

Service Processor Profile

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1. Scope

The DCIM Service Processor Profile describes the properties and interfaces for executing system management tasks related to the management of the service processor, iDRAC. The profile standardizes and aggregates the description for the platform's basic properties into a system view representation and provides static methodology for the clients to query the system views without substantial traversal of the model.

2. Normative References

Refer to the following documents for more information.

NOTE: For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- DMTF DSP1018, Service Processor Profile 1.0.0
- 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
- 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
- Dell Tech Center MOF Library:
<http://www.delltechcenter.com/page/DCIM.Library.MOF>
- Related Managed Object Format (MOF) files:
 - DCIM_SPCoMputerSystem.mof
 - DCIM_TimeService.mof
 - DCIM_SPHostedTimeService.mof
 - DCIM_SPHostedSystemDevice.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. Can

Used for statements of possibility and capability, whether material, physical, or causal.

3.6. Cannot

Used for statements of possibility and capability, whether material, physical, or causal.

3.7. Need not

Indicates a course of action permissible within the limits of the document.

3.8. 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.

3.9. Shall

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

3.10. Shall not

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

3.11. Should

Indicates that among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required.

3.12. Should not

Indicates that a certain possibility or course of action is deprecated but not prohibited

3.13. FQDD

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

3.14. Interop Namespace

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

3.15. Implementation Namespace

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

3.16. 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

3.17. 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

5. Synopsis

Profile Name: Service Processor

Version: 4.0.0

Organization: Dell

CIM Schema Version: 2.41.0 Final

Dell Schema Version: 1.0.0

Interop Namespace: root/interop

Implementation Namespace: root/dcim

Central Class: DCIM_SPCoMputerSystem

Scoping Class: DCIM_ComputerSystem

The Dell Service Processor Profile is a component profile that contains the Dell specific implementation requirements for service processor.

DCIM_SPCoMputerSystem 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
Service Processor	DMTF	1.0	Specialize
iDRAC Card	DCIM	1.3	Relates

6. Description

The Dell Service Processor Profile describes a system management device.

