processor **196**- Intel Core 2 Duo mobile processor **197**- Intel Core 2 Solo mobile processor **198** - Intel Core i7 processor **199** - Dual-Core Intel Celeron processor **200** - S/390 and zSeries family **201**- ESA/390 G4 **202**- ESA/390 G5	

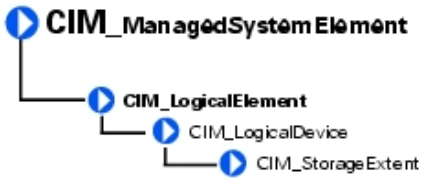
Table 40. CIM_Processor Properties (continued)

Property	Description	Data Type
	203- ESA/390 G6 **204** - z/Architecture base **206** - CEh 206 Intel Core i3 processor **214** - Multi-Core Intel Xeon processor **215** - Dual-Core Intel Xeon processor 3xxx Series **216** - Quad-Core Intel Xeon processor 3xxx Series **217** - D9h 217 VIA Nano processor family **218** - Dual-Core Intel Xeon processor 5xxx Series **219** - Quad-Core Intel Xeon processor 5xxx Series **221** - Dual-Core Intel Xeon processor 7xxx Series **222**- Dual-Core Intel Xeon processor 7xxx Series **223** Multi-Core Intel Xeon processor 7xxx Series **224** - E0h 224 Multi-Core Intel Xeon processor 3400 Series **230** - Embedded AMD Opteron Quad-Core processor family **231** - AMD Phenom Triple-Core processor family **232** - AMD Turion Ultra Dual-Core Mobile processor family **233** - AMD Turion Dual-Core Mobile processor family **234** - AMD Turion Dual-Core Mobile processor family **235**- AMD Sempron SI processor family **238** - AMD Opteron Six-Core processor family **250** - i860 **251** - i960 **260** - SH-3 **261** - SH-4 **280** - ARM **281** - StrongARM **300** - 6x86 **301** - MediaGX **302** - MII **320** - WinChip **350**- DSP	

Table 40. CIM_Processor Properties (continued)

Property	Description	Data Type
	500 - Video processor	

CIM_StorageExtent

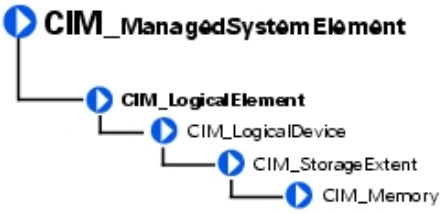


The `CIM_StorageExtent` identified in Table below contains devices that manage data storage, for example, hard drives or microprocessor memory.

Table 41. CIM_StorageExtent Properties

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

CIM_Memory

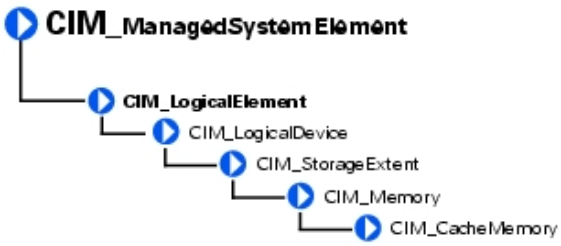


The `CIM_Memory` class identified in Table below describes the capabilities and management of storage extent devices, for example, cache memory or system memory.

Table 42. CIM_Memory Properties

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

CIM_CacheMemory



The `CIM_CacheMemory` class described in CacheMemoryProperties describes the capabilities and management of cache memory. Cache memory allows a microprocessor to access data and instructions faster than normal system memory

The following table describes the property, description, and data type details for CIM CacheMemory.

Class Name: `CIM_CacheMemory`

Parent Class: `CIM_Memory`

Table 43. CIM_CacheMemory Properties

Property	Description	Data Type
Level	Defines if 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	Defines if this cache is a write-back or write-through cache or if 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
CacheType	Defines if 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	uint16

Table 43. CIM_CacheMemory Properties (continued)

Property	Description	Data Type
	5- Unified	
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

DELL_SoftwareFeature

The `DELL_SoftwareFeature` described in Table below 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 choice.

The following table describes the property, description, and data type details for DELL SoftwareFeature.

Class Name: `DELL_SoftwareFeature`

Parent Class: `CIM_SoftwareFeature`

Table 44. DELL_SoftwareFeature Properties

Property	Description	Data Type
OmsaURL	Defines the URL for Server Administrator.	string
Language	Sets the language for systems management information.	string
AgentVersion	Defines the version information of local CIM agent (same as ISVC version.)	string

CIM_BIOSElement

The `CIM_BIOSElement` class listed in BIOSElement Properties 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.

