Chassis System Info Profile

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CONTENTS

Figures

Tables

Chassis System Info Profile

1 Scope

Chassis System Info Profile Profile describes the properties and interfaces for executing system management tasks related to the management of a modular chassis and containing blade servers. The profile standardizes and aggregates the description for the platform's basic properties into a system view representation as well as provides a methodology for the clients to query the system 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 DSP0200, *CIM Operations over HTTP 1.2.0*
- DMTF DSP0004, *CIM Infrastructure Specification 2.3.0*
- DMTF DSP1000, *Management Profile Specification Template*
- DMTF DSP1001, *Management Profile Specification Usage Guide*
- DMTF DSP0226, *Web Services for Management (WS-Management) Specification 1.1.0*
- DMTF DSP0227, *WS-Management CIM Binding Specification 1.0.0*
- DMTF DSP1061, *BIOS Management Profile Specification 1.0.0*
- DMTF DSP1008, *Modular Systems Profile Specification 1.0.0*

Certain properties defined in this document follows the value specification of a related property in another CIM class. For example, a property in this document may follow the value specification of PowerState property in CIM_AssociatedPowerManagementService class. The value specification of this property is not explicitly declared here but rather referenced. For this, see the referenced class MOF for the value specification. In the example above, see CIM_AssociatedPowerManagementService.mof file.

3 Terms and Definitions

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

3.1

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

3.2

cannot – Used for statements of possibility and capability, whether material, physical, or causal.

3.3

conditional – Indicates requirements to be followed strictly in order to conform to the document when the specified conditions are met.

3.4

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

3.5

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

3.6

need not – Indicates a course of action permissible within the limits of the document.

3.7

optional – 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

Interop Namespace – or root/interop is where instrumentation instantiates classes to advertise its capabilities for client discovery.

3.14

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

3.15

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

3.16

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 – or Common Information Model

4.2

iDRAC – or Integrated Dell Remote Access Controller, management controller for servers

4.3

CMC – or Chassis Manager Controller, management controller for the modular chassis

4.4

WBEM – or Web-Based Enterprise Management

5 Synopsis

Profile Name: Chassis System Info

Version: 1.0.0

Organization: Dell

CIM Schema Version: 2.23.0 Experimental

Dell Schema Version: 1.0.0

Interop Namespace: root/interop

Implementation Namespace: root/dell/cmc

Central Class: DCIM_ModularSystemView

Scoping Class: Dell_Modular

The Chassis System Info Profile is a component profile that contains the Dell specific implementation requirements for system view in a modular environment.

Table 1 identifies profiles on which this profile has a dependency.

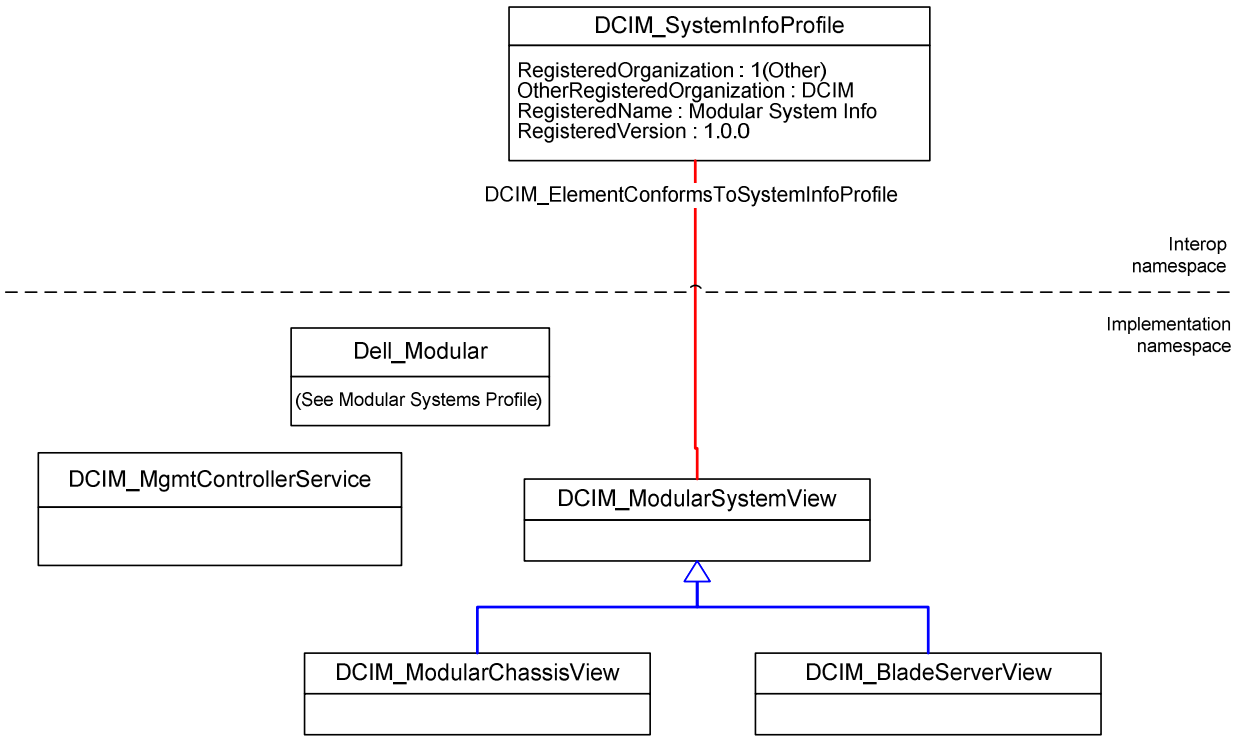
Table 1 – Related Profiles

Profile Name	Organization	Version	Requirement	Description
Profile Registration	DMTF	1.0	Mandatory	The profile that specifies registered profiles

