Power Supply Profile

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Power Supply Profile

1 Scope

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

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: Power Supply

Version: 2.0.0

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_PowerSupplyView

Scoping Class: DCIM_ComputerSystem

The Dell Power Supply Profile is a component profile that contains the Dell specific implementation requirements for power supply view.

DCIM_PowerSupplyView 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 Power Supply Profile describes platform's power supply information. Each platform power supply is represented by an instance of DCIM_PowerSupplyView class.

Figure 1 details typical Dell Power Supply Profile implementation for a platform containing two power supplies. In order for client to discover the instrumentation's support of this profile, PowerSupplyProfile is instantiated in the Interop Namespace. PowerSupplyProfile 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.

Psu1 and psu2 are the power supply views representing the two power supplies in the Implementation Namespace. They are associated to the Interop namespace's PowerSupplyProfile instance.

system1 : DCIM_ComputerSystem	systemview1 : DCIM_SystemView
FQDD: System.Embedded.1	FQDD: System.Embedded.1

psu1 : DCIM_PowerSupplyView	psu2 : DCIM_PowerSupplyView
FQDD: PSU.Slot.1 PrimaryStatus : 1 (OK) TotalOutputPower : 930 Type : 3 (Switching) DetailedState : Presence Detected RedundancyStatus: 3 (Degraded Redundancy) RedTypeOfSet : 3 (Load Balanced) RedMinNumberNeeded : 2 Manufacturer : Dell Model : PWR SPLY,0930W,RDNT SerialNumber : CN1629147R000S PartNumber : 0R1447	FQDD: PSU.Slot.2 PrimaryStatus : 2 (Degraded) TotalOutputPower : 930 Type : 3 (Switching) DetailedState : Presence Detected RedundancyStatus: 3 (Degraded Redundancy) RedTypeOfSet : 3 (Load Balanced) RedMinNumberNeeded : 2 Manufacturer : Dell Model : PWR SPLY,0930W,RDNT SerialNumber : CN1629147R000S PartNumber : 0R1447

ElementConformsToProfile

Implementation
Namespace

Interop
Namespace

ElementConformsToProfile

CSProfile : RegisteredProfile
RegisteredOrganization : 2 (DMTF) RegisteredName : Base Server RegisteredVersion : 1.0.0