The following table describes the property, description, and data type details for CIM_BIOSElement.

Class Name: `CIM_BIOSElement`

Parent Class: `CIM_SoftwareElement`

Table 45. CIM_BIOSElement Properties

Property	Description	Data Type
Version	Provides the product version information.	string
Manufacturer	See 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 described in Table properties below 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 Server 2003), 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 are interested in a sub-collection of the software elements required for a particular platform.

The following table describes the property, description, and data type details for CIM SoftwareFeature.

Class Name: `CIM_SoftwareFeature`

Parent Class: `CIM_LogicalElement`

Table 46. CIM_SoftwareFeature Properties

Property	Description	Data Type
IdentifyingNumber	Provides product identification such as a serial number of the software	string

Table 46. CIM_SoftwareFeature Properties (continued)

Property	Description	Data Type
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

The `DELL_SoftwareFeature` described in Table below 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 choice.

The following table describes the property, description, and data type details for DELL SoftwareFeature.

Class Name: `DELL_SoftwareFeature`

Parent Class: `CIM_SoftwareFeature`

Table 47. DELL_SoftwareFeature Properties

Property	Description	Data Type
OmsaURL	Defines the URL for Server Administrator.	string
Language	Sets the language for systems management information.	string
AgentVersion	Defines the version information of local CIM agent (same as ISVC version.)	string

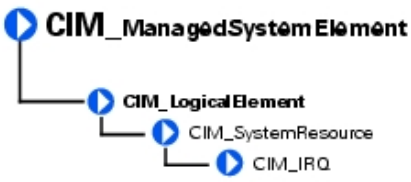
CIM_SystemResource

The CIM_SystemResource class described in Table below provides access to system resources from an operating system. System resources consist of interrupt requests (IRQs) and direct memory access (DMA) capabilities.

Table 48. CIM_SystemResource Properties

Properties	
Class Name:	CIM_SystemResource
Parent Class:	CIM_LogicalElement

CIM_IRQ



The CIM_IRQ class described in Properties Table below , 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 the computer (COM1) is assigned to IRQ4 by default.

The following table describes the property, description, and data type details for CIM IRQ.

Class Name: CIM_IRQ

Parent Class: CIM_SystemResource

Table 49. CIM_IRQ Properties

Property	Description	Data Type
CSCreationClassName	See Common Properties of Classes	string
CSName	See Common Properties of Classes	string
CreationClassName	See 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 if 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
TriggerType	Indicates if edge (value=4) or level triggered (value=3) interrupts occur.	uint16

Table 49. CIM_IRQ Properties (continued)

Property	Description	Data Type
	1- Other **2**- Unknown **3**- Level **4**- Edge	
Shareable	Indicates if the IRQ can be shared. A value of TRUE indicates that the IRQ can be shared.	Boolean
Hardware	Indicates if 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 described in properties Table below addresses both memory and port I/O resources for personal computer architecture memory mapped I/O.

The following table describes the property, description, and data type details for the CIM MemoryMappedIO.

Class Name: `CIM_MemoryMappedIO`

Parent Class: `CIM_SystemResource`

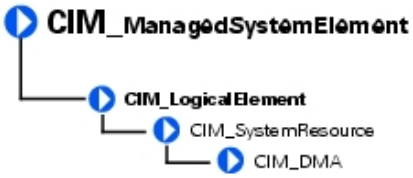
Table 50. CIM_MemoryMappedIO Properties

Property	Description	Data Type
CSCreationClassName	See Common Properties of Classes	string
CSName	See Common Properties of Classes	string
CreationClassName	See 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

Table 50. CIM_MemoryMappedIO Properties (continued)

Property	Description	Data Type
MappedResource	Indicates the type of memory mapped I/O. MappedResource defines if memory or I/O is mapped, and for I/O, if 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 described in DMA Properties contains DMA information. A DMA channel allows certain types of data transfer between RAM and a device to bypass the microprocessor.

The following table describes the property, description, and data type details for CIM DMA.

Class Name: `CIM_DMA`

Parent Class: `CIM_SystemResource`

Table 51. CIM_DMA Properties

Property	Description	Data Type
CSCreationClassName	See Common Properties of Classes	string
CSName.	See Common Properties of Classes	string
CreationClassName	See Common Properties of Classes	string
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

CIM_RedundancyGroup

The `CIM_RedundancyGroup` class described in Table properties below 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.