Figure 1 details the class diagram of Dell Service Processor Profile

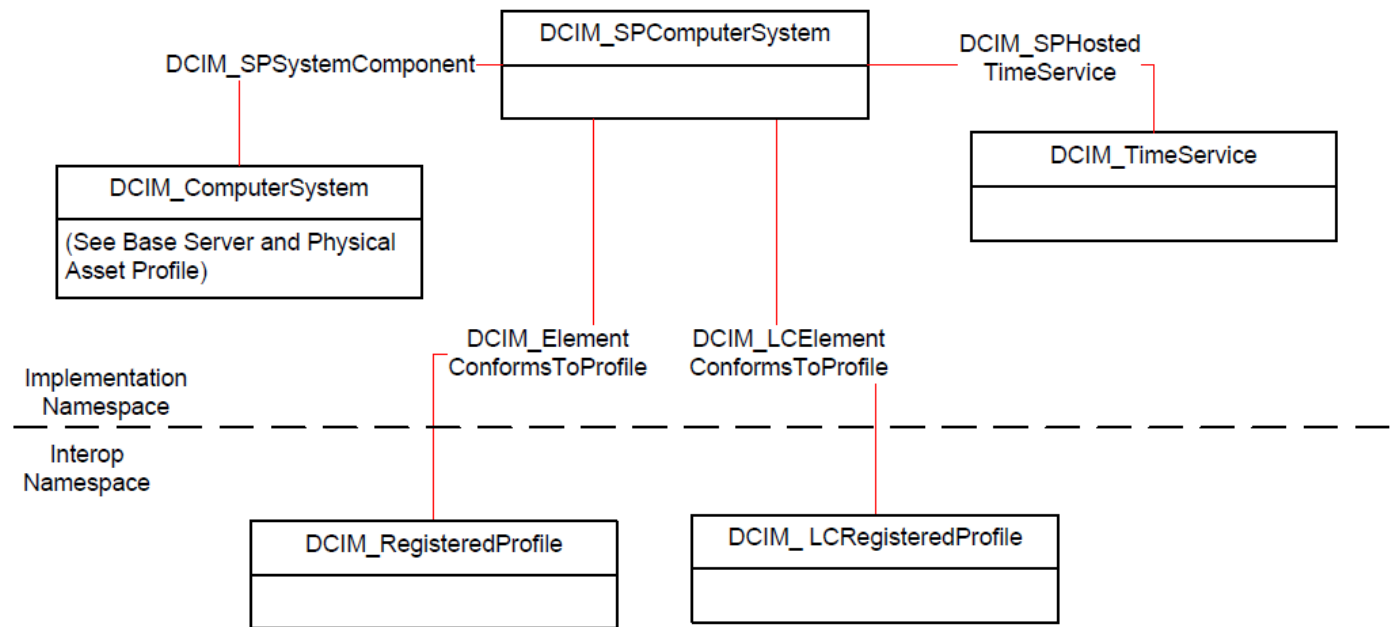


Figure 1. Service Processor Profile Class Diagram

7. Implementation Requirements

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

Table 2. Class Requirements: Service Processor Profile

Element Name	Requirement	Description
Classes		
DCIM_SPCComputerSystem	Mandatory	The class shall be implemented in the <i>Implementation Namespace</i> . See section 7.1
DCIM_TimeService	Mandatory	The class shall be implemented in the <i>Implementation Namespace</i> . See section 0
DCIM_SPSystemComponent	Mandatory	The class shall be implemented in the <i>implementation namespace</i> . See section 7.1
DCIM_SPHostedTimeService	Mandatory	The class shall be implemented in the <i>Interop Namespace</i> . See sections 7.1 and 0
DCIM_ElementConformsToProfile	Mandatory	The class shall be implemented in both the <i>Interop</i> and <i>Implementation Namespaces</i> . See sections 7.1 and 0
DCIM_RegisteredProfile	Mandatory	The class shall be implemented in the <i>Interop Namespace</i> . See section 0

Element Name	Requirement	Description
DCIM_LCElementConformsToProfile	Mandatory	The class shall be implemented in both the Interop and <i>Implementation Namespaces</i> . See sections 7.1 and 7.4
DCIM_LCRegisteredProfile	Mandatory	The class shall be implemented in the Interop Namespace. See section 7.4
Indications		
None defined in this profile		

7.1. DCIM_SPCoMputerSystem - Service Processor

This section describes the implementation for the DCIM_SPCoMputerSystem class representing the service processor, iDRAC.

This class shall be instantiated in the Implementation Namespace.

The DCIM_LCElementConformsToProfile association(s) shall reference the DCIM_SPCoMputerSystem instance(s).

The DCIM_SPSystemComponent association shall reference the DCIM_SPCoMputerSystem instance and associate it with the DCIM_CoMputerSystem instance.

The DCIM_SPHostedTimeService association shall reference the DCIM_SPCoMputerSystem instance and associate it with the DCIM_TimeService instance.

7.1.1. Resource URIs for WinRM®

The class Resource URI shall be

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

The key properties shall be the CreationClassName and Name.

The instance Resource URI for DCIM_SPCoMputerSystem instance shall be:

“http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_SPCoMputerSystem?__cimnamespace=root/dcim+CreationClassName=DCIM_SPCoMputerSystem+Name=systemmc”

7.1.2. Operations

The following table lists the operations implemented on DCIM_SPCoMputerSystem.

Table 3. DCIM_SPCoMputerSystem - Operations

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

7.1.3. Properties

The following table lists the implemented properties for DCIM_SPCoMputerSystem instance in a system.

The “Requirements” column shall denote whether the property is implemented (for requirement definitions, see section 3). The “Additional Requirements” column shall denote either possible values for the property, or requirements on the value formulation.

Table 4. DCIM_SPCoMputerSystem - Properties

Property Name	Type	Requirements	Additional Requirement
CreationClassName	string	Mandatory	The property value shall be "DCIM_SPCoMputerSystem"
Name	string	Mandatory	The property value shall be "systemmc"
Element Name	string	Mandatory	
EnabledState	string	Mandatory	The property value shall be 2 (Enabled)
OperationalStatus	uint16	Mandatory	The property value shall be 2 (OK)
HealthState	uint16	Mandatory	The property value shall be 5 (OK)
PrimaryStatus	uint16	Mandatory	The property value shall be 1 (OK)
Dedicated	uint16	Mandatory	The property value shall be 28 (Management Controller)
RequestedState	uint16	Mandatory	The property value shall be 12 (not applicable)

7.2. DCIM_TimeService – Time Service

This section describes the implementation for the DCIM_TimeService class representing the time service for the service processor.

The DCIM_SPHostedTimeService association shall reference the DCIM_TimeService instance and associate it with the DCIM_SPCoMputerSystem instance.

This class shall be instantiated in the Implementation Namespace.

7.2.1. Resource URIs for WinRM®

The class Resource URI shall be

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

The key properties shall be the CreationClassName, SystemName, Name, and SystemCreationClassName.

The instance Resource URI for DCIM_TimeService instance shall be:

"http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_TimeService?__cimnamespace=root/dcim+CreationClassName=DCIM_TimeService+SystemCreationClassName=DCIM_SPCoMputerSystem+SystemName= systemmc+Name= DCIMTimeService 1"

7.2.2. Operations

The following table lists the operations implemented on DCIM_SystemInteger.

