Fiber Channel Profile

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22 **Document Number: DCIM1056**
23 **Document Type: Specification**
Document Status: Published
24 **Document Language: E**
25 **Date: 2012-12-30**

26 **Version: 1.0.0**

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Fiber Channel Profile

1 Scope

The Fiber Channel Profile extends the management capabilities of referencing profiles by adding the capability to represent the configuration of fiber channel host bus adapters (FC HBA). The FC HBAs are modeled as views and attributes where there is a view for each individual controller and multiple attributes that allow FC HBA configuration.

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 DSP1033, *Profile Registration Profile 1.0.0*
- DMTF DSP1061, *Management 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*
- *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*
- ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards:
  http://isotc.iso.org/livelink/livelink.exe?func=ll&objId=4230456&objAction=browse&sort=subtype
- Unified Modeling Language (UML) from the Open Management Group (OMG):
  http://www.uml.org
- Dell Tech Center MOF Library:

  http://www.delltechcenter.com/page/DCIM.Library.MOF

- Related Managed Object Format (MOF) files:
  - o DCIM_FCAttribute
  - o DCIM_FCEnumeration.mof
  - o DCIM_FCInteger.mof
  - o DCIM_FCService.mof
  - o DCIM_FCString.mof
  - o DCIM_FCView.mof
  - o DCIM_FCCapabilities.mof
  - o DCIM_FCStatistics.mof
  - o DCIM_LCElementConformsToProfile.mof

178   o   DCIM_LCRegisteredProfile.mof

179

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.

212 **3.13**

213 **Interop Namespace: root/interop**

214 Interop Namespace: root/interop is where instrumentation instantiates classes to advertise its capabilities
215 for client discovery.

216 **3.14**

217 **Implementation Namespace: root/dcim**

218 Implementation Namespace: root/dcim is where instrumentation instantiates classes relevant to executing
219 core management tasks.

220 **3.15**

221 ENUMERATE – Refers to WS-MAN ENUMERATE operation as described in Section 8.2 of
222 DSP0226_V1.1 and Section 9.1 of DSP0227_V1.0

223 **3.16**

224 GET – Refers to WS-MAN GET operation as defined in Section 7.3 of DSP00226_V1.1 and Section
225 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 Management Controller – management controller for the modular chassis

4.4
iSCSI - Internet Small Computer System Interface, an Internet Protocol (IP)-based storage networking standard for linking data storage facilities.

4.5
WBEM - Web-Based Enterprise Management

4.6
SRIOV - Singel Root I/O Virtualization

4.7
NPIV - N_Port ID Virtualization

4.8
DCB - Data Center Bridging

4.9
FCF - FCoE Forwarders

4.10
FC HBA – Fiber Channel Host Bus Adapter

251 5   Synopsis

252 **Profile Name:** Fiber Channel

253 **Version:** 1.0.0

254 **Organization:** Dell Inc.

255 **CIM Schema Version:** 2.26 Experimental

256 **Central Class:** DCIM_FCService

257 **Scoping Class:** CIM_ComputerSystem

258 The Fiber Channel Profile extends the management capability of the referencing profiles by adding the
259 capability to describe fibre channel (FC) controllers in a simple way. In this profile, a FC HBA is
260 represented by a view instance that aggregates zero or more instances of the DCIM_FCAttribute class,
261 each representing an FC HBA related configurable property.

262 DCIM_FCService shall be the Central Class.

263 CIM_ComputerSystem shall be the Scoping Class.

264 Instance of DCIM_FCService shall be the Central Instance.

265 Instance of CIM_ComputerSystem shall be the Scoping Instance.

266 Table 1 identifies profiles that are related to this profile.

267 **Table 1 – Related Profiles**

Profile Name	Organization	Version	Relationship
Profile Registration	DCIM	1.0	Reference

268 6   Description

269 The Fiber Channel Profile describes FC HBA's representation and configuration. The profile also
270 describes the relationship of the Fiber Channel Profile classes to the Dell profile version information.

271 Figure 1 represents the class schema for the Fiber Channel Profile. For simplicity, the prefix CIM_ has
272 been removed from the names of the classes.