The following table describes the property, description, and data type details for the CIM RedundancyGroup.

Class Name: `CIM_RedundancyGroup`

Parent Class: `CIM_LogicalElement`

Table 52. CIM_RedundancyGroup Properties

Property	Description	Data Type
CreationClassName	See Common Properties of Classes	string
Name	Serves as the key for the redundancy group's instance in an enterprise environment.	string
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 - all of the configured redundancy is still available. **3** - Degraded redundancy. Degraded redundancy - that some failures have been experienced but some reduced amount of redundancy is still available. **4** - Redundancy lost. Redundancy lost - that a sufficient number of failures have occurred so that no redundancy is available and the next failure experienced causes overall failure.	uint16

CIM_ExtraCapacityGroup

The `CIM_ExtraCapacityGroup` class described in below properties Table 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.

The following table describes the property, description, and data type details for the CIM ExtraCapacityGroup.

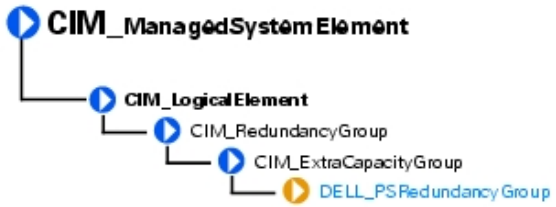
Class Name: `CIM_ExtraCapacityGroup`

Parent Class: `CIM_RedundancyGroup`

Table 53. CIM_ExtraCapacityGroup Properties

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

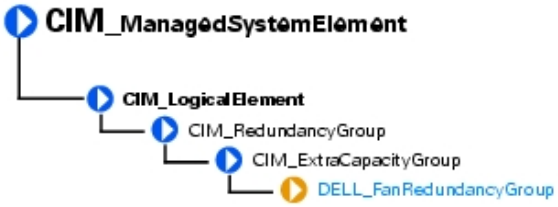


The `DELL_PSRedundancyGroup` described in Table below is a Dell-specific extension of the `CIM_ExtraCapacityGroup` class. The `DELL_PSRedundancyGroup` class defines what constitutes power supply redundancy in a system.

Table 54. DELL_PSRedundancyGroup Properties

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

DELL_FanRedundancyGroup



The `DELL_FanRedundancyGroup` described in Table below defines what constitutes fan redundancy in a system.

Table 55. DELL_FanRedundancyGroup Properties

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

CIM_EnabledLogicalElement

The `CIM_EnabledLogicalElement` class described in Table below extends the `CIM_LogicalElement` class to abstract the concept of an element that is enabled or disabled, such as a LogicalDevice or ServiceAccessPoint.

Table 56. CIM_EnabledLogicalElement Properties

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

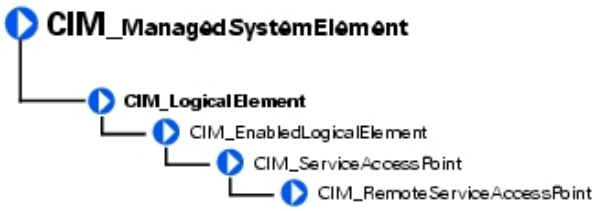
CIM_ServiceAccessPoint

The `CIM_ServiceAccessPoint` class described in Table below represents the ability to utilize or invoke a service. Access points indicate that a service is available to other entities for use.

Table 57. CIM_ServiceAccessPoint Properties

Properties	
Class Name:	`CIM_ServiceAccessPoint`
Parent Class:	`CIM_EnabledLogicalElement`

CIM_RemoteServiceAccessPoint



The `CIM_RemoteServiceAccessPoint` class identified in Table below 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_RemoteServiceAccessPoint` class.

The following table describes the property, description, and data type details for the CIM RemoteServiceAccessPoint.