6 Description

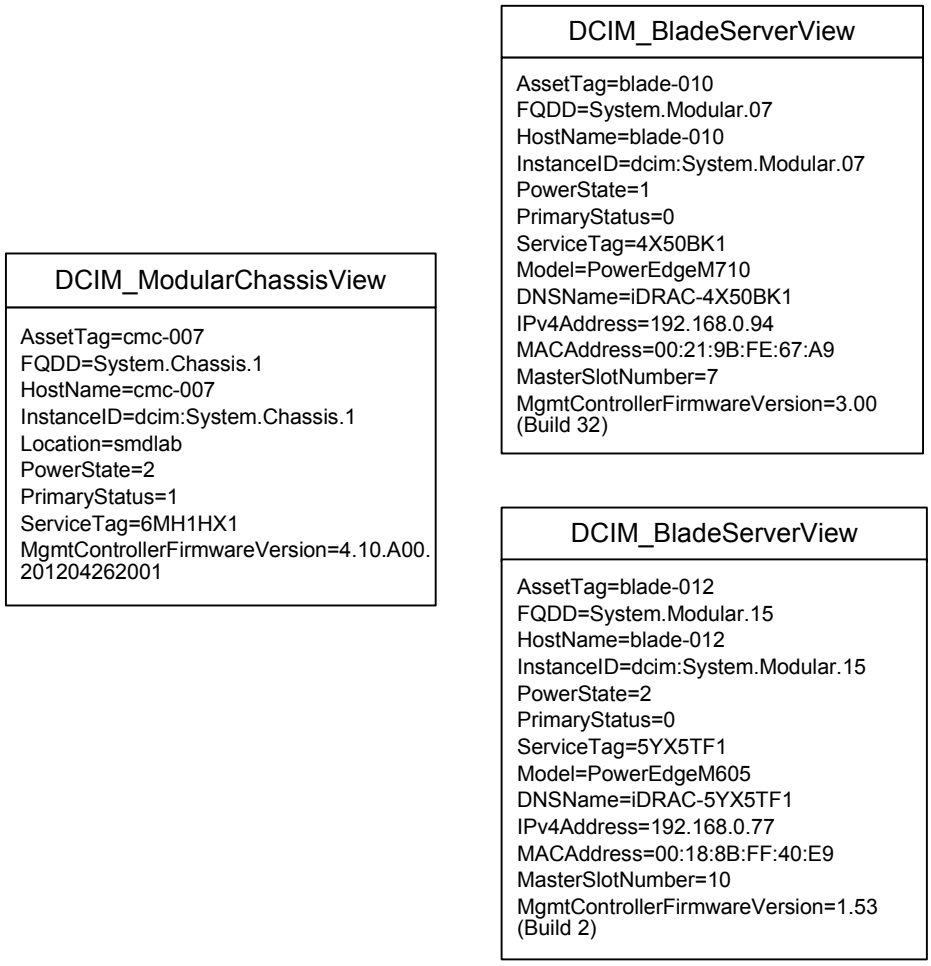
The Chassis System Info Profile describes the basic properties of a computer system in a modular environment. The system information for the modular chassis is represented by the class DCIM_ModularChassisView. There shall be exactly one instance of this class. The system information for a modular blade is represented by the class DCIM_BladeServerView. There shall be one instance of this class for each blade present in a blade slot.

A typical implementation of Chassis System Info Profile is advertised by an instance of DCIM_SystemInfoProfile class in the interop namespace. The instance provides the implementation version and organization name. The registered name shall be “System Info” which allow interoperability with the non-modular version of this profile.



105 **Figure 1 – Chassis System Info Profile Class Diagram**

106 There shall be exactly one instance of DCIM_ModularChassisView to represent the modular chassis
107 system. There shall be one instance of DCIM_BladeSerview for each blade server present on the
108 modular chassis to represent the blade server. An example of this looks like the figure below.



109

110 **Figure 2 – System View Instance Example**

111 6.1 Fully Qualified Device Descriptor (FQDD)

112 Fully Qualified Device Descriptor (FQDD) is a component identifier that uniquely represents a
113 specific system device or component in a platform independent of the operating system and the
114 device vendor.

115 The syntax specification of FQDD is "<Device>.<Location>.<Instance>". Two or more FQDDs may be
116 concatenated using a delimiter character that is implemenatation specific. Device, Location and Instance
117 shall consist of alphanumeric characters and may include other printable characters as long as they are
118 defined to differentiate from delimiters.

119 The Dell CIM Data model utilizes FQDDs to correlate between related properties or classes. This
120 type of correlation allows the ability to associate properties and classes without the use of
121 association classes. The following table lists the FQDD used in this profile.

122 **Table 2 – FQDD and SystemFQDD**

FQDD	Description
System.Chassis.1	Instance 1 of chassis computer system
System.Modular.N	Instance N of blade computer system, 1-based and 0 padded. For example: 01
SNMP.BIR.1	Blade insertion and removal SNMP trap
Network.MC.01	Instance 1 of management controller network controller
User.MC.N	Instance N of local user account in management controller, 1-based

123 # 7 Implementation

124 This section describes the requirements and guidelines for implementing Chassis System Info Profile.
125 The following defines the class requirements for this profile.

126 **Table 3 – Class Requirements for Modular System Info Profile**

Name	Requirements	Description
Classes		
DCIM_MgmtControllerService	Mandatory	The class shall be instantiated in the implementation namespace: root/dell/cmc
DCIM_ModularChassisView	Mandatory	The class shall be instantiated in the implementation namespace: root/dell/cmc
DCIM_BladeServerView	Mandatory	The class shall be instantiated in the implementation namespace: root/dell/cmc
DCIM_SystemInfoProfile	Mandatory	The class shall be instantiated in the interop namespace: root/interop
DCIM_ElementConformsToSystemInfoProfile	Mandatory	The class shall be instantiated in the implementation namespace: root/dell/cmc and interop namespace: root/interop
Indications		
None defined in this profile	n/a	n/a

127 ## 7.1 Profile Registration

128 The Profile Registration is represented as DCIM_SystemInfoProfile class. It provides registration
129 information that can be used to determine whether the implementation is conformat to the profile defined
130 in this document.

