CPU Profile

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CPU Profile

1 Scope

The DCIM CPU Profile describes the properties and interfaces for executing system management tasks related to the management of processors within a system. The profile standardizes and aggregates the description for the CPU properties into a CPU view representation as well as provides static methodology for the clients to query the CPU 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

Dell Lifecycle Controller Best Practices Guide 1.0, http://en.community.dell.com/techcenter/extras/m/white_papers/20066173.aspx

Dell WSMAN Licenses and Privileges 1.0

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

DMTF DSP0227, WS-Management CIM Binding Specification 1.0.0

Dell Tech Center MOF Library http://www.delltechcenter.com/page/DCIM.Library.MOF

- DCIM CPUView.mof
- DCIM_LCEnumeration.mof
- DCIM LCRegisteredProfile.mof

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: CPU

Version: 1.0.0

Organization: Dell

CIM Schema Version: 2.26 Experimental

Dell Schema Version: 1.0.0

Interop Namespace: root/interop

Implementation Namespace: root/dcim

Central Class: DCIM CPUView

Scoping Class: DCIM_ComputerSystem

The Dell CPU Profile is a component profile that contains the Dell specific implementation requirements

for CPU view.

DCIM_CPUView shall be the Central Class.

Table 1 identifies profiles that are related to this profile.

Table 1 - Related Profiles

Profile Name	Organization	Version	Relationship
Profile Registration	DCIM	1.0	Reference

6 Description

The Dell CPU Profile describes platform's CPUs. Each CPU's information is represented by an instance of DCIM_CPUView class.

Figure 1 details the class diagram of the Dell CPU Profile.

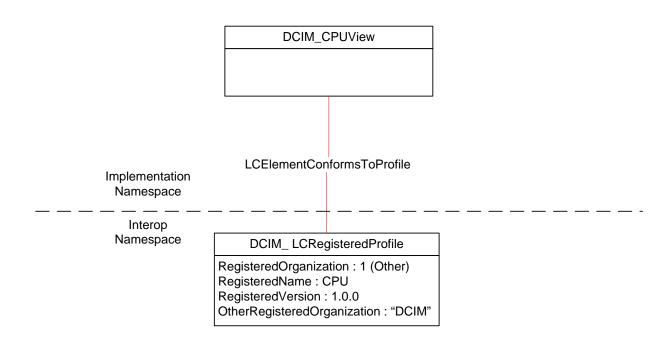


Figure 1 - Class Diagram

Figure 2 details typical Dell CPU Profile implementation for a platform containing two CPUs. In order for client to discover the instrumentation's support of this profile, CPUProfile is instantiated in the Interop Namespace. CPUProfile 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.

CPU1 and CPU2 are the CPU views representing the two CPUs in the Implementation Namespace. They are associated to the Interop namespace's CPUProfile instance.

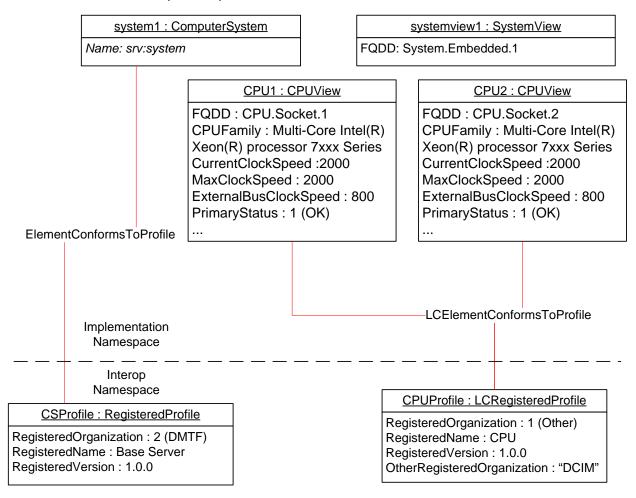


Figure 2 – CPU Profile Implementation

7 Implementation Description

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

Table 2 - Class Requirements: CPU Profile

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

7.1 CPU View

This section describes the implementation for the DCIM_CPUView class.

This class shall be instantiated in the Implementation Namespace.

The DCIM_LCEIementConformsToProfile association(s) shall reference the DCIM_CPUView instance(s).

7.1.1 Resource URIs for WinRM®

The class Resource URI shall be "http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_CPUView?__cimnamespace=root/dcim"

The key property shall be the InstanceID.