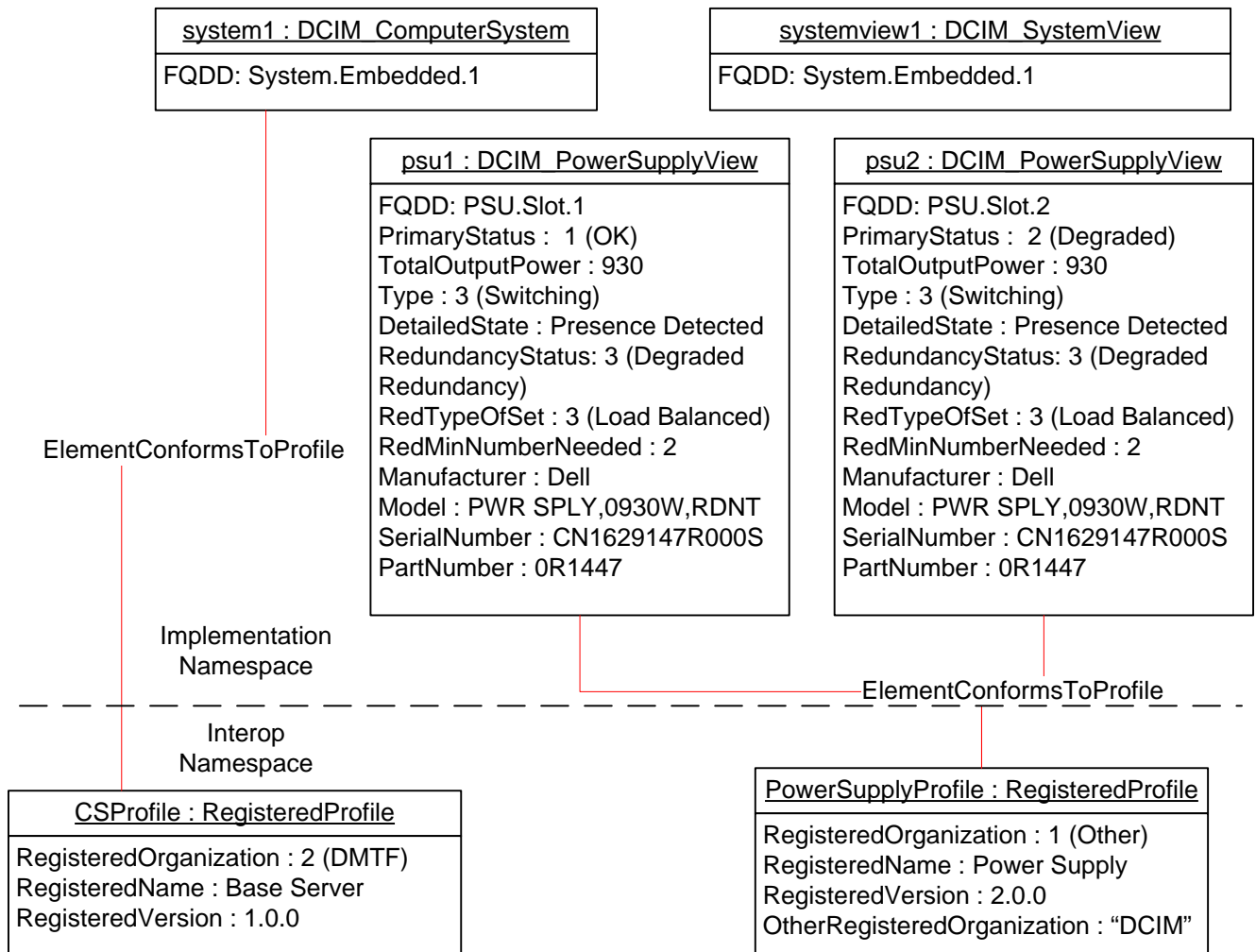| PowerSupplyProfile : RegisteredProfile |
|---|
| RegisteredOrganization : 1 (Other)
RegisteredName : Power Supply
RegisteredVersion : 2.0.0
OtherRegisteredOrganization : "DCIM" |

Figure 1 – Power Supply Profile Implementation

7 Implementation Description

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

Table 2 – Class Requirements: Power Supply Profile

Element Name	Requirement	Description
Classes		
DCIM_PowerSupplyView	Mandatory	The class shall be implemented in the Implementation Namespace. See section7.1.
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 Power Supply View

This section describes the implementation for the DCIM_PowerSupplyView class.

This class shall be instantiated in the Implementation Namespace.

The DCIM_ElementConformsToProfile association(s) shall reference the DCIM_PowerSupplyView 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_PowerSupplyView ?__cimnamespace=<Implementation Namespace>"

The key property shall be the InstanceID.

The instance Resource URI for DCIM_PowerSupplyView instance shall be: "http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_PowerSupplyView? ?__cimnamespace=<Implementation Namespace>+InstanceID=<FQDD>"

7.1.2 Operations

The following table details the implemented operations on DCIM_PowerSupplyView.