131 This class shall:

132 a. Inherit from CIM_RegisteredProfile class.
133 b. Have exactly one instance.
134 c. Be instantiated in the interop namespace.
135 d. Referenced by DCIM_ElementConformsToSystemInfoProfile class.

136 ### 7.1.1 Resource URIs for WinRM®

137 The class resource URI shall be “http://schemas.dell.com/wbem/wscim/1/cim-schema/2/
138 DCIM_SystemInfoProfile?__cimnamespace= root/interop”

139 The key property shall be the InstanceID.

140 The instance Resource URI for DCIM_SystemInfoProfile instance shall be:

141 http://schemas.dell.com/wbem/wscim/1/cim-schema/2/ DCIM_SystemInfoProfile?__cimnamespace=
142 root/dell/cmc+InstanceID= <InstanceID> ,

143 where <InstanceID> represents the InstanceID property value.

144 7.1.2 Operations

145 The following table defines the implemented operations for this class.

146 **Table 4 – DCIM_SystemInfoProfile Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
DCIM_MgmtControllerService.SetBIOSAttribute()	Mandatory	See section 8.1
DCIM_MgmtControllerService.SetBIOSAttributes()	Mandatory	See section 8.2

147 7.1.3 Class Properties

148 The following table lists the implemented properties for DCIM_SystemInfoProfile instance. The
149 "Requirements" column shall denote whether the property is implemented (for requirement definitions,
150 see section 3). The "Additional Requirements" column shall denote either possible values for the property,
151 or requirements on the value formulation.

152 **Table 5 – DCIM_SystemInfoProfile Properties**

Property Name	Type	Requirements M=Mandatory O=Optional	Description and Additional Requirements
InstanceID	string	M	The property shall have the value "DCIM:SystemInfo:1.0.0"
RegisteredName	string	M	The property shall have the value "Chassis System Info".
RegisteredVersion	string	M	The property shall have the value "1.0.0".
RegisteredOrganization	uint16	M	The property shall have the value "1 (Other)".
OtherRegisteredOrganization	string	M	The property shall have the value "DCIM".
AdvertiseTypes	uint16[ ]	M	The property shall have the value "Not Advertised".

153 7.2 DCIM_ModularChassisView – Modular Chassis View

154 Modular chassis view, DCIM_ModularChassisView class, represents a modular chassis system. This
155 view class contains a collection of attributes describing the properties of a modular chassis system.

156 This class shall:

157 a. Inherit from DCIM_ModularSystemView class.
158 b. Have exactly one instance.
159 c. Be instantiated in the implementation namespace.

160 7.2.1 Resource URIs for WinRM®

161 The class resource URI shall be "http://schemas.dell.com/wbem/wscim/1/cim-schema/2/
162 DCIM_ModularChassisView?__cimnamespace= root/dell/cmc"

163 The key property shall be the InstanceID.

164 The instance Resource URI for DCIM_ModularChassisView instance shall be:

165 http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_ModularChassisView?__cimnamespace=
166 root/dell/cmc+InstanceID= dcim:System.Chassis.1

167 7.2.2 Operations

168 The following table details the implemented operations for this class.

169 **Table 6 – DCIM_ModularChassisView Operations**

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

170 7.2.3 Class Properties

171 The following table lists the implemented properties for DCIM_ModularChassisView instance. The
172 "Requirements" column shall denote whether the property is implemented (for requirement definitions,
173 see section 3). The "Additional Requirements" column shall denote either possible values for the property,
174 or requirements on the value formulation.

175 **Table 7 – DCIM_ModularChassisView Properties**

Property Name	Type	Requirements K=Instance Key M=Mandatory O=Optional RW=ReadWrite RO=ReadOnly	Description and Additional Requirements
AssetTag	string	M-RO	A unique alphanumeric string used to identify a modular chassis for tracking assets.
CMCModel	string	M-RO	The property shall have the CMC software model value that represents the CMC license level. For enterprise model CMCs, the value shall be "Enterprise."
DNSCMCName	string	M-RO	The property shall have the value of the CMC endpoint DNS name.
DNSDomainName	string	M-RO	The property shall have the value of the CMC endpoint DNS domain name.
ElementName	string	M-RO	The property shall have value "chassis view".
EnhancedCoolingMode	string	M-RW[2]	The property shall represent whether the enhanced cooling mode is enabled. The property shall have the following values: • Enabled • Disabled
ExpressServiceCode	string	M-RO	The property shall have the value of the express service code for the system.
FlexFabricState	boolean[ ]	M-RO	FlexFabricState array property contains a list of flex address enablement states for network fabrics. The associated network fabric description is defined in FlexFabricStateDescription. Each item in the list is associated correspondingly. The array index shall match between the two properties for the corresponding fabric and that fabric's flex enablement state. A value of TRUE indicates the fabric is enabled, while a value of FALSE indicates the fabric is disabled.