273 The DCIM_FCView class is a FC HBA's representation that contains controllers' properties.

274 The DCIM_FCCapabilities class represents FC HBA's capabilities.

275 The DCIM_FCStatistics class represents FC HBA's port statistics.

276 The DCIM_FCAttribute class derives from the CIM_BIOSAttribute class and represents each FC's
277 configurable attribute.Depending on the data type of the attribute, DCIM_FCAttribute is either instantiated
278 as DCIM_FCEnumeration, DCIM_FCString, or DCIM_FCInteger instance.

279 DCIM_FCView instance represents the FC HBA.

280 The DCIM_FCService class is used to configure the FC HBA through its attributes. The SetAttribute() and
281 SetAttributes() methods on the DCIM_FCService class configure FC HBA attributes, DCIM_FCAttribute
282 subclass instances.

283 The Fiber Channel Profile information is represented with the instance of CIM_RegisteredProfile.
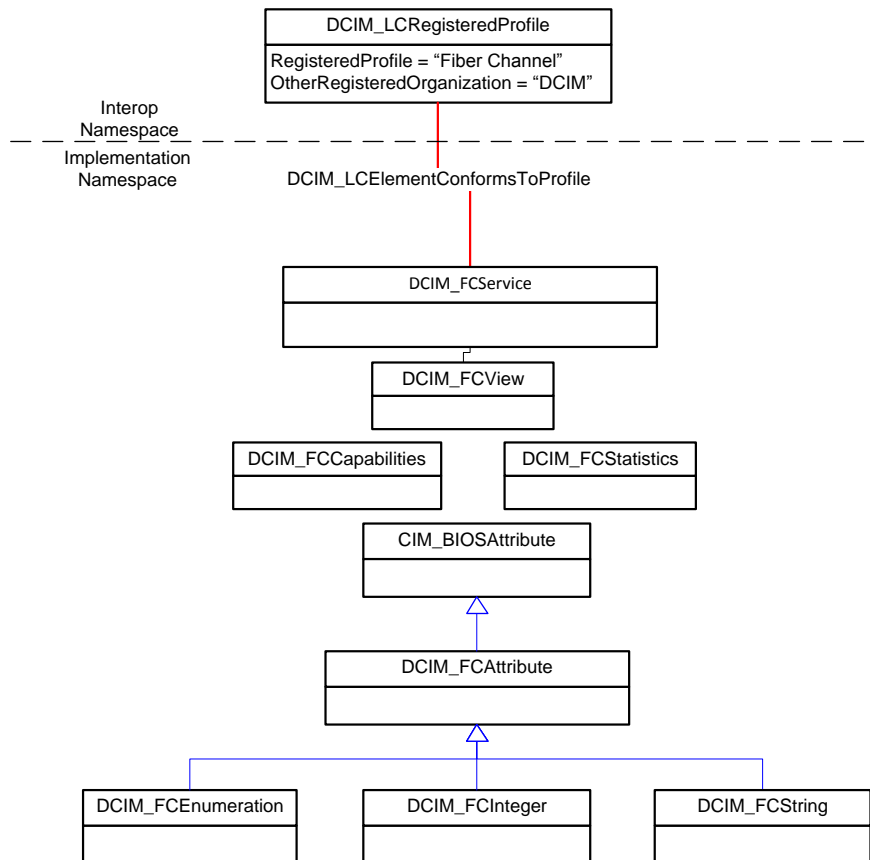
Figure 1 – Fiber Channel Profile: Class Diagram

6.1   Fully Qualified Device Descriptor (FQDD)

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

The DCIM data model utilizes FQDDs to correlate different aspects of representing a component, such as hardware inventory view, configurable attribute, software inventory and so on. FQDDs are used by software, such as BIOS, UEFI applications that link Unified Server Configurator (USC), and remote management applications to identify various system components in a persistent way.

For FC HBA, the FQDD is used to uniquely identify a particular port. See Table 2 - FC HBA FQDD examples.

Table 2 - FC HBA FQDD examples

FQDD	Friendly Name
FC.Slot.3-2	FC HBA in Slot 3 Port 2
FC.Mezzanine.1B-1	FC HBA in Mezzanine 1 Port 1

297

6.2   Virtual Address attributes

299 Virtual address attributes include the following attributes:
300   • Virtual World Wide Node Name (VirtualWWN)
301   • Virtual World Wide Port Name (VirtualWWPN)

302 The default values of these virtual attributes is equal to the permanent addresses programmed onto the
303 controller.

