

# PCI Device Profile

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# PCI Device Profile

## 1 Scope

The DCIM PCI Device Profile describes the properties and interfaces for executing system management tasks related to the management of PCI devices within a system. The profile standardizes and aggregates the description for the PCI device properties into a PCI view representation as well as provides static methodology for the clients to query the PCI views without substantial traversal of the model.

## 2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DMTF DSP1033, *Profile Registration Profile 1.0.0*

DMTF DSP0226, *Web Services for Management (WS-Management) Specification 1.1.0*

DMTF DSP0227, *WS-Management CIM Binding Specification 1.0.0*

DMTF DSP0134, *System Management BIOS Reference Specification 2.6.1*

## 3 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1

#### **conditional**

indicates requirements to be followed strictly in order to conform to the document when the specified conditions are met

### 3.2

#### **mandatory**

indicates requirements to be followed strictly in order to conform to the document and from which no deviation is permitted

### 3.3

#### **may**

indicates a course of action permissible within the limits of the document

### 3.4

#### **optional**

indicates a course of action permissible within the limits of the document

### **3.5**

#### **referencing profile**

indicates a profile that owns the definition of this class and can include a reference to this profile in its "Related Profiles" table

### **3.6**

#### **shall**

indicates requirements to be followed strictly in order to conform to the document and from which no deviation is permitted

### **3.7**

#### **FQDD**

Fully Qualified Device Descriptor is used to identify a particular component in a system.

### **3.8**

#### **Interop Namespace**

Interop Namespace is where instrumentation instantiates classes to advertise its capabilities for client discovery.

### **3.9**

#### **Implementation Namespace**

Implementation Namespace is where instrumentation instantiates classes relevant to executing core management tasks.

### **3.10**

#### **ENUMERATE**

Refers to WS-MAN **ENUMERATE** operation as described in Section 8.2 of DSP0226\_V1.1 and Section 9.1 of DSP0227\_V1.0

### **3.11**

#### **GET**

Refers to WS-MAN **GET** operation as defined in Section 7.3 of DSP00226\_V1.1 and Section 7.1 of DSP0227\_V1.0

## **4 Symbols and Abbreviated Terms**

### **4.1**

#### **CIM**

Common Information Model

## 4.2

### iDRAC

Integrated Dell Remote Access Controller – management controller for blades and monolithic servers

## 4.3

### CMC

Chassis Manager Controller – management controller for the modular chassis

## 4.4

### WBEM

Web-Based Enterprise Management

# 5 Synopsis

**Profile Name:** PCI Device

**Version:** 1.0.0

**Organization:** Dell

**CIM Schema Version:** 2.21.0 Experimental

**Dell Schema Version:** 1.0.0

**Interop Namespace:** root/interop

**Implementation Namespace:** root/dcim

**Central Class:** DCIM\_PCIDeviceView

**Scoping Class:** DCIM\_ComputerSystem

The Dell PCI Device Profile is a component profile that contains the Dell specific implementation requirements for PCI Device view.

DCIM\_PCIDeviceView shall be the Central Class.

Table 1 identifies profiles that are related to this profile.

**Table 1 – Related Profiles**

Profile Name	Organization	Version	Relationship
None			

## 6 Description

The Dell PCI Device Profile describes platform's PCI devices. Each PCI device's information is represented by an instance of DCIM\_PCIDeviceView class.

Figure 1 details typical Dell PCI Device Profile implementation for a platform containing two PCI devices. In order for client to discover the instrumentation's support of this profile, PCI Device Profile is instantiated in the Interop Namespace. PCI Device Profile instance describes the information about the implemented profile: most importantly, the name and version of the profile and the organization name that produced the profile.

PCI1 and PCI2 are the PCI device views representing the two PCI devices in the Implementation Namespace. They are associated to the Interop namespace's PCIProfile instance.