Property Name	Type	Requirements K=Instance Key M=Mandatory O=Optional RW=ReadWrite RO=ReadOnly	Description and Additional Requirements
FlexFabricStateDescription	string[ ]	M-RO	FlexFabricStateDescription contain a list of friendly description for each corresponding item in FlexFabricState. Each item in the list is associated correspondingly and array index shall match between the two properties.
FQDD	String	M-RO	The property shall have the value "System.Chassis.1". See Section 6.1 for more information on FQDD.
Generation	uintt16	M-RO	The property shall represent the generation of the chassis.
HostName	String	M-RO	The host name assigned to CMC.
InstanceID	String	K-M-RO	InstanceID opaquely and uniquely identifies an instance of this class within the scope of the instantiating namespace and shall have the value "dcim:System.Chassis.1".
IPv4Address	String	M-RO	The IPv4 address assigned to CMC network interface. This property shall follow the constraints specified for CIM_IPProtocolEndpoint.IPv4Address.
Location	String	M-RO	Location provides a friendly description of the physical location of the modular chassis.
MgmtControllerFirmwareVersion	String	M-RO	A string representing CMC firmware version. This property shall follow the constraints specified for CIM_SoftwareIdentity.VersionString.
Model	String	M-RO	The property shall have the value of the CMC hardware model name.
PhysicalLocationAisle	string	M-RO	The aisle description to aid in defining physical location of the modular chassis.
PhysicalLocationChassisName	string	M-RO	A name for the modular chassis to aid in defining the physical location of the modular chassis.
PhysicalLocationDataCenter	string	M-RO	The data center description to aid in defining physical location of the modular chassis.
PhysicalLocationDeviceSize	string	M-RO	The modular chassis size in U unit to aid in defining physical location of the modular chassis.
PhysicalLocationRack	string	M-RO	The rack description to aid in defining physical location of the modular chassis.
PhysicalLocationRackSlot	string	M-RO	The rack slot location (1 is at the bottom of rack) to aid in defining physical location of the modular chassis.
PowerState	uint16	M-RO	The current power state of a modular chassis. This property shall follow the constraints specified for CIM_AssociatedPowerManagementService.PowerState.
PrimaryStatus	uint16	M-RO	PrimaryStatus provides a high level status value for a modular chassis, intended to align with Red-Yellow-Green type representation of status. This property shall follow the constraints specified for CIM_ManagedSystemElement.PrimaryStatus.
PwrInputInfrastructureAllocation	uint32	M-RO	The total external (wall-plate) power that CMC allocates to the modular chassis infrastructure (such as fans, IO modules, iKVM, CMC, and standby CMC). Unit is in watts.
PwrInputSystemConsumption	uint32	M-RO	The total external (wall-plate) instantaneous power consumption for the whole modular chassis. Unit is in watts.

Property Name	Type	Requirements K=Instance Key M=Mandatory O=Optional RW=ReadWrite RO=ReadOnly	Description and Additional Requirements
ServerBasedPowerMgmtEnabled	boolean	M-RO	ServerBasedPowerMgmtEnabled reports whether the power management of modular servers are controlled by software component outside of CMC firmware. The feature is enabled when value is "TRUE", or disabled when value is "FALSE".
ServerBasedPowerMgmtEnableTime	datetime	M-RO	ServerBasedPowerMgmtEnableTime reports the date and time server-based power management was enabled.
ServiceTag	String	M-RO	A unique alphanumeric string used to identify a modular chassis as supplied by the manufacturer.
SNMPCommunityBladeIRAlert	string	M-RW[1]	SNMP agent community string for alerts on blade server insertion and removal events.
SNMPDestinationBladeIRAlert	string	M-RW[1]	SNMP trap destination for alerts on blade server insertion and removal events.
UseHostNameForSlotName	boolean	M-RO	This property indicates whether the option to use hostname instead of slotname is enabled. The hostname refers to the name set by the OS running on the system. This feature requires a software agent running on the OS to set the value.
SystemID	String	M-RO	The property shall represent the unique ID representing the particular model of the system.
URLString	String	M-RO	The property shall have the value of the URL for the CMC web GUI.

Note: [1]The property value shall be settable through the SetBIOSAttribute() and SetBIOSAttributes() methods. Refer to section 7.5.1 for detailed information on the corresponding settable attribute.

Note: [2]The property value shall be settable through the SetBIOSAttribute() and SetBIOSAttributes() methods. Refer to section 7.5.1 for detailed information on the corresponding settable attribute.

7.3 DCIM_BladeServerView – Blade Server View

Blade server view, DCIM_BladeServerView class, represents a blade server and contains properties describing attributes of the blade server.

This class shall:

a. Inherit from DCIM_ModularSystemView class.
b. Have one instance for each blade server installed on the modular chassis.
a. Be instantiated in the implementation namespace.

7.3.1 Resource URIs for WinRM®

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

The key property shall be InstanceID.

The instance Resource URI for DCIM_BladeServerView instance shall be:

http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_BladeServerView?__cimnamespace= root/dell/cmc+InstanceID=<InstanceID>,

where <InstanceID> is the InstanceID property value.

7.3.2 Operations

The following table details the implemented operations for this class.

Table 8 – DCIM_BladeServerView Operations

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
DCIM_MgmtControllerService.SetBIOSAttribute()	Mandatory	See section 8.1
DCIM_MgmtControllerService.SetBIOSAttributes()	Mandatory	See section 8.2

7.3.3 Blade Server View Properties

The following table lists the implemented properties for DCIM_BladeServerView instance. 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 9 – DCIM_BladeServerView Properties

Property Name	Type	Requirements K=Instance Key M=Mandatory O=Optional RW=ReadWrite RO=ReadOnly	Description and Additional Requirements
InstanceID	string	K-M-RO	InstanceID opaquely and uniquely identify an instance of this class within the scope of the instantiating namespace.
AssetTag	string	M-RO	A unique alphanumeric string used to identify a blade server for tracking assets.
BIOSVersion	string	M-RO	A string representing the blade server's BIOS version. This property shall follow the constraints specified for CIM_SoftwareIdentity.VersionString.
DHCPEnabled	boolean	M-RW[1]	This property indicates whether the local network interface is configured for DHCP on a blade server's iDRAC. The configuration is Static otherwise.
DNSName	string	M-RW[1]	This property is the DNS name assigned to the network interface.
FlexMACAddress	string[ ]	M-RO	FlexMACAddress contain a list of flex or chassis-assigned MAC addresses associated with the blade computer system. Each item in the list is associated correspondingly and array index shall match the property MACAddress. This property shall follow the constraints specified for CIM_EthernetPort.PermanentAddress.
FlexMACEnabled	boolean	M-RO	FlexMACEnabled indicates whether Flex address is enabled for the system.
FQDD	string	M-RO	The property shall have the value "System.Modular.N", where N is a single zero padded number representing the slot where a blade server is plugged into a modular chassis. See Section 6.1 for more information on FQDD.
Gateway	string	M-RW[1]	The default gateway for the IPv4 address of the local network interface on the iDRAC. This property shall follow the constraints specified for CIM_IPProtocolEndpoint.IPv4Address.
Generation	uint16	M-RO	The property shall be the generation of the blade server.