304 To set these attributes, see Section 8.1 and 8.2 for more details. Virtual address attributes behave
305 differently from the other attributes in the following way:

6.2.1   Read Write behavior

307 Generally, the virtual address attributes, as listed above, are read-write attributes through the Lifecycle
308 Controller Remote Services WSMAN interface. This feature allows a remote application to change the
309 virtual identities of FC HBA. However, on number of FC HBA cards these attributes may not be settable,
310 such as the later revisions of QLogic^{TM} 8Gb Fibre Channel Adapter. For those FC HBA adapters, the
311 IsReadonly property on the virtual attribute instances will have value TRUE.

6.2.2   Reset behavior

313 Setting a particular virtual address attribute to zeros causes that particular address to be erased and reset
314 to the default permanent address. The attributes can be set to default permanent values: as equivalent to
315 resetting to factory default and removing a virtual address attribute from a system.

316 When there is AC Power loss to the system, all the virtual address attributes are erased and reset to
317 default addresses when AC Power is restored to the system. AC Power loss includes power loss to both
318 MAIN and AUX power bus.

7   Implementation Description

320 Requirements and guidelines for propagating and formulating certain properties of the classes are
321 discussed in this section. Methods are listed in section 8.

322 Table 3 shows the instances of CIM Elements for this profile. Instances of the CIM Elements shall be
323 implemented as described in Table 3. Sections 7 ("Implementation Requirements" and "Methods") may
324 impose additional requirements on these elements.

Table 3 – CIM Elements: Fiber Channel Profile

Element Name	Requirement	Description
Classes		
DCIM_FCService	Mandatory	The class maybe implemented in the *Implementation Namespace: root/dcim.* See sections 7.8
DCIM_FCView	Mandatory	The class shall be implemented in the *Implementation Namespace: root/dcim.* See section 7.1
DCIM_FCCapabilities	Mandatory[1]	The class shall be implemented in the *Implementation Namespace: root/dcim.* See section 7.2
DCIM_FCStatistics	Mandatory[1]	The class shall be implemented in the *Implementation Namespace: root/dcim.* See section 7.3
DCIM_FCEnumeration	Mandatory	The class shall be implemented in the *Implementation Namespace: root/dcim.* See section 7.4 and 7.7
DCIM_FCInteger	Mandatory	The class shall be implemented in the *Implementation Namespace: root/dcim.* See section 7.6 and 7.7
DCIM_FCString	Mandatory	The class shall be implemented in the *Implementation Namespace: root/dcim.* See section 7.5 and 7.7
DCIM_LCElementConformsToProfile	Mandatory	The class shall be implemented in the *Implementation Namespace: root/dcim and Namespace:root/interop.* See section 7.9
DCIM_LCRegisteredProfile	Mandatory	The class shall be implemented in the *Interop Namespace: root/interop.* See section 7.9
Indications		
None defined in this profile		

326   NOTE: [1] DCIM_FCStatistics and DCIM_FCCapabilities are not available for QLogic™ 8Gb Fibre Channel Adapter.

327   ## 7.1   FC HBA View – DCIM_FCView

328   This section describes the implementation for the DCIM_FCView class.

329   This class shall be instantiated in the Implementation Namespace: root/dcim.

330   ### 7.1.1   Resource URIs for WinRM®

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

333   The key property shall be the InstanceID.

334   The instance Resource URI for DCIM_FCView instance shall be:
335   "http://schemas.dell.com/wbem/wscim/1/cim-
336   schema/2/DCIM_FCView?__cimnamespace=root/dcim+InstanceID=<FQDD>"

337 ### 7.1.2 Operations

338 The following table lists the implemented operations on DCIM_FCView.

339 **Table 4 – DCIM_FCView - Operations**

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

340 ### 7.1.3 Class Properties

341 The following table details the implemented properties for DCIM_FCView instance representing a FC
342 HBA in a system. The "Requirements" column shall denote whether the property is implemented (for
343 requirement definitions, see section 3). The "Additional Requirements" column shall denote either
344 possible values for the property, or requirements on the value formulation.