Table 5. DCIM_SystemInteger – Operations

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

7.2.3. Class Properties

The following table lists the implemented properties for DCIM_TimeService instance in a system.

The "Requirements" column shall denote whether the property is implemented (for requirement definitions, see section 3). The "Additional Requirements" column shall denote either possible values for the property, or requirements on the value formulation.

Table 6. DCIM_TimeService - Properties

Property Name	Type	Requirement	Additional Requirements
SystemCreationClassName	string	Mandatory	The property value shall be "DCIM_SPComputerSystem"
SystemName	string	Mandatory	The property value shall be "systemmc"
CreationClassName	string	Mandatory	The property value shall be "DCIM_TimeService"
Name	string	Mandatory	The property value shall be "DCIM TimeService 1"
ElementName	string	Mandatory	The property value shall be "TimeService 1"

7.3. DCIM_RegisteredProfile - DMTF Service Processor Profile Registration

This section describes the implementation for the DCIM_RegisteredProfile class.

This class shall be instantiated in the Interop Namespace.

The DCIM_ElementConformsToProfile association(s) shall reference the DCIM_RegisteredProfile instance.

7.3.1. Resource URIs

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_RegisteredProfile?__cimnamespace=root/interop+InstanceID=DCIM:SPRegisteredProfile:1"

7.3.2. Operations

The following table lists the operations implemented on for DCIM_RegisteredProfile.

Table 7. DCIM_RegisteredProfile - Operations

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

7.3.3. Class Properties

The following table lists the implemented properties for DCIM_RegisteredProfile instance in a system.

The "Requirements" column shall denote whether the property is implemented (for requirement definitions, see section 3). The "Additional Requirements" column shall denote either possible values for the property, or requirements on the value formulation.

Table 8. DCIM_RegisteredProfile

Property Name	Type	Requirement	Additional Requirements
InstanceID	string	Mandatory	This property value shall be "DCIM:SPRegisteredProfile:1".
RegisteredName	string	Mandatory	This property value shall be "Service Processor".
RegisteredVersion	string	Mandatory	This property value shall be "1.1.0".
RegisteredOrganization	uint16	Mandatory	This property value shall be 2 (DMTF).
AdvertiseTypes[]	uint16	Mandatory	This property value shall be [1(Other),1(Other)].

Property Name	Type	Requirement	Additional Requirements
AdvertiseTypeDescriptions[]	string	Mandatory	This property value shall be ["WS-Identify", "Interop Namespace"].

7.4. DCIM_LCRegisteredProfile

This section describes the implementation for the DCIM_LCRegisteredProfile class.

This class shall be instantiated in the Interop Namespace.

The DCIM_ElementConformsToProfile association(s) shall reference the DCIM_LCRegisteredProfile instance.

7.4.1. 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:ServiceProcess 305 or: 1.0.0"

7.4.2. Operations

The following table lists the operations implemented on DCIM_LCRegisteredProfile.

Table 9. DCIM_LCRegisteredProfile - Operations

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

7.4.3. Class Properties

The following table lists the implemented properties for DCIM_LCRegisteredProfile instance in a system.

The "Requirements" column shall denote whether the property is implemented (for requirement definitions, see section 3). The "Additional Requirements" column shall denote either possible values for the property, or requirements on the value formulation.

Table 10. DCIM_LCRegisteredProfile

Property Name	Type	Requirement	Additional Requirements
InstanceID	string	Mandatory	This property value shall be "DCIM:ServiceProcessor:1.0.0".
RegisteredName	string	Mandatory	This property value shall be "Service Processor".
RegisteredVersion	string	Mandatory	This property value shall be "1.1.0".
RegisteredOrganization	uint16	Mandatory	This property value shall be 1 (Other).
OtherRegisteredOrganization	string	Mandatory	This property value shall be "DCIM".
AdvertiseTypes[]	uint16	Mandatory	This property value shall be [1 (Other),1 (Other)].
AdvertiseTypeDescriptions[]	string	Mandatory	This property value shall be ["WS-Identify", "Interop Namespace"].

Property Name	Type	Requirement	Additional Requirements
ProfileRequireLicense[]	string	Mandatory	This property array shall describe the required licenses for this profile. If no license is required for the profile, the property shall have value NULL.
ProfileRequireLicenseStatus[]	string	Mandatory	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 contain: <ul style="list-style-type: none"> “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.

8.1. DCIM_SPComputerSystem.RequestStateChange()

Invocation of the CIM_ComputerSystem.RequestStateChange() method resets the iDRAC's state to the value specified in the RequestedState parameter.

Table 11 provides the return values and Table 12 provides the parameters for the RequestStateChange() method.

Table 11. CIM_ComputerSystem.RequestStateChange() Method: Return Code Values

Value	Description
0	Request was successfully executed.
2	Error occurred

Table 12. CIM_ComputerSystem.RequestStateChange() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN, REQ	RequestedState	uint16	11 (Reset)
OUT	MessageID	string	Error Message ID may be used to look-up in the Dell Message registry files. For more information, see Error Message Registry
OUT	Message	string	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments[]	string	Substitution variables for dynamic error messages

Table 13. CIM_ComputerSystem.RequestStateChange() Method: Standard Messages

MessageID (OUT parameter)	Message	MessageArguments[]
RAC038	Cannot perform the operation due to an unknown error in iDRAC.	NA
RAC039	Invalid parameter value for <parameter>	RequestedState
RAC040	Missing parameter(s) <parameters>	RequestedState
RAC048	The command was successful	NA

MessageID (OUT parameter)	Message	MessageArguments[]
RAC049	Resource allocation failure	NA

8.2. DCIM_TimeService.ManageTime()

The DCIM_TimeService.ManageTime() method is used to query the service processor time and to set the service processor time in between of the host system reboots and service processor resets. Note that the the service processor time set through the successful execution of this method does not persist and is volatile. The service processor time shall reset to the BIOS time on every reset of the host system or the service processor.

However, if the DCIM_IDRACCardEnumeration NTPEnable attribute has the CurrentValue equal to “Enabled”, then the method shall fail and return 2 (Error). When the DCIM_IDRACCardEnumeration NTPEnable attribute has the CurrentValue equal to “Enabled”, the service processor time is retrieved from the configured NTP (Network Time Protocol) servers, see iDRAC Card Profile

For querying the service processor time, the GetRequest parameter shall have a value of TRUE, the TimeData parameter shall be an output parameter that contains the service processor time data. For setting the service processor time, the GetRequest parameter shall have a value of FALSE and the TimeData parameter shall have the time to be set. If the GetRequest parameter is not specified, the method shall return a value of 2 (Error Occurred).

Detailed requirements of the DCIM_TimeService() method are specified in Table 14 and Table 15. No standard messages are defined for this method.

Table 14. DCIM_TimeService.ManageTime() Method: Return Code Values

Value	Description
0	Request was successfully executed.
2	Error occurred

Table 15. DCIM_TimeService.ManageTime() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN, REQ	GetRequest	Boolean	The parameter shall be set to TRUE to request the time for the iDRAC, and shall be set to FALSE for setting the time for the iDRAC.
IN, OUT	TimeData	datetime	On input, this is the desired value for the service processor time. On output, this is the service processor time.
OUT	MessageID	string	Error Message ID may be used to look-up in the Dell Message registry files. For more information, see Error Message Registry
OUT	Message	string	Error Message in English corresponding to MessageID is returned if the method fails to execute
OUT	MessageArguments[]	string	Substitution variables for dynamic error messages

Table 16. CIM_TimeService.ManageTime() Method: Standard Messages

MessageID (OUT parameter)	Message	MessageArguments[]
RAC038	Cannot perform the operation due to an unknown error in iDRAC.	NA
RAC039	Invalid parameter value for <parameter>	GetRequest
RAC040	Missing parameter(s) <parameters>	GetRequest
RAC048	The command was successful	NA

MessageID (OUT parameter)	Message	MessageArguments[]
RAC049	Resource allocation failure	NA
RAC059	Unable to configure time because Network Time Protocol (NTP) is enabled.	

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 17. Privilege and License Requirements

Class and Method	Operation	User Privilege Required	License Required
DCIM_SPCoMputerSystem	ENUMERATE, GET	Login	None.
DCIM_SPCoMputerSystem.RequestedStateChange()	INVOKE	Login, System Control	None.
DCIM_TimeService	ENUMERATE, GET	Login	None.
DCIM_TimeService.ManageTime()	INVOKE	Login, System Control	None.
DCIM_SPSystemComponent	ENUMERATE, GET	Login	None.
DCIM_SPHostedTimeService	ENUMERATE, GET	Login	None.
DCIM_ElementConformsToProfile	ENUMERATE, GET	Login	None.
DCIM_RegisteredProfile	ENUMERATE, GET	Login	None.
DCIM_LCRegisteredProfile	ENUMERATE, GET	Login	None.
DCIM_LCElementConformsToProfile	ENUMERATE, GET	Login	None.

Change Log

Version	Date	Description
4.0.0	20-Jun-2017	LicenseStartDate property of DCIM_License is now Optional. LicenseAttributes has a new ValueMap, 4 – “Valid Subcomponent” (14G specific License)