Property Name	Type	Requirements K=Instance Key M=Mandatory O=Optional RW=ReadWrite RO=ReadOnly	Description and Additional Requirements
HostName	string	M-RO	The host name assigned to the blade server's iDRAC.
IPMIOverLANEnabled	boolean	M-RW[1]	This property indicates whether the IPMI over LAN interface is enabled on the iDRAC. A value of TRUE indicates enabled, while a value of FALSE indicates disabled.
IPv4Address	string	M-RW[1]	The IPv4 address assigned to a blade server's iDRAC network interface. This property shall follow the constraints specified for CIM_IPProtocolEndpoint.IPv4Address.
IPv4Enabled	boolean	M-RO	This property indicates whether the IPv4Address is enabled on the iDRAC. A value of TRUE indicates enabled, while a value of FALSE indicates disabled.
IPv6Address	String	M-RO	The property shall represent the iDRAC's IPv6 address.
IPv6AddressCount	uint16	M-RO	The IPv6 address count assigned to the local network interface on the iDRAC.
IPv6Capable	boolean	M-RO	This property indicates whether IPv6 addressing is supported on the iDRAC.
IPv6Enabled	boolean	M-RO	This property indicates whether the IPv6Address is enabled on the iDRAC.
IPv6Gateway	string	M-RO	The default gateway for the IPv6 address of the local network interface on the iDRAC. This property shall follow the constraints specified for CIM_IPProtocolEndpoint.IPv6Address.
LANEnabled	boolean	M-RW[1]	This property indicates whether the local network interface is enabled on the iDRAC. A value of TRUE indicates enabled, while a value of FALSE indicates disabled.
LifeCycleControllerVersion	string	M-RO	This property shall represent the iDRAC Lifecycle controller version.
MACAddress	string[ ]	M-RO	MACAddress contain a list of MAC addresses associated with the blade computer system. This property shall follow the constraints specified for CIM_EthernetPort.PermanentAddress.
MACAddressDescription	string[ ]	M-RO	MACAddressDescription contain a list of friendly descriptions associated with the MAC Address in the MACAddress property. Each item in the list is associated correspondingly and array index shall match between the two properties.
MACAddressFabricType	string[ ]	M-RO	MACAddressFabricType contain a list of Fabric type associated with the MAC Address in the MACAddress property. Each item in the list is associated correspondingly and array index shall match between the two properties.
MasterSlotNumber	uint16	M-RO	MasterSlotNumber indicates the master physical slot number associated with the current slot in case of multi-form factor blade system.
MezzanineFirmware	string[ ]	M-RO	Mezzanine firmware. Each item in the list is associated correspondingly and array index shall match all properties prefixed Mezzanine.
MezzanineID	string[ ]	M-RO	Mezzanine device unique identifier. It may contain information such as device type, device location and fabric association. Each item in the list is associated correspondingly and array index shall match the properties prefixed Mezzanine.

Property Name	Type	Requirements K=Instance Key M=Mandatory O=Optional RW=ReadWrite RO=ReadOnly	Description and Additional Requirements
MezzanineModel	string[ ]	M-RO	Mezzanine device model name. Each item in the list is associated correspondingly and array index shall match all properties prefixed Mezzanine.
MgmtControllerFirmwareVersion	string	M-RO	A string representing blade server's iDRAC's firmware version. This property shall follow the constraints specified for CIM_SoftwareIdentity.VersionString.
Model	string	M-RO	The model name for the blade server. This property shall follow the constraints specified for CIM_PhysicalElement.Model.
ModelNumber	uint16	M-RO	The numerical representation of the hardware model corresponding to the Model property.
PowerState	uint16	M-RO	The current power state of a blade server. This property shall follow the constraints specified for CIM_AssociatedPowerManagementService.PowerState.
PrimaryStatus	uint16	M-RO	PrimaryStatus provides a high level status value for a blade server, intended to align with Red-Yellow-Green type representation of status. This property shall follow the constraints specified for CIM_ManagedSystemElement.PrimaryStatus.
RegDNSNameEnabled	boolean	M-RW[1]	This property indicates whether DNS name registration is enabled on the iDRAC. A value of TRUE indicates enabled, while a value of FALSE indicates disabled.
ServiceTag	string	M-RO	A unique alphanumeric string used to identify a blade server as supplied by the manufacturer.
SlotName	string	M-RO	SlotName is a string identifier of the physical slot in which the blade server is inserted.
SlotNumber	uint16	M-RO	SlotNumber indicates the physical slot number. This property shall follow the constraints specified for CIM_Slot.Number.
SubnetMask	string	M-RW[1]	The subnet mask for the IPv4 address of the local network interface on the iDRAC. This property shall follow the constraints specified for CIM_IPProtocolEndpoint.IPv4Address.
SubSlot	string	M-RO	SubSlot indicates the quarter-size slot in a multi-form factor blade system.
UserEnabled	boolean[ ]	M-RW[2]	iDRAC user account state. Each item in the list is associated correspondingly and array index shall match the property UserNames. A value of TRUE indicates enabled, while a value of FALSE indicates disabled.
UserIPMIRole	string[ ]	M-RW[2]	iDRAC IPMI user account role. Each item in the list is associated correspondingly and array index shall match the property UserNames.
UserName	string[ ]	M-RW[2]	UserNames contain a list of user account names for the iDRAC. This property shall follow the constraints specified for CIM_Account.UserID.
UserRole	string[ ]	M-RW[2]	User account role on the iDRAC. Each item in the list is associated correspondingly and array index shall match the property UserNames.

NOTE: [1]The property value shall be settable through the SetBIOSAttribute() and SetBIOSAttributes() methods. Refer to section 7.5.3 for detailed information on the corresponding settable attribute.

NOTE: [2]The property value shall be settable through the SetBIOSAttribute() and SetBIOSAttributes() methods. Refer to section 7.5.4 for detailed information on the corresponding settable attribute.

7.4 DCIM_MgmtControllerService – Chassis Manager Controller Service

Chassis Manager Controller Service is represented by the DCIM_MgmtControllerService class. This service class provides method interfaces that operate on properties (also called attributes) in the DCIM_ModularSystemView class and its derivation.

This class shall:

b. Inherit from CIM_ModularSystemService class.
c. Have exactly one instance.
d. Be instantiated in the implementation namespace.

7.4.1 Resource URIs for WinRM®

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

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

The instance Resource URI for DCIM_MgmtControllerService instance shall be:

http://schemas.dell.com/wbem/wscim/1/cim-schema/2/ DCIM_MgmtControllerService?__cimnamespace= root/dell/cmc+ CreationClassName=DCIM_MgmtControllerService+Name= mgmtcontrollerservice1+SystemCreationClassName= Dell_ChassisMgr+SystemName=systemmc,

where <AttributName> is the AttributeName property value.

7.4.2 Operations

The following table details the implemented operations for this class.

Table 10 – DCIM_MgmtControllerService Operations

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
Invoke	Mandatory	Instance URI
DCIM_MgmtControllerService.SetBIOSAttribute()	Mandatory	See section 8.1
DCIM_MgmtControllerService.SetBIOSAttributes()	Mandatory	See section 8.2
DCIM_MgmtControllerService.ServerBasedPowerMgmtEnable()	Mandatory	See section 8.3

7.4.3 Class Properties

The following table lists the implemented properties for DCIM_MgmtControllerService instance. 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 11 – DCIM_MgmtControllerService Properties

Property Name	Type	M=Mandatory O=Optional	Description and Additional Requirements
CreationClassName	string	M	The property shall have the value "DCIM_MgmtControllerService".
Name	string	M	The property shall have the value

			"mgmtcontrollerservice1".
SystemCreationClassName	string	M	The property shall have the value “Dell_ChassisMgr”.
SystemName	string	M	The property shall have the value “systemmc”.

7.5 Settable Attributes

The settable attributes are the read/write properties on the blade server and modular chassis views. The settable attributes are marked as “RW” properties of the DCIM_ModularChassisView and DCIM_BladeServerView classes (see Table 7 and Table 9). Successfully setting those attributes using the SetBIOSAttribute() and SetBIOSAttributes() methods shall set the same named property values on the views.

The following sections describe the information necessary to successfully configure the settable attributes through the SetBIOSAttribute() and SetBIOSAttributes() methods.

7.5.1 Configuring Chassis SNMP Trap

An SNMP trap alert can be configured for a chassis blade insertion or blade removal event. To enable the alert, set a value for the SNMP agent community and the SNMP destination address or host name for BladeIRAlert attributes as defined in the table below. To disable the alert, simply set an empty string value for both attributes.

Use DCIM_ModularSystemService.SetBIOSAttribute() Method to set a single attribute or DCIM_MgmtControllerService.SetBIOSAttributes() Method to set two or more attributes at a time.

The requirement for configuring the attributes in this section shall be:

a. SystemFQDD = “System.Chassis.1”
b. FQDD = “SNMP.BIR.1”

Attribute names are case sensitive. FQDD type attribute value is not case sensitive. The following table describes attributes that can be configured.

Table 12 – Chassis SNMP Trap Settable Attributes

Attribute Name	Type	Possible Values
SNMPCommunityBladeIRAlert	string	Non-extended printable ASCII 126 character string excluding XML reserved characters.
SNMPDestinationBladeIRAlert	string	Either an alpha-numeric host name or an IPv4/IPv6 address both 254 character string.

7.5.2 Configuring Chassis Infrastructure

This group of attributes configures the chassis shared infrastructure. The attributes may correspond to certain cooling or power features that exist in the chassis.

Use DCIM_ModularSystemService.SetBIOSAttribute() Method to set a single attribute or DCIM_MgmtControllerService.SetBIOSAttributes() Method to set two or more attributes at a time.

The requirement for configuring the attributes in this section shall be:

c. SystemFQDD = “System.Chassis.1”
d. FQDD = “System.Chassis.1”

Attribute names are case sensitive. FQDD type attribute value is not case sensitive. The following table describes attributes that can be configured.

266 **Table 13 – Chassis SNMP Trap Settable Attributes**

Attribute Name	Type	Possible Values
EnhancedCoolingMode	string	• Enabled • Disabled

267 ### 7.5.3 Configuring Blade Management Controller Network

268 Certain network attributes of a blade management controller may be configured.

269 Use DCIM_ModularSystemService.SetBIOSAttribute() Method to set 1 attribute or
270 DCIM_MgmtControllerService.SetBIOSAttributes() Method to set 2 or more attributes at a time.

271 The requirement for configuring the attributes in this section shall be:

272 a. SystemFQDD shall be “System.Modular.N” where N is 1-based master slot number.
273 b. FQDD shall be “Network.MC.01” representing the management controller on the blade.

274 Attribute names are case sensitive. FQDD type attribute value is not case sensitive. The following table
275 describes attributes that can be configured.

276 **Table 14 – Blade MC Network Settable Attributes**

Attribute Name	Type	Possible Values
DHCPEnabled	boolean	{ TRUE, FALSE }
DNSName	string	alpha-numeric-hyphen 64 character string
Gateway	string	IPv4 address string. Ignored when DHCPEnabled is TRUE.
IPMIOverLANEnabled	boolean	{ TRUE, FALSE }
IPv4Address	string	IPv4 address string. Ignored when DHCPEnabled is TRUE.
LANEnabled	boolean	{ TRUE, FALSE }
RegDNSNameEnabled	boolean	{ TRUE, FALSE }
SubnetMask	string	IPv4 address string. Ignored when DHCPEnabled is TRUE.

277 ### 7.5.4 Configuring Blade Management Controller User Account

278 Certain user account attributes of a blade management controller may be configured.

279 Use DCIM_ModularSystemService.SetBIOSAttribute() Method to set a single attribute or
280 DCIM_MgmtControllerService.SetBIOSAttributes() Method to set two or more attributes at a time.

281 The requirement for configuring the attributes in this section shall be:

282 a. SystemFQDD shall be “System.Modular.N” where N is 1-based master slot number.
283 b. FQDD shall be “User.MC.N” where N is 1-based user account index.