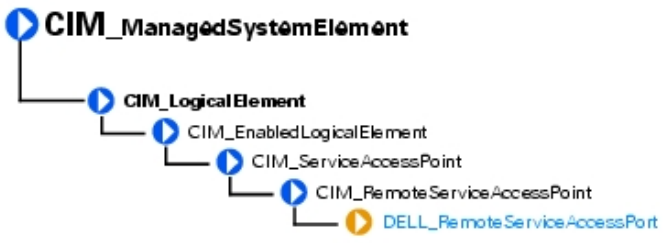
Class Name: `CIM_RemoteServiceAccessPointGroup`

Parent Class: CIM_ServiceAccessPointGroup

Table 58. CIM_RemoteServiceAccessPoint Properties

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: **1** - Other **2** - Host Name **3** - IPv4 Address **4** - IPv6 Address **5** - IPX Address **6** - DECnet Address **7** - SNA Address **8** - Autonomous System Number **9** - MPLS Label **10..99 -** DMTF Reserved **100** - Dial String **101** - Ethernet Address **102** - Token Ring Address **103** - ATM Address **104** - Frame Relay Address **105..199** - DMTF Reserved **200** - URL **32768..65535** - Vendor Specific	uint16

DELL_RemoteServiceAccessPort



The DELL_RemoteServiceAccessPort class described in Table below is an extended class of the CIM_RemoteServiceAccessPoint class. The DELL_RemoteServiceAccessPort class provides information about Dell implementation-specific attributes.

The following table describes the property, description, and data type details for the DELL RemoteServiceAccessPort.

Class Name: DELL_RemoteServiceAccessPort

Parent Class: `CIM_RemoteServiceAccessPoint`

Table 59. DELL_RemoteServiceAccessPort Properties

Property	Description	Data Type
PortName	Displays the name of the service access port.	string
VersionString	Indicates the version of the access point service.	string
RemoteAccessType	Indicated the type of remote access service. This property can have the following values: **0**- BMC **8**- IMC **9** - CMC **10**- iDRAC6 **11** - iDRAC6 for modular systems **13** - BMC **16** - iDRAC7 **17** - iDRAC7 for modular systems	uint16
BladeFormFactor	Type of Blade Form Factor. This property can have the following values: **0**- singleWidthHalfHeight **1**- dualWidthHalfHeight **2**- singleWidthFullHeight **3**- dualWidthFullHeight **4**- singleWidthQuarterHeight **5**- 1UHalfWidth **6**- 1UQuarterWidth **7**- 1UFullWidth **255**- notApplicable	uint16

4

Dell-Defined Classes

Dell-defined classes are defined and populated by Dell rather than by the Common Information Model (CIM). For information on how the logs are formatted, see DELL_Chassis Properties.

The `DELL_EsmLog` class described in DELL_EsmLog Properties records failure threshold violations collected by Server Administrator's embedded server management (ESM) capabilities.

The following table describes the property, description, and data type details for the Dell Defined Classes.

Class Name: `DELL_EsmLog`

Parent Class: `None`

Table 60. DELL_EsmLog Properties

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

Topics:

- DELL_PostLog
- DELL_BIOSExtensions
- DELL_BIOSSettings
- DELL_SDCardDevice
- DELL_NetworkPort
- DELL_PowerConsumptionAmpsSensor
- DELL_PowerConsumptionWattsSensor
- DELL_PowerConsumptionData
- DCIM_OEM_DataAccessModule
- DCIM_RegisteredProfile

DELL_PostLog

The `DELL_PostLog` class described in DELL_PostLog Properties 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 61. DELL_PostLog Properties

Properties	
Class Name:	DELL_PostLog
Parent Class:	None

DELL_BIOSExtensions

The DELL_BIOSExtensions identified in DELL_BIOSExtensions Properties contains information related to the specific extension of the data attributes on your system.

The following table describes the property, description, and data type details for DELL BIOSExtensions.

Class Name: DELL_BIOSExtensions

Parent Class: CIM_ManagedSystemElement

Table 62. DELL_BIOSExtensions Properties

Property	Description	Data Type
systemBIOSCharacteristics	Indicates the characteristics of BIOS on your system.	uint64
systemBIOSCharacteristicsExt1	Indicates the specific extension of the data attributes on your system.	uint8
systemBIOSCharacteristicsExt2	Indicates the specific extension of the data attributes on your system.	uint8

DELL_BIOSSettings

The DELL_BIOSSettings identified in DELL_BIOSSettings Properties contains information related to setting parameters in the Dell System Management BIOS.

The following table describes the property, description, and data type details for DELL BIOSSettings.

Class Name: DELL_BIOSSettings

Parent Class: CIM_ManagedSystemElement

Table 63. DELL_BIOSSettings Properties

Property	Description	Data Type
DellInstanceID	Defines the instance ID of this class.	uint32
TrustedPlatformModule	Enables or Disables the Trusted Platform Module (TPM). Values for the TPM property are: 0 - Other 1 - Unsupported 2 - Off 3 - On with BIOS Management 4 - On without BIOS Measurement	uint8

DELL_SDCardDevice

The `DELL_SDCard` Devices identified in DELL_SDCardDevice Properties contains information related to the SD card devices.