The instance Resource URI for DCIM_CPUView instance shall be:

"http://schemas.dell.com/wbem/wscim/1/cim-

schema/2/DCIM_CPUView?__cimnamespace=root/dcim+InstanceID=<FQDD>"

7.1.2 Operations

The following table details the implemented operations on DCIM_CPUView.

Table 3 - DCIM_CPUView - 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_CPUView instance representing a processor 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_CPUView - Properties

InstanceID Mandatory String A string containing the Fully Qualified Device Description, a user-friendly name for the object. PQDD Mandatory Mandatory Mandatory String CPUFamily Mandatory Mandatory Mandatory Mandatory Mandatory String CPUFamily Mandatory Man	Property Name	Requirements	Туре	Requirement and Description
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The property shall represent the total memory	Cache1Size	Mandatory	uint64	
	0.0.10.10.120	a.raa.ory		
Table I managery alliest Size of the basile in Nation.	Cache2Size	Mandatory	uint64	size of the cache in KBytes.

Dua na anta a Mana a	Daminamanta	T	Danning mant and Dannintian
Property Name	Requirements	Туре	Requirement and Description
0 1 00:		04	The property shall represent the total memory
Cache3Size	Mandatory	uint64	size of the cache in KBytes.
			Cache1PrimaryStatus provides a high level
Ocal ad Discour Otal	Mandatas		status value, intended to align with Red-
Cache1PrimaryStatus	Mandatory	uint32	Yellow-Green type representation of status.
			Cache2PrimaryStatus provides a high level
Cook a CD visa a marchata	Manadatam	:	status value, intended to align with Red-
Cache2PrimaryStatus	Mandatory	uint32	Yellow-Green type representation of status.
			Cache3PrimaryStatus provides a high level
Cook a 2 Drimo and Ctatura	Mandatani		status value, intended to align with Red-
Cache3PrimaryStatus	Mandatory	uint32	Yellow-Green type representation of status.
			Cache ErrorMethodology - Contains the enumerated value that describes the cache's
Coob of Error Mothodology	Ontional	uint16	
Cache1ErrorMethodology	Optional	uint16	error detection/correction mechanism
			Cache ErrorMethodology - Contains the enumerated value that describes the cache's
Coobo2ErrorMotbodology	Ontional	uint16	
Cache2ErrorMethodology	Optional	ullito	error detection/correction mechanism
			Cache ErrorMethodology - Contains the enumerated value that describes the cache's
Coobo2ErrorMotbodology	Ontional	uint16	error detection/correction mechanism
Cache3ErrorMethodology	Optional	ullito	
			Defines whether this is write-back (value=1)
			or write-through (value=0) Cache, or whether this information \"Varies with Address\" (2) or
Cache1WritePolicy	Mandatory	uint16	\"Unknown\" (3) can be specified.
CacherwhiteFolicy	ivialiuatory	ullitto	Defines whether this is write-back (value=1)
			or write-through (value=0) Cache, or whether
			this information \"Varies with Address\" (2) or
Cache2WritePolicy	Mandatory	uint16	\"Unknown\" (3) can be specified.
Cachez viner oney	Wandatory	diricio	Defines whether this is write-back (value=1)
			or write-through (value=0) Cache, or whether
			this information \"Varies with Address\" (2) or
Cache3WritePolicy	Mandatory	uint16	\"Unknown\" (3) can be specified.
	,		Defines whether this is for instruction caching
			(value=3), data caching (value=4) or both
			(value=5, \"Unified\"). Also, \"Other\" (1) and
Cache1Type	Mandatory	uint16	\"Unknown\" (2) can be defined.
71			Defines whether this is for instruction caching
			(value=3), data caching (value=4) or both
			(value=5, \"Unified\"). Also, \"Other\" (1) and
Cache2Type	Mandatory	uint16	\"Unknown\" (2) can be defined.
			Defines whether this is for instruction caching
			(value=3), data caching (value=4) or both
			(value=5, \"Unified\"). Also, \"Other\" (1) and
Cache3Type	Mandatory	uint16	\"Unknown\" (2) can be defined.
			An integer enumeration defining the system
			cache associativity:
			"1" - "Unknown",
			"2" - "Other",
			"3" - "Direct Mapped"
			"4" - "2-way Set-Associative",
			"5" - "4-way Set-Associative",
			"6" - "Fully Associative",
			"7" - "8-way Set-Associative",
	1		"8" - "16-way Set-Associative",
Cache1Associativity	Mandatory	uint16	"9" - "12-way Set-Associative",