284 Attribute names are case-sensitive. FQDD type attribute value is not case sensitive. The following table
285 describes attributes that can be configured.

286 **Table 15 – Blade MC User Account Settable Attributes**

Attribute Name	Type	Possible Values
UserEnabled	boolean	{ TRUE, FALSE }
UserIPMIRole	string	{ callback, user, operator, administrator, noaccess }
UserName	string	alpha-numeric 16 character string

Attribute Name	Type	Possible Values
UserPassword	string	alpha-numeric 20 character string
UserRole	string	{ user, poweruser, administrator, noaccess }

8 Methods

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

8.1 DCIM_ModularSystemService.SetBIOSAttribute() Method

The SetBIOSAttribute() method of class DCIM_MgmtControllerService shall be used to configure a single attribute corresponding to a single property of DCIM_ModularSystemView or DCIM_BladeServerView class instances. Thus, this method shall be applicable both to a chassis or blade system attribute.

8.1.1 SetBIOSAttribute() Method Parameters

The SetBIOSAttribute return code is defined as follows.

Table 16 – DCIM_MgmtControllerService.SetBIOSAttribute() Return Code

Value	Description
0	Completed with No Error
2	Error

The SetBIOSAttribute parameters are defined as follows.

Table 17 – DCIM_MgmtControllerService.SetBIOSAttribute() Parameters

Qualifiers	Name	Type	Description and Additional Requirements
IN, Req	FQDD	string	See Section 7.5.
IN, Req	SystemFQDD	string	This is the FQDD of the scoping system instance. In modular systems, this can be the FQDD of the blade server. This parameter may be omitted for monolitic systems. See Section 7.5.
IN, Req	AttributeName	string	The name of the attribute to be modified.
IN, Req	AttributeValue	string[ ]	The new value to assign to the attribute.
OUT	SetResult	string	The property shall have the value “2” which indicates new value is applied immediately and CurrentValue property updated.
OUT	MessageID	string	On error, the error message ID which can be used to index into the Message Registry when provided. SeeTable 22.
OUT	Message	string	On error, the error message text in English corresponding to the message ID.
OUT	MessageArguments	string[ ]	On error, the error message substitution variables that may be used with message ID and Message Registry to allow internationalization of the error message.

8.2 DCIM_MgmtControllerService.SetBIOSAttributes() Method

The SetAttributes method of class DCIM_MgmtControllerService shall be used to configure one or more attributes corresponding to the respective properties of DCIM_ModularSystemView class instances. This method may be applicable to chassis or blade system attribute (or property in the View class).

8.2.1 SetBIOSAttributes() Method Parameters

The SetBIOSAttributes return code is defined as follows.

Table 18 – DCIM_MgmtControllerService.SetBIOSAttributes() Return Code

Value	Description
0	Completed with No Error
2	Error

The SetBIOSAttributes parameters are defined as follows.

Table 19 – DCIM_MgmtControllerService.SetBIOSAttributes() Parameters

Qualifiers	Name	Type	Description and Additional Requirements
IN, Req	FQDD	string[ ]	Each of the SystemFQDD will be applied to each of the FQDD and each of the AttributeName. If more than one FQDD is specified in the FQDD array parameter, then the method shall attempt to set all the attributes corresponding to all the possible permutations of the FQDDs specified in the FQDD array parameter, system FQDDs specified in the SystemFQDD array parameter, and attribute names specified in the AttributeName parameter array. See Section 7.5 for the possible FQDD values.
IN, Req	SystemFQDD	string[ ]	This is the FQDD of the scoping system instance. In modular systems, this can be the FQDD of the blade server or modular chassis. If more than one FQDD is specified in the SystemFQDD array parameter, then the method shall attempt to set all the attributes corresponding to all the possible permutations of the FQDDs specified in the FQDD array parameter, system FQDDs specified in the SystemFQDD array parameter, and attribute names specified in the AttributeName parameter array. See Section 7.5 for the possible SystemFQDD values.
IN, Req	AttributeName	string[ ]	The names representing the attributes to be modified. The specified attributes must already exist. The values of the attribute name supplied for this parameter must be unique within the scope of the instantiating namespace. The AttributeName[] parameter's array members shall correspond with AttributeValue[] parameter's array members. Thus, the AttributeName parameter array length shall match the AttributeValue parameter array length.
IN, Req	AttributeValue	string[ ]	New values to assign to the attributes specified in the AttributeName[ ] parameter. The AttributeValue[] parameter's array members shall correspond with the AttributeName[] parameter array members. Thus, the AttributeValue parameter array length shall match the AttributeName parameter array length. A value of NULL shall indicate the factory default values for the attribute is requested.
OUT	SetResult	string	The property shall have the value "2" which indicates new value is applied immediately and CurrentValue property updated.
OUT	MessageID	string	On error, the error message ID which can be used to index into the Message Registry when provided. SeeTable 22.

Qualifiers	Name	Type	Description and Additional Requirements
OUT	Message	string	On error, the error message text in English corresponding to the message ID.
OUT	MessageArguments	string[ ]	On error, the error message substitution variables that may be used with message ID and Message Registry to allow internationalization of the error message.

8.3 DCIM_MgmtControllerService.ServerBasedPowerMgmtEnable() Method

Server-Based Power Management Mode is a state in which power management of blade servers in a chassis enclosure is controlled by an external management software. By default, the power management of blade servers is controlled by the CMC.

The ServerBasedPowerMgmtEnable() method in class DCIM_MgmtControllerService shall be used to enable or disable this feature. The method applies to the modular chassis system (as supposed to the blade system).

8.3.1 ServerBasedPowerMgmtEnable() Method Parameters

The ServerBasedPowerMgmtEnable return code is defined as follows.

Table 20 – DCIM_MgmtControllerService.ServerBasedPowerMgmtEnable() Return Code

Value	Description
0	Completed with No Error
2	Error

The ServerBasedPowerMgmtEnable parameters are defined as follows.

Table 21 – DCIM_MgmtControllerService.ServerBasedPowerMgmtEnable() Parameters

Qualifiers	Name	Type	Description and Additional Requirements
IN, Req	Mode	boolean	Enable the feature when set to “TRUE”, or disable the feature when set to “FALSE”.
OUT	MessageID	string	On error, the error message ID which can be used to index into the Message Registry when provided. See Table 22 – Standard Method Error Messages.
OUT	Message	string	On error, the error message text in English corresponding to the message ID.
OUT	MessageArguments	string[ ]	On error, the error message substitution variables that may be used with message ID and Message Registry to allow internationalization of the error message.

9 Use Cases

The common use cases for Chassis System Info Profile are discussed in this section.

9.1 Discover Profile Support

For the first time, applications may discover if a target endpoint supports this profile. To determine support for this profile:

a) Enumerate CIM_RegisteredProfile class in root/interop namespace.
b) Query the result for properties defined in Table 5 – DCIM_SystemInfoProfile Properties.
c) If all properties match, the target endpoint supports this profile.

9.2 Get Chassis System Information

A collection of chassis system information such as service tag and power state is available for quick access using a View class. To access this information:

a) Enumerate CIM_View class in the implementation namespace.
b) Query the result for DCIM_ModularChassisView instance.
c) See Table 7 – DCIM_ModularChassisView Properties for available attributes.

9.3 Get Blade System Information

A collection of blade server system information such as service tag and power state is available for quick access using a View class. To access this information:

a) Enumerate CIM_View class in the implementation namespace.
b) Query the result for DCIM_BladeServerView instance.
c) See Table 9 – DCIM_BladeServerView Properties for available attributes.

9.4 Configure Blade Insertion/Removal Alert Settings

The CMC can send an SNMP alert for a blade insertion or blade removal event. This can be configured using a Service class:

a) Enumerate CIM_Service class with EnumerateEPR mode.
b) Query the result for DCIM_MgmtControllerService instance and extract ReferenceParameters.
c) Invoke SetBIOSAttribute() or SetBIOSAttributes() of DCIM_MgmtControllerService. See Table 17 and Table 19 for parameter specifications.

9.5 Configure Blade Network Settings

The basic network setting of a blade can be configured using a Service class:

a) Enumerate CIM_Service class with EnumerateEPR mode.
b) Query the result for DCIM_MgmtControllerService instance and extract ReferenceParameters.
c) Invoke SetBIOSAttribute() or SetBIOSAttributes() of DCIM_MgmtControllerService. See Table 17 and Table 19 for parameter specifications.

9.6 Configure Blade User Settings

A user account in a blade can be configured using a Service class:

a) Enumerate CIM_Service class with EnumerateEPR mode.
b) Query the result for DCIM_MgmtControllerService instance and extract ReferenceParameters.
c) Invoke SetBIOSAttribute() or SetBIOSAttributes() of DCIM_MgmtControllerService. See Table 17 and Table 19 for parameter specifications.

10 CIM Elements

No additional details specified.

11 Common Method Error Messages

CIM methods provide a standard numeric return code that indicate the success or failure of the invocation. On a failure case, a method may provide more information about the failure. Methods in this profile use the following properties to describe the failure:

a. MessageID = used to index into the Message Registry when provided.
b. Message = text in English corresponding to the message ID.
c. MessageArguments = substitution variables that may be used with message ID and Message Registry to allow internationalization of the error message.

MessageArguments is a list of text that are not intended to be localized. What can be localized are the text that appear in the message format corresponding to the MessageID. The message arguments substituted into the message format becomes the Message.

The following table defines error messages commonly used by methods in this profile.

Table 22 – Standard Method Error Messages

MessageID	Message Format
CMC0001	%s: Parameter: %s not found, CMGetArg returned: %s
CMC0002	%s: Parameter: %s must be type: %s found: %s
CMC0003	%s: Parameter: %s must be type: %s found type: %hu
CMC0004	%s: Parameter: %s value not supported, found: %hu
CMC0005	%s: Get instance of parameter: %s failed, status: %s
CMC0006	%s: Property: %s of parameter: %s not found, status: %s
CMC0007	%s: Property: %s of parameter: %s must be numeric, found: %s
CMC0008	%s: Get instance of class: %s failed, status: %s
CMC0009	%s: Property: %s of class: %s not found, status: %s
CMC000A	%s: Invoke method: %s failed, status: 0x%X
CMC000B	%s: Property: %s of class: %s must be numeric, found: %s
CMC000C	%s: Parameter: %s must be reference of class: %s
CMC000D	%s: Parameter: %s at index: %u must be type: %s found type: %hu
CMC000E	%s: Parameter: %s at index: %u not found, CMGetArrayElementAt returned: %u
CMC000F	%s: Get instance of parameter: %s at index: %u failed, status: %s
CMC0010	%s: Parameter: %s at index: %u must be reference of class: %s
CMC0011	%s: Parameter: %s as reference of class: %s not found
CMC0012	%s: Count of parameter: %s must match count of parameter: %s
CMC0013	%s: Parameter: %s of type: %s must be one of: %s
CMC0014	%s: Corresponding parameters %s and %s must match count, found %u and %u
CMC0015	%s: Method %s failed message(s): %s

There are two types of error you may see in the invoke response. The first type is an error that originate from the infrastructure service. It is when the execution path has not reached the provider implementation. The second type is an error that originate from the provider implementation. The error and error messages defined in this profile is the second type that comes from the provider.

12 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.

382 **Table 23 – Privilege and License Requirements**

Class and Method	Operation	User Privilege Required	License Required
DCIM_BladeServerView	ENUMERATE, GET	Login to CMC	None.
DCIM_ModularChassisView	ENUMERATE, GET	Login to CMC	None.
DCIM_MgmtControllerService	ENUMERATE, GET	Login to CMC	None.
DCIM_MgmtControllerService.SetBIOSAttribute()	INVOKE	Login to CMC, Chassis Configure Admin	None.
DCIM_MgmtControllerService.SetBIOSAttributes()	INVOKE	Login to CMC, Chassis Configure Admin	None.
DCIM_SystemInfoProfile	ENUMERATE, GET	Login to CMC	None.

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