The following table describes the property, description, and data type details for DELL SDCardDevice.

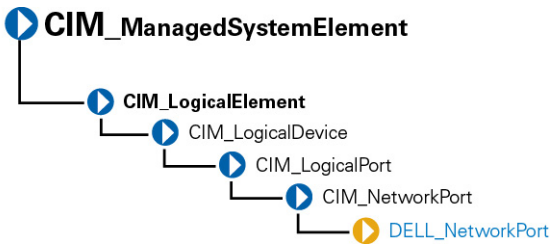
Class Name: `DELL_SDCardDevice`

Parent Class: `CIM_LogicalDevice`

Table 64. DELL SDCardDevice Properties

Property	Description	Data Type
sdType	An enumerated storage device type. The values for this property are: 1 - Other 2 - Unknown 3 - Hypervisor SD 4 - Virtual Flash SD	uint8
sdCertified	Indicates the licensing information of SD media. The values for this property are: 0 - Unknown 1 - Unlicensed 2 - Licensed	uint8
sdCardSizeMB	Indicates the size of the storage device in MB.	uint32
sdCardFreeSizeMB	Indicates the available size of SD Media in MB.	uint32
sdCardState	Indicates the value of the SD Card. The values for this property are: 0 - Present 1 and 2 - Reserved 3 - Offline Detected 4 - Failed Detectez 5 - Active 6 - Bootable 7 - Write Protected	

DELL_NetworkPort



The `Dell_Network Port` class described in DELL_NetworkPort Properties represents the Dell-specific features of the network adapters.

The following table describes the property, description, and data type details for DELL NetworkPort Properties.

Class Name: `DELL_NetworkPort`

Parent Class: `CIM_Network Port`

Table 65. DELL NetworkPort Properties

Property	Description	Data Type
NIC Capabilities	NIC Capabilities bitmask indicates the capabilities of the NIC. The bitmask for the NIC Capability property are: Bit 0, Value 0 - Reporting NIC capabilities through this attribute is not supported. Bit 0, Value 1 - Reporting NIC capabilities through this attribute is supported. Bit 1, Value 0 - NIC is not TOE capable. Bit 1, Value 1 - NIC is TOE capable. Bit 2, Value 0 - NIC is not iSOE capable. Bit 2, Value 1 - NIC is iSOE capable. Bit 3, Value 0 - NIC is not FCoE capable. Bit 3, Value 1 - NIC is FCoE capable.	uint 32
NIC TOE Capability	Defines the TOE capability of the NIC. Values for the NIC TOE Capability property are: 0 - NIC/driver does not support querying for capability. 1 - NIC/driver supports querying for capability but query returned an error. 2 - NIC/driver supports querying for capability and querying indicates that it is capable. 4 - NIC/driver supports querying for capability and querying indicates that it is not capable. 8 - NIC/driver supports querying for capability but an error prevented querying the NIC/driver. 16 - NIC/driver supports querying for capability but NIC/driver did not respond to query. **NOTE:** Boolean value is defined if TOE is enabled (Boolean is TOEEnable).	uint 32
NIC RDMA Capability	Defines the RDMA capability of the NIC. Values for the NIC RDMA Capability property are: 0 - NIC/driver does not support querying for capability.	uint 32

Table 65. DELL NetworkPort Properties (continued)

Property	Description	Data Type
	1 - NIC/driver supports querying for capability but query returned an error. 2 - NIC/driver supports querying for capability and querying indicates that it is capable. 4 - NIC/driver supports querying for capability and querying indicates that it is not capable. 8 - NIC/driver supports querying for capability but an error prevented querying the NIC/driver. 16 - NIC/driver supports querying for capability but NIC/driver did not respond to query. **NOTE:** Boolean value is defined if RDMA is enabled (Boolean is RDMAEnable).	
NIC iSCSI Capability	Defines the iSCSI capability of the NIC. Values for the NIC iSCSI Capability property are: 0 - NIC/driver does not support querying for capability. 1 - NIC/driver supports querying for capability but query returned an error. 2 - NIC/driver supports querying for capability and querying indicates that it is capable. 4 - NIC/driver supports querying for capability and querying indicates that it is not capable. 8 - NIC/driver supports querying for capability but an error prevented querying the NIC/driver. 16 - NIC/driver supports querying for capability but NIC/driver did not respond to query. **NOTE:** Boolean value is defined if iSCSI is enabled (Boolean is iSCSIEnable).	uint 32
NIC Status	Indicates the status of the NIC or driver. The values for the NIC Status property are: 0 - Unknown 1 - Connected 2 - Disconnected 3 - Driver is bad 4 - Driver is disabled 10 - Hardware is initializing	uint 32