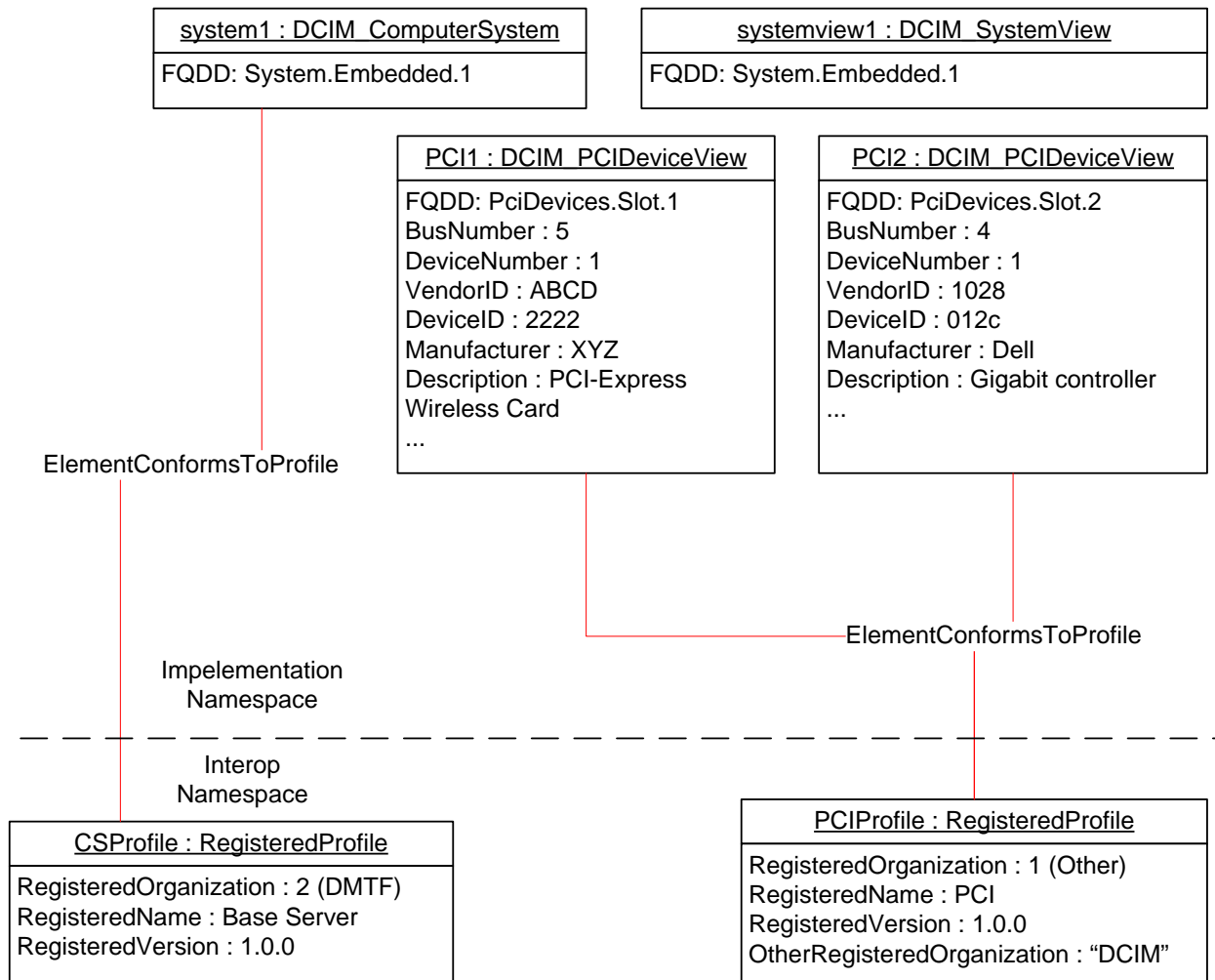


Figure 1 – PCI Device Profile Implementation



## 7 Implementation Description

This section describes the requirements and guidelines for implementing Dell PCI Device Profile.

**Table 2 – Class Requirements: PCI Device Profile**

Element Name	Requirement	Description
<b>Classes</b>		
DCIM_PCIDeviceView	Mandatory	The class shall be implemented in the Implementation Namespace. See section 7.1.
DCIM_LCElementConformsToProfile	Mandatory	The class shall be implemented in the <i>Implementation Namespace</i> .
DCIM_LCElementConformsToProfile	Mandatory	The class shall be implemented in the <i>Interop Namespace</i> .
DCIM_LCRegisteredProfile	Mandatory	The class shall be implemented in the Interop Namespace. See section 7.2.
<b>Indications</b>		
None defined in this profile		

### 7.1 PCI Device View

This section describes the implementation for the DCIM\_PCIDeviceView class.

