# Service Processor Profile

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# Service Processor Profile

## 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:** 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_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 |

# 6 Description

The Dell Service Processor Profile describes a system management device.

Figure 1 details the class diagram of Dell Service Processor Profile

.

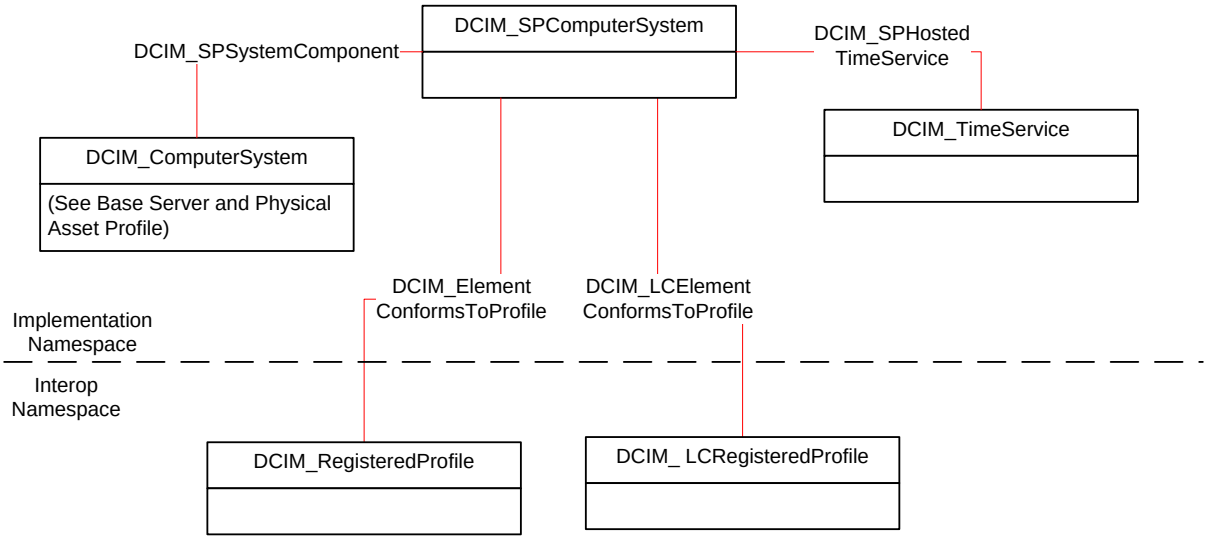


**Figure 1 – Service Processor Profile Class Diagram**

# 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_SPComputerSystem | Mandatory | The class shall be implemented in the *Implementation Namespace.*<br>See section 7.1 |
| DCIM_TimeService | Mandatory | The class shall be implemented in the *Implementation Namespace*.<br>See section 0 |
| DCIM_SPSystemComponent | Mandatory | The class shall be implemented in the *implementation namespace.*<br>See section 7.1 |
| DCIM_SPHostedTimeService | Mandatory | The class shall be implemented in the *Interop Namespace*.<br>See sections 7.1 and 0 |
| DCIM_ElementConformsToProfile | Mandatory | The class shall be implemented in both the Interop and *Implementation Namespaces*.<br>See sections 7.1 and 0 |
| DCIM_RegisteredProfile | Mandatory | The class shall be implemented in the *Interop Namespace.*<br>See section 0 |
| DCIM_LCElementConformsToProfile | Mandatory | The class shall be implemented in both the Interop and *Implementation Namespaces*.<br>See sections 7.1 and 7.4 |
| DCIM_LCRegisteredProfile | Mandatory | The class shall be implemented in the *Interop Namespace.*<br>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= DCIM TimeService 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 | Insatnce 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 "1.0.0". |
| RegisteredOrganization | uint16 | Mandatory | This property value shall be 2 (DMTF). |
| AdvertiseTypes[] | uint16 | Mandatory | This property value shall be [1(Other),1(Other)]. |
| 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:ServiceProcessor: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 "1.0.0". |
| 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.<br><br>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:<br>• "LICENSED"<br>• "NOT_LICENSED"<br>If no license is required for the profile, the property shall have value NULL. |

315

316

# 317 8 Methods

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

## 320 8.1 DCIM_SPComputerSystem.RequestStateChange()

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

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

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

| Value | Description |
|---|---|
| 0 | Request was successfully executed. |
| 2 | Error occurred |

326 **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 |

327 **Table 13 – CIM_ComputerSystem.RequestStateChange( ) Method: Standard Messages**

| MessageID (OUT parameter) | Message | MessageArguments[] |
|---|---|---|
| RAC048 | The command was successful | NA |
| RAC040 | Missing parameter(s) <parameters> | RequestedState |
| RAC038 | Cannot perform the operation due to an unknown error in iDRAC. | NA |
| RAC049 | Resource allocation failure | NA |
| RAC039 | Invalid parameter value for <parameter> | RequestedState |

328

## 329 8.2 DCIM_TimeService.ManageTime()

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

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

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

342 **Table 14 – CIM_TimeService.ManageTime( ) Method: Return Code Values**

| Value | Description |
|---|---|
| 0 | Request was successfully executed. |
| 2 | Error occurred |

343 **Table 15 – CIM_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 |

344 **Table 16 – CIM_TimeService.ManageTime( ) Method: Standard Messages**

| MessageID (OUT parameter) | Message | MessageArguments[] |
|---|---|---|
| RAC048 | The command was successful | NA |
| RAC040 | Missing parameter(s) <parameters> | GetRequest |
| RAC038 | Cannot perform the operation due to an unknown error in iDRAC. | NA |
| RAC049 | Resource allocation failure | NA |
| RAC039 | Invalid parameter value for <parameter> | GetRequest |

345

# 346 9 Use Cases

347 See *Lifecycle Controller (LC) Integration Best Practices Guide*.

# 348 10 CIM Elements

349 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. |

# ANNEX A
# (informative)

## Change Log

| Version | Date | Description |
|---|---|---|
| 1.0.0 | 03/08/2012 | Initial Version. |
| 1.0.1 | 04/10/2012 | Corrected the DCIM_TimeService.ElementName property value constraint. |
| 1.0.2 | 10/17/2012 | Added behavior description regarding the volatility of the service processor time in the DCIM_TimeService.ManageTime() method. |
| | | |