Table 65. DELL NetworkPort Properties (continued)

Property	Description	Data Type
	12 - Hardware is closing 13 - Hardware is not ready	
NParEPEnable	Indicates the mode for NParEP. The values for the NParEPEnable are: 0 - Disabled 1 - Enabled 2 - Unknown	uint 32
BusNumber	Indicates the PCI bus number.	uint 8
DeviceNumber	Indicates the PCI device number.	uint 8
FunctionNumber	Indicates the PCI function number.	uint 8
DriverVersion	Indicates the NIC driver version.	string
IPAddresss	Indicates the NIC IP address.	string
SubnetMask	Indicates the NIC subnet mask.	string
DHCPServer	Indicates the DHCP server.	string
DefaultGateway	Indicates the default gateway.	string
CurrentMacAddress	Indicates the NIC's current MAC address.	string
OSAdapterDescription	Describes the operating system adapter.	string
OSProductName	Describes the product name of the operating system.	string
ServiceName	Indicates the service name.	string

DELL_PowerConsumptionAmpsSensor

The DELL_PowerConsumptionAmpsSensor identified in DELL_PowerConsumptionAmpsSensor contains information related to monitoring the power consumption.

The following table describes the property, description, and data type details for DELL_PowerConsumptionAmpsSensor.

Class Name: `DELL_PowerConsumptionAmpsSensor`

Parent Class: `CIM_Numeric Sensor`

Table 66. DELL_PowerConsumptionAmpsSensor

Property	Description	Data Type
UnitModifier	See Common Properties of Classes	sint32
CurrentReading	See Common Properties of Classes	sint32
IsLinear	See Common Properties of Classes	Boolean
LowerThresholdNonCritical	See Common Properties of Classes	sint32
UpperThresholdNonCritical	See Common Properties of Classes	sint32
LowerThresholdCritical	See Common Properties of Classes	sint32

Table 66. DELL_PowerConsumptionAmpsSensor (continued)

Property	Description	Data Type
UpperThresholdCritical	See Common Properties of Classes	sint32

DELL_PowerConsumptionWattsSensor

The `DELL_PowerConsumptionWattsSensor` identified in DELL_PowerConsumptionWattsSensor contains information related to monitoring the power consumption.

The following table describes the property, description, and data type details for DELL PowerConsumptionWattsSensor.

Class Name: `DELL_PowerConsumptionWattsSensor`

Parent Class: `CIM_Numeric Sensor`

Table 67. DELL PowerConsumptionWattsSensor

Property	Description	Data Type
UnitModifier	See Common Properties of Classes	sint32
CurrentReading	See Common Properties of Classes	sint32
IsLinear	See Common Properties of Classes	Boolean
LowerThresholdNonCritical	See Common Properties of Classes	sint32
UpperThresholdNonCritical	See Common Properties of Classes	sint32
LowerThresholdCritical	See Common Properties of Classes	sint32
UpperThresholdCritical	See Common Properties of Classes	sint32

DELL_PowerConsumptionData

The `DELL_PowerConsumptionData` identified in DELL_PowerConsumptionData contains information about the total power consumed from a start time and peak values registered during a time period.

The following table describes the property, description, and data type details for DELL PowerConsumptionData.

Class Name: `DELL_PowerConsumptionData`

Parent Class: `CIM_Logical Device`

Table 68. DELL PowerConsumptionData

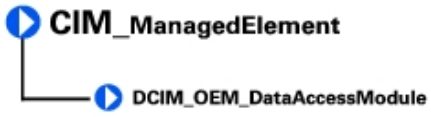
Property	Description	Data Type
cumulative PowerReading	Indicates the total power consumed from a start time.	uint 32
peakAmpReading	Indicates the time from which the peak amperage reading is being monitored.	uint 16
peakWattReading	Indicates the time from which the peak watt reading is being monitored.	uint 16
ResetCounters	Is the function used to reset the peak readings.	uint 32

Table 68. DELL PowerConsumptionData (continued)

Property	Description	Data Type
powerCapSetting	This refers to the user configured power setting.	uint 16
instHeadroom	This refers to the instantaneous headroom.	uint 32
peakHeadRoom	Is the function used to set the power budget.	uint 32

DCIM_OEM_DataAccessModule

The `DCIM_OEM_DataAccessModule` class is derived from the `CIM_ManagedElement` class. This class models hardware information in a proprietary format.