345 **Table 5 – DCIM_FCView - Properties**

Property Name	Requirement	Type	Requirement and description
InstanceID	Mandatory	String	The property value shall be the FQDD property value.
FQDD	Mandatory	String	A string containing the Fully Qualified Device Description, a user-friendly name for the object.
Bus	Mandatory	Uint32	This property represents the bus number of the PCI device.
ChipType	Optional	String	This property represents the chip type.
Device	Mandatory	Uint32	This property represents the device number of the PCI device
DeviceName	Mandatory	String	This property represents FC HBA device name.
EFIVersion	Mandatory	String	This property represents the firmware version on the device.
FabricLoginRetryCount	Mandatory	Uint32	This property represents the Fabric Login Retry Count
FabricLoginTimeout	Optional	Uint32	This property represents the Fabric Login Timeout in miliseconds.
FCTapeEnable	Mandatory	Uint8	This property represents the FC Tape Enable state. 0 - Unknown 2 – Enabled 3 – Disabled
FamilyVersion	Mandatory	String	This property represents the firmware version.
FirstFCTargetWWPN	Mandatory	String	This property represents the First FC Target World Wide Port Name.
FramePayloadSize	Mandatory	String	This property represents the frame payload size.
FirstFCTargetLUN	Mandatory	Uint16	This property represents the First FC Target LUN
Function	Mandatory	Uint32	This property represents the function number of the PCI device.

Property Name	Requirement	Type	Requirement and description
HardZoneAddress	Mandatory	Uint32	This property represents the Hard Zone Address.
HardZoneEnable	Mandatory	Uint8	This property represents the Hard Zone Enable. 0 - Unknown 2 – Enabled 3 – Disabled
LinkDownTimeout	Optional	Uint32	This property represents the Link Down Timeout in miliseconds.
LinkStatus	Mandatory	Uint8	This property represents the Link Status. 0 – Unknown 1 - Other 2 – Up 3 – Down
LoopResetDelay	Optional	Uint8	This property represents the Loop Reset Delay in seconds.
PCIDeviceID	Mandatory	String	This property represents the device identifier.
PortDownRetryCount	Mandatory	Uint32	This property represents the Port Down Retry.
PortDownTimeout	MandatoryOptional	Uint32	This property represents the Port Down Timeout in miliseconds.
PortNumber	Mandatory	Uint16	This property represents the Port Number.
PortLoginRetryCount	Mandatory	Uint32	This property represents the Port Login Retry Count.
PortLoginTimeout	MandatoryOptional	Uint32	This property represents the Port Login Timeout in miliseconds.
PortSpeed	Mandatory	Uint16	This property represents the Port Speed. 0 – Unknown 1 - Other 2 – No Link 3 – 2 Gbps 4 - 4 Gbps 5 – 8 Gbps 6 – 16 Gbps 7 – 32 Gbps
SecondFCTargetLUN	Mandatory	Uint16	This property represents the Second FC Target LUN."
SecondFCTargetWWPN	Mandatory	String	This property represents the Second FC Target World Wide Port Name.
VendorName	Mandatory	String	This property represents the Vendor Name.
VirtualWWN	Mandatory	String	This property represents the Virtual World Wide Name
VirtualWWPN	Mandatory	String	This property represents the Virtual World Wide Port Name.

Property Name	Requirement	Type	Requirement and description
WWN	Mandatory	String	This property represents the World Wide Name.
WWPN	Mandatory	String	This property represents the World Wide Port Name.

346 7.2   FC HBA Capabilities – DCIM_FCCapabilities

347 This section describes the implementation for the DCIM_FCCapabilities class.

348 This class shall be instantiated in the Implementation Namespace: root/dcim.

349 7.2.1   Resource URIs for WinRM®

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

352 The key property shall be the InstanceID.

353 The instance Resource URI for DCIM_FCCapabilities instance shall be:
354 "http://schemas.dell.com/wbem/wscim/1/cim-
355 schema/2/DCIM_FCCapabilities?__cimnamespace=root/dcim+InstanceID=<FQDD>"

356 7.2.2   Operations

357 The following table lists the implemented operations on DCIM_FCCapabilities.

358 **Table 6 – DCIM_FCCapabilities - Operations**

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

359

360 7.2.3   Class Properties

361 The following table lists the implemented properties for DCIM_FCCapabilities instance representing FC
362 HBA capabilities in a system. The "Requirements" column shall denote whether the property is
363 implemented (for requirement definitions, see section 3). The "Additional Requirements" column shall
364 denote either possible values for the property, or requirements on the value formulation.