Table 3 – DCIM_PowerSupplyView - 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_PowerSupplyView instance representing a power supply 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_PowerSupplyView - 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.
TotalOutputPower	Mandatory	uint32	Shall be in Watts. 0 shall mean "Unknown". Represents the total output power of the power supply in Watts.
InputVoltage	Mandatory	uint32	Shall be in Volts. 0 shall mean "Unknown". The input voltage for the supply, in Volts.
PrimaryStatus	Mandatory	uint32	PrimaryStatus provides a high level status value, intended to align with Red-Yellow-Green type representation of status.
Type	Mandatory	uint16	PowerSupply Type indicates the device type (AC/DC - Variable/Regulated) of the power supply.
DetailedState[]	Mandatory	string	Further status of the power supply.
RedMinNumberNeeded	Mandatory	uint32	0 shall mean Unknown. RedMinNumberNeeded indicates the smallest number of power supplies that MUST be operational in order to function in redundancy.
RedundancyStatus	Mandatory	uint16	The property value shall be one of the following: 0(Unknown), 2 (Fully Redundant), 3(Degraded Redundancy), 4 (Redundancy Lost). RedundancyStatus provides information on the state of the power supply redundancy.
Manufacturer	Mandatory	string	The name of the organization responsible for producing the power supply.
Model	Mandatory	string	The make and or model of the product.
SerialNumber	Mandatory	string	A manufacturer-allocated number used to identify the power supply.
PartNumber	Mandatory	string	The part number assigned by the organization that is responsible for producing or manufacturing the power supply.
FirmwareVersionString	Mandatory	string	A string containing the power supply's firmware version.
LastSystemInventoryTime	Mandatory	string	This property provides the last time \"System \"Inventory Collection On Reboot(CSIOR)\" was performed. The value is represented as yyyymmddHHMMSS.
LastUpdateTime	Mandatory	string	This property provides the last time the data was updated. The value is represented as yyyymmddHHMMSS

7.2 Power Supply 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=<Interop Namespace>"

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=<InteropNamespace>+InstanceID= DCIM:PowerSupply:2.0.0"

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 DCIM_PowerSupplyView Properties

The following table details the implemented properties for DCIM_LCRegisteredProfile instance representing Power Supply 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:PowerSupply:2.0.0
RegisteredName	Mandatory	This property shall have a value of "Power Supply".
RegisteredVersion	Mandatory	This property shall have a value of "2.0.0".
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 PowerSupply Profile.

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

9.1 Discovery of power supply profile support

Use one of the two procedures below to confirm the existence of power supply profile support

A) GET the *DCIM_LCRegisteredProfile* instance using an *InstanceID* of DCIM:PowerSupply:2.0.0. 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:PowerSupply:2.0.0

Results for the *InstanceID* of DCIM:PowerSupply:2.0.0 shown below. If no instance is returned, the profile is not supported.

> *DCIM_LCRegisteredProfile*
>   *AdvertiseTypeDescriptions = WS-Identify, Interop Namespace*
>   *AdvertiseTypes = 1, 1*
>   *InstanceID = DCIM:PowerSupply:2.0.0*
>   *OtherRegisteredOrganization = DCIM*
>   *RegisteredName = Power Supply*
>   *RegisteredOrganization = 1*
>   *RegisteredVersion = 2.0.0*

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

Then query the result for the following properties:

RegisteredName = Power Supply, OtherRegisteredOrganization = DCIM, RegisteredVersion = 2.0.0

9.2 Inventory of power supplies in system

Enumerate the *DCIM_PowerSupplyView* class to view all available instances of the class

Class URI:

http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_PowerSupplyView?__cimnamespace=root/dcim

The instance information of all available power supplies will be returned

9.3 Get the first power supply's information

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

For the first power supply in the system, the instance URI will be:

http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_PowerSupplyView?__cimnamespace=root/dcim+InstanceID=PSU.Slot.1

The instance of *DCIM_PowerSupplyView* that contains the information on the first power supply 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_PowerSupplyView.mof
>
> DCIM_LCEnumeration.mof
>
> DCIM_LCRegisteredProfile.mof

ANNEX B
(informative)

Change Log

Version	Date	Description
2.0.1	2011-08-09	Removed the RedTypeOfSet property from DCIM_PowerSupplyView class as the property was never implemented.