The following table describes the property, description, and data type details for the DCIM OEM DataAccessModule.

Class Name: `DCIM_OEM_DataAccessModule`

Parent Class: `CIM_ManagedElement`

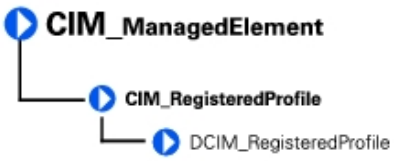
Table 69. DCIM OEM DataAccessModule

Property	Description	Data Type
InstanceID	Identifies the instance.	string
GlobalStatus	Represents the global health status of the system. This property can have the following values: **0** - Other **1** - Unknown **2** - OK **3** - Warning / Non-Critical **4** - Critical **5** - Non-Recoverable **..** - Reserved **NOTE:** GlobalStatus property is available only for Linux systems.	sint32
SendCmd	The SendCmd method is used to invoke proprietary hardware management operation.	string
iDRACIPv4	Provides Remote Access controller (iDRAC) IPv4 address.	string

Table 69. DCIM OEM DataAccessModule (continued)

Property	Description	Data Type
iDRACIPv6	Provides Remote Access controller (iDRAC) IPv6 address.	string

DCIM_RegisteredProfile

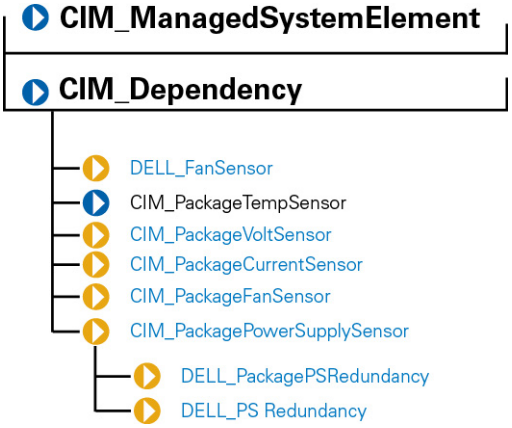


The `DCIM_RegisteredProfile` class is derived from the `CIM_RegisteredProfile` class. This class advertises the capabilities of `DCIM_OEM_DataAccessModule`.

5

CIM_Dependency

The CIM_Dependency class is an association used to establish dependency relationships between two managed system elements. The CIM_Dependency class described in the figure below does not have a parent class because it is a relationship or association between two elements.



Each class derived from the `CIM_Dependency` class 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.

Topics:

DELL_FanSensor

The `DELL_FanSensor` class described in DELL_FanSensor Properties 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 dedicated to cooling only some of the components in the package.

The following table describes the element, description, and parent class details for DELL FanSensor.

Class Name: `DELL_FanSensor`

Parent Class:CIM_Dependency

Table 70. DELL_FanSensor Properties

Element	Description
Antecedent	CIM_Tachometer refers to the tachometer (fan sensor) that measures the RPM of the fan.
Dependent	CIM_Fanrefers to the fan whose revolutions are measured by the tachometer.

CIM_PackageTempSensor

The CIM_PackageTempSensor class described in CIM_PackageTempSensor Properties 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.

The following table describes the element, description, and parent class details for CIM PackageTempSensor.

Class Name: CIM_PackageTempSensor

Parent Class: CIM_Dependency

Table 71. CIM_PackageTempSensor Properties

Element	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 class described in CIM_PackageVoltage Properties 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.

The following table describes the element, description, and parent class details for CIM PackageVoltage.

Class Name: CIM_PackageVoltSensor

Parent Class: CIM_Dependency

Table 72. CIM_PackageVoltage Properties

Element	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 class described in CIM_PackageCurrentSensor Properties 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.

The following table describes the element, description, and parent class details for CIM PackageCurrentSensor.

Class Name: CIM_PackageCurrentSensor

Parent Class: CIM_Dependency

Table 73. CIM_PackageCurrentSensor Properties

Element	Description
Antecedent	CIM_CurrentSensor refers to the amperage sensor for the package.
Dependent	CIM_PhysicalPackagerefers to the physical package whose amperage is being monitored.

CIM_PackageFanSensor

The CIM_PackageFanSensor class described in CIM_PackageFanSensor Properties contains fan sensors that monitor the whole package.

The following table describes the element, description, and parent class details for CIM PackageFanSensor Properties.

Parent Class: CIM_Dependency

Class Name:CIM_PackageFanSensor

Table 74. CIM_PackageFanSensor Properties

Element	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 CIM_PackagePowerSupplySensor Properties contains power supplies that provide power to the whole package.

The following table describes the element, description, and parent class details for CIM PackagePowerSupplySensor Properties.

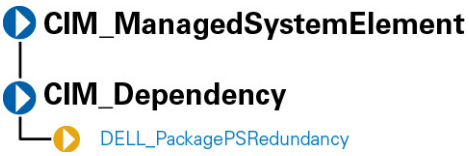
Class Name: `CIM_PackagePowerSupplySensor`

Parent Class: `CIM_Dependency`

Table 75. CIM_PackagePowerSupplySensor Properties

Element	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 described in DELL_PackagePSRedundancy Properties defines what constitutes a power supply redundancy for an entire package.

The following table describes the element, description, and parent class details for DELL PackagePSRedundancy Properties.

Class Name: `DELL_PackagePSRedundancy`

Parent Class: `CIM_Dependency`

Table 76. DELL_PackagePSRedundancy Properties

Element	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 described in DELL_PSRedundancy Properties defines what constitutes a power supply redundancy for Dell systems.

The following table describes the element, description, and parent class details for DELL PSRedundancy Properties.

Class Name: DELL_PSRedundancy

Parent Class: CIM_Dependency

Table 77. DELL_PSRedundancy Properties

Element	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_AssociatedSupplyPCAmps

The DELL_AssociatedSupplyPCAmps class described in DELL _AssociatedSupplyPCAmps is a PowerConsumptionAmpsSensor associated with a CIM_PowerSupply which is defined by this class.

The following table describes the property, description, and data type details for DELL AssociatedSupplyPCAmps.

Class Name: DELL_AssociatedSupplyPCAmps

Parent Class: CIM_Dependency

Table 78. DELL _AssociatedSupplyPCAmps

Property	Description	Data Type
Antecedent	Indicates the PowerSupply instance.	uint 16
Dependent	Indicates the PowerConsumptionAmpsSensor associated with the CIM_PowerSupply.	uint 16

DELL_AssociatedSystemPCWatts

The DELL_AssociatedSystemPCWatts class described in DELL_AssociatedSystemPCWatts is aPowerConsumptionWattsSensor associated with a Dell_System which is defined by this class.

The following table describes the property, description, and data type details for DELL AssociatedSystemPCWatts.

Class Name: DELL_AssociatedSystemPCWatts

Parent Class: CIM_Dependency

Table 79. DELL _AssociatedSystemPCWatts

Property	Description	Data Type
Antecedent	Indicates the Dell_System instance.	uint 16
Dependent	Indicates the PowerConsumptionWattsSensor associated with the system.	uint 16

AssociatedSystemPCData

The `AssociatedSystemPCData` identified in AssociatedSystemPCData is a `PowerConsumptionData` associated with a `Dell_System` which is defined by this class.

The following table describes the property, description, and data type details for the AssociatedSystemPCData.

Class Name: `DELL_AssociatedSupplyPCAmps`

Parent Class: `CIM_Dependency`

Table 80. AssociatedSystemPCData

Property	Description	Data Type
Antecedent	Indicates the `Dell_System` instance.	uint 16
Dependent	Indicates the `PowerConsumptionData` associated with the Power Supply.	uint 16

DELL_PowerProfileData

The `DELL_PowerProfileData` identified in DELL _PowerProfileData contains information related to power profiling and power knob data.

The following table describes the property, description and data type details for DELL PowerProfileData class.

Class Name: `DELL_PowerProfileData`

Parent Class: `CIM_LogicalDevice`

Table 81. DELL _PowerProfileData

Property	Description	Data Type
chassisIndex	Indicates the `chassisIndex` for this power profile.	uint 8
supportedProfile	Indicates the supported profiles.	uint 16
profileSetting	Indicates the Profile setting.	uint 16
customCPUCaps	Indicates the Custom Profile CPU management capability.	uint 16
customCPUSettings	Indicates the Custom Profile CPU management setting.	uint 16
customMemCaps	Indicates the Custom Profile memory management capability.	uint 16
customMemSettings	Indicates the Custom Profile memory management capability.	uint 16
customFanSettings	Indicates the Custom Profile fan management setting.	uint 16