365 **Table 7 – DCIM_FCCapabilities - Properties**

Property Name	Requirement	Type	Requirement and description
FQDD	Mandatory	string	A string containing the Fully Qualified Device Description, a user-friendly name for the object.
InstanceID	Mandatory	string	The property value shall be the FQDD property value.
FCMaxIOsPerSession	Mandatory	uint16	This property represents the maximum number of I/Os per connection
FCMaxNumberLogins	Mandatory	uint16	This property represents the maximum number of logins per port

Property Name	Requirement	Type	Requirement and description
FCMaxNumberExchanges	Mandatory	uint16	This property represents the maximum number of exchanges
FCMaxNPIVPerPort	Mandatory	uint16	This property represents the maximum NPIV per port
FCMaxNumberOfFCTargets	Mandatory	uint16	This property represents the maximum number of FC Targets supported
FCMaxNumberOutStandingCommands	Mandatory	uint16	This property represents the maximum number of outstanding commands across all connections
FlexAddressingSupport	Mandatory	uint8	This property represents whether Flex Addressing is supported 0 – Unknown 2 – Supported 3 – Not Supported
uEFISupport	Mandatory	uint8	This property represents whether UEFI is supported 0 – Unknown 2 – Supported 3 – Not Supported
FCBootSupport	Mandatory	uint8	This property represents whether FC Boot is supported 0 – Unknown 2 – Supported 3 – Not Supported
OnChipThermalSensor	Mandatory	uint8	This property represents whether On Chip Thermal Sensor is supported 0 – Unknown 2 – Supported 3 – Not Supported
FeatureLicensingSupport	Mandatory	uint8	This property represents whether Feature Licensing is supported 0 – Unknown 2 – Supported 3 – Not Supported

7.3   FC HBA Statistics – DCIM_FCStatistics

367   This section describes the implementation for the DCIM_FCStatistics class.

368   This class shall be instantiated in the Implementation Namespace:root/dcim.

7.3.1   Resource URIs for WinRM®

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

372   The key property shall be the InstanceID.

373   The instance Resource URI for DCIM_FCStatistics instance shall be:
374   "http://schemas.dell.com/wbem/wscim/1/cim-
375   schema/2/DCIM_FCStatistics?__cimnamespace=root/dcim+InstanceID=<FQDD>"

7.3.2 Operations

The following table lists the implemented operations on DCIM_FCStatistics.

Table 8 – DCIM_FCStatistics - Operations

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

7.3.3 Properties

The following table details the implemented properties for DCIM_FCStatistics instance representing FC
port statistics 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 9 – DCIM_FCStatistics - Properties

Property Name	Requirement	Type	Requirement and description
FQDD	Mandatory	string	A string containing the Fully Qualified Device Description, a user-friendly name for the object.
InstanceID	Mandatory	string	The property value shall be the FQDD property value.
FCRxTotalFrames	Mandatory	uint32	This property represents total FC frames received
FCTxTotalFrames	Mandatory	uint32	This property represents total FC frames transmitted
FCRxKBCount	Mandatory	uint32	This property represents receive KB count
FCTxKBCount	Mandatory	uint32	This property represents transmit KB count
FCRxSequences	Mandatory	uint32	This property represents FC sequences received
FCTxSequences	Mandatory	uint32	This property represents FC sequences transmitted
FCLinkFailures	Mandatory	uint32	This property represents link failures
FCLossOfSignals	Mandatory	uint32	This property represents loss of signals
FCInvalidCRCs	Mandatory	uint32	This property represents invalid CRCs
PortSpeed	Mandatory	uint16	This property represents port speed 0 – Unknown 1 – Other 2 – No Link 3 – 2 Gbps 4 – 4 Gbps 5 – 8 Gbps 6 – 16 Gbps 7 – 32 Gbps
PortStatus	Mandatory	uint8	This property represents port status 0 – Unknown 1 – Other 2 – Up 3 – Down