This class shall be instantiated in the Implementation Namespace.

The DCIM\_ElementConformsToProfile association(s) shall reference the DCIM\_PCIDeviceView instance(s).

#### 7.1.1 WBEM URIs for WinRM®

The class WBEM URI shall be “http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM\_PCIDeviceView?\_\_cimnamespace=<Implementation Namespace>”

The key property shall be the InstanceID.

The instance WBEM URI for DCIM\_PCIDeviceView instance shall be:  
“http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM\_PCIDeviceView?\_\_cimnamespace=<Implementation Namespace>+InstanceID=<FQDD>”

#### 7.1.2 Operations

The following table details the implemented operations on DCIM\_PCIDeviceView.

**Table 3 – DCIM\_PCIDeviceView - Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI

### 7.1.3 Properties

The following table details the implemented properties for DCIM\_PCIDeviceView instance representing a PCI in a system. The "Requirements" column shall denote the implementation requirement for the corresponding property. If the column "Property Name" matches the property name, the property either shall have the value denoted in the corresponding column "Additional Requirement", or shall be implemented according to the requirements in the corresponding column "Additional Requirement".

**Table 4 – DCIM\_PCIDeviceView - Properties**

Property Name	Requirements	Type	Requirement and description
InstanceID	Mandatory	string	The property value shall be the FQDD property value.
FQDD	Mandatory	string	A string containing the Fully Qualified Device Description a user-friendly name for the object.
BusNumber	Mandatory	uint32	The bus number where the PCI device resides.
DeviceNumber	Mandatory	uint32	The device number assigned to the PCI device for this bus.
FunctionNumber	Mandatory	uint32	The function number for the PCI device.
PCIVendorID	Mandatory	string	The property contains a value assigned by the PCI SIG used to identify the manufacturer of the device.
PCISubVendorID	Mandatory	string	Subsystem vendor ID.
PCIDeviceID	Mandatory	string	The property contains a value assigned by the device manufacturer used to identify the type of device.
PCISubDeviceID	Mandatory	string	The property contains a value assigned by the vendor manufacturer used to identify the type of device.
Manufacturer	Mandatory	string	A string containing the Manufacturer name. The name of the organization responsible for producing the PCI Device.
Description	Optional	string	Gives the description of the PCI Device
DataBusWidth	Mandatory	String	Hexadecimal value for the PCI data bus width description based on the SMBIOS System Slot (Type 9).
SlotLength	Mandatory	string	Hexadecimal value for the PCI slot length based on the SMBIOS System Slot (Type 9).
SlotType	Mandatory	string	Hexadecimal value for the PCI slot type based on the SMBIOS System Slot (Type 9).
LastSystemInventoryTime	Mandatory	string	This property provides the last time \"System \\\"Inventory Collection On Reboot(CSIOR)\" was performed. The value is represented as yyymmddHHMMSS.
LastUpdateTime	Mandatory	string	This property provides the last time the data was updated. The value is represented as yyymmddHHMMSS

## 7.2 PCI Device Profile Profile Registration

This section describes the implementation for the DCIM\_LCRegisteredProfile class.

This class shall be instantiated in the Interop Namespace.

The DCIM\_LCElementConformsToProfile association(s) shall reference the DCIM\_LCRegisteredProfile instance.

### 7.2.1 WBEM URIs for WinRM®

The class WBEM URI shall be "http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM\_RegisteredProfile?\_\_cimnamespace=<Interop Namespace>"

The key property shall be the InstanceID property.

The instance WBEM URI shall be: "http://schemas.dell.com/wbem/wscim/1/cim-schema/2//DCIM\_LCRegisteredProfile?\_\_cimnamespace=<InteropNamespace>+InstanceID=DCIM:PCIDevice:1.0.0"

### 7.2.2 Operations

The following table details the implemented operations on DCIM\_LCRegisteredProfile.

**Table 5 – DCIM\_LCRegisteredProfile - Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI

### 7.2.3 Properties

The following table details the implemented properties for DCIM\_LCRegisteredProfile instance representing PCI Device Profile implementation. The "Requirements" column shall denote the implementation requirement for the corresponding property. If the column "Name" matches the property name, the property either shall have the value denoted in the corresponding column "Additional Requirements", or shall be implemented according to the requirements in the corresponding column "Additional Requirements".

**Table 6 – DCIM\_LCRegisteredProfile**

Property Name	Requirement	Additional Requirements
InstanceID	Mandatory	DCIM:PCIDevice:1.0.0
RegisteredName	Mandatory	This property shall have a value of "PCI Device Device".
RegisteredVersion	Mandatory	This property shall have a value of "1.0.0".
RegisteredOrganization	Mandatory	This property shall have a value of 1 (Other).
OtherRegisteredOrganization	Mandatory	The property value shall match "DCIM".

## 8 Methods

This section details the requirements for supporting extrinsic methods for the CIM elements defined by this profile.

No additional details specified.

## 9 Use Cases

This section contains use cases for the Dell PCI Device Profile. For the general instance and class URI structure, see Section 7.1.1 and Section 7.2.1, respectively.

Note that URIs in this section are in form of WBEM URIs for WinRM®.

### 9.1 Discovery of PCI Device profile support

Use one of the two procedures below to confirm the existence of PCI Device profile support

- A) GET the *DCIM\_LCRegisteredProfile* instance using an *InstanceID* of DCIM:PCIDevice:1.0.0. See Section 3.11 for a definition of GET .

Instance URI:

[http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/DCIM\\_LCRegisteredProfile?\\_cimnamespace=root/interop+InstanceID=DCIM:PCIDevice:1.0.0](http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/DCIM_LCRegisteredProfile?_cimnamespace=root/interop+InstanceID=DCIM:PCIDevice:1.0.0)

Results for the *InstanceID* of DCIM:PCIDevice:1.0.0 shown below. If no instance is returned, the profile is not supported.

```
DCIM_LCRegisteredProfile
  AdvertiseTypeDescriptions = WS-Identify, Interop Namespace
  AdvertiseTypes = 1, 1
  InstanceID = DCIM:PCIDevice:1.0.0
  OtherRegisteredOrganization = DCIM
  RegisteredName = PCI Device
  RegisteredOrganization = 1
  RegisteredVersion = 1.0.0
```

- B) ENUMERATE the *CIM\_RegisteredProfile* class. See Section 3.10 for a definition of ENUMERATE .

Class URI:

[http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM\\_RegisteredProfile?\\_cimnamespace=root/interop](http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_RegisteredProfile?_cimnamespace=root/interop)

Then query the result for the following properties:

*RegisteredName* = PCI Device, *OtherRegisteredOrganization* = DCIM, *RegisteredVersion* = 1.0.0

### 9.2 Inventory of PCIs in system

Enumerate the *DCIM\_PCIDeviceView* class to view all available instances of the class

Class URI:

[http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM\\_PCIDeviceView?\\_cimnamespace=root/dcim](http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_PCIDeviceView?_cimnamespace=root/dcim)

The instance information of all available PCIs will be returned

### 9.3 Get the first PCI's information

The URI for getting particular instance information is deterministic (i.e the *InstanceID* will be unique for each instance)

For the first PCI device in the system, the instance URI will be:

[http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM\\_PCIDeviceView?InstanceID=HostBridge.Embedded.1-1](http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/root/dcim/DCIM_PCIDeviceView?InstanceID=HostBridge.Embedded.1-1)

The instance of *DCIM\_PCIDeviceView* that contains the information on the first PCI device will be returned

## 10 CIM Elements

No additional details specified.

# **ANNEX A**

(informative)

## **Related MOF Files**

Dell Tech Center MOF Library:

<http://www.delltechcenter.com/page/DCIM.Library.MOF>

Related Managed Object Format (MOF) files:

DCIM\_PCIDeviceView.mof

DCIM\_LCEnumeration.mof

DCIM\_LCRegisteredProfile.mof