Property Name	Requirements	Туре	Requirement and Description
			"10" - "24-way Set-Associative",
			"11" - "32-way Set-Associative",
			"12" - "48-way Set-Associative",
			"13" - "64-way Set-Associative"
			"14" - "20-way Set-Associative"
			An integer enumeration defining the system
			cache associativity:
			"1" - "Unknown",
			"2" - "Other",
			"3" - "Direct Mapped"
			"4" - "2-way Set-Associative",
			"5" - "4-way Set-Associative",
			"6" - "Fully Associative",
			"7" - "8-way Set-Associative",
			"8" - "16-way Set-Associative",
			"9" - "12-way Set-Associative",
			"10" - "24-way Set-Associative",
			"11" - "32-way Set-Associative",
			"12" - "48-way Set-Associative",
			"13" - "64-way Set-Associative"
Cache2Associativity	Mandatory	uint16	"14" - "20-way Set-Associative"
			An integer enumeration defining the system
			cache associativity:
			"1" - "Unknown",
			"2" - "Other",
			"3" - "Direct Mapped"
			"4" - "2-way Set-Associative",
			"5" - "4-way Set-Associative",
			"6" - "Fully Associative",
			"7" - "8-way Set-Associative",
			"8" - "16-way Set-Associative",
			"9" - "12-way Set-Associative",
			"10" - "24-way Set-Associative",
			"11" - "32-way Set-Associative",
			"12" - "48-way Set-Associative",
Cache3Associativity	Mandatory	uint16	"13" - "64-way Set-Associative" "14" - "20-way Set-Associative"
	Mandatory	uint16	
Cache1SRAMType	•	+	Cache SRAM Type.
Cache2SRAMType	Mandatory	uint16	Cache SRAM Type.
Cache3SRAMType	Mandatory	uint16	Cache SRAM Type.
			This property provides the last time \"System \"Inventory Collection On Reboot(CSIOR)\"
			` '
LastSystemInventoryTime	Mandatory	string	was performed. The value is represented as yyyymmddHHMMSS.
			This property provides the last time the data
			was updated. The value is represented as
LastUpdateTime	Mandatory	string	yyyymmddHHMMSS

7.2 CPU 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 Resource URIs for WinRM®

The class Resource URI shall be "http://schemas.dmtf.org/wbem/wscim/1/cim-schema/2/CIM_RegisteredProfile?__cimnamespace=root/interop"

The key property shall be the InstanceID property.

The instance Resource URI shall be: "http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_LCRegisteredProfile?__cimnamespace=root/interop+InstanceID=DCIM:CPU: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 CPU 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	Туре	Additional Requirements
InstanceID	Mandatory	String	DCIM:CPU:1.0.0
RegisteredName	Mandatory	String	This property shall have a value of "CPU".
RegisteredVersion	Mandatory	String	This property shall have a value of "1.0.0".
RegisteredOrganization	Mandatory	Uint16	This property shall have a value of 1 (Other).
OtherRegisteredOrganization	Mandatory	String	The property value shall match "DCIM".
AdvertisedTypes[]	Mandatory	Uint16	This property array shall contain [1(Other), 1 (Other)].
AdvertiseTypeDescriptions[]	Mandatory	String	This property array shall contain ["WS-ldentify", "Interop Namespace"].
			This property array shall describe the required licenses for this profile.
ProfileRequireLicense[]	Mandatory	String	If no license is required for the profile, the property shall have value NULL.
			This property array shall contain the status for the corresponding license in the same element index of the ProfileRequireLicense array property. Each array element shall
ProfileRequireLicenseStatus[]	Mandatory	String	contain:

"LICENSED"
"NOT_LICENSED"
If no license is required for the profile, the property shall have value NULL.

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

See Lifecycle Controller (LC) Integration Best Practices Guide.

10 CIM Elements

No additional details specified.

11 Privilege and License Requirement

The following table describes the privilege and license requirements for the listed operations . For the detailed explanation of the privileges and licenses, refer to the Dell WSMAN Licenses and Privileges specification.

Table 7 - Privilege and License Requirements

Class and Method	Operation	User Privilege Required	License Required
	ENUMERATE,		LM_REMOTE_ASSET_IN
DCIM_CPUView	GET	Login	VENTORY
DCIM_LCElementConformsToProfile	ENUMERATE, GET	Login	None.
DCIM_LCRegisteredProfile	ENUMERATE, GET	Login	None.