Property Name	Requirement	Type	Requirement and description
OSDriverState	Mandatory	uint8	This property represents OS driver state 0 – Unknown 1 – Other 2 – Not Applicable 3 – Operational 4 – Non-operational

385

7.4 DCIM_FCEnumeration

386

387 This section describes the implementation for the DCIM_FCEnumeration class.

388 Each DCIM_FCEnumeration instance is logically associated to a DCIM_FCView instance.

389 This class shall be instantiated in the Implementation Namespace:root/dcim.

7.4.1 Resource URIs for WinRM®

390

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

393 The key property shall be the InstanceID.

394 The instance Resource URI for DCIM_FCEnumeration instance shall be:
395 "http://schemas.dell.com/wbem/wscim/1/cim-
396 schema/2/DCIM_FCEnumeration?__cimnamespace=root/dcim+InstanceID= <FQDD>

397 where <FQDD> is the FQDD property value and <AttributeName> is the AttributeName property value.

7.4.2 Operations

398

399 The following table lists the implemented operations on DCIM_FCEnumeration.

400 <center>**Table 10 – DCIM_FCEnumeration - Operations**</center>

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
DCIM_FCService.SetAttributte()	Mandatory	See section 8.1
DCIM_FCService.SetAttributes()	Mandatory	See section 8.2

7.4.3 Class Properties

401

402 The following table details the implemented properties for DCIM_FCEnumeration instance representing a
403 FC HBA enumeration attribute. The "Requirements" column shall denote whether the property is
404 implemented (for requirement definitions, see section 3). The "Additional Requirements" column shall
405 denote either possible values for the property, or requirements on the value formulation.

406 **Table 11 – Class: DCIM_FCEnumeration**

Properties	Type	Notes	Additional Requirements
InstanceID	String	Mandatory	The property value shall be formed as follows: "<FQDD property value>:<AttributeName property value>".
AttributeName	String	Mandatory	The property value shall be from the "AttributeName" column in Tables in section 7.7.
AttributeDisplayName	String	Mandatory	The property value shall be NULL.
CurrentValue[]	String	Mandatory	The property value shall be one of the values in the "PossibleValues" column in the corresponding row in Tables in section 7.7.
PendingValue[]	String	Mandatory	The property value shall be one of the values in the "PossibleValues" column in the corresponding row in Tables in section 7.7.
IsReadOnly	Boolean	Mandatory	The property value shall be from the "IsReadOnly" column in Tables in section 7.7.
FQDD	String	Mandatory	FQDD of the FC HBA that the attribute belongs to.
Dependency	String	Optional	The property shall be formatted as XML describing the attributes dependence on other attribute(s).
PossibleValues[]	String	Mandatory	The property value is an array of strings containing possible value definitions for the attribute. If a NULL value is received that implies that the element's value is unknown. The possible values are Enabled and Disabled.
PossibleValuesDescription[]	String	Mandatory	The array property shall be NULL.

407 ## 7.5   DCIM_FCString

408 This section describes the implementation for the DCIM_FCString class.

409 Each DCIM_FCString instance is logically associated to a DCIM_FCView instance, where the
410 DCIM_FCString. FQDD property is equal to the FQDD property on the DCIM_FCView instance.

411 This class shall be instantiated in the Implementation Namespace:root/dcim.

412 ### 7.5.1   Resource URIs for WinRM®

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

415 The key property shall be the InstanceID.

416 The instance Resource URI for DCIM_FCString instance shall be:
417 http://schemas.dell.com/wbem/wscim/1/cim-
418 schema/2/DCIM_FCString?__cimnamespace=root/dcim+InstanceID= <FQDD>:<AttributeName

419 where <FQDD> is the FQDD property value, and <AttributeName> is the AttributeName property value.

420 ### 7.5.2   Operations

421 The following table lists the implemented operations on DCIM_FCString.

422
Table 12 – DCIM_FCString - Operations

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
DCIM_FCService.SetAttributte()	Mandatory	See section 8.1
DCIM_FCService.SetAttributes()	Mandatory	See section 8.2

423

7.5.3   Class Properties

425 The following table details the implemented properties for DCIM_FCString instance representing a FC
426 HBA string attribute. The "Requirements" column shall denote whether the property is implemented (for
427 requirement definitions, see section 3). The "Additional Requirements" column shall denote either
428 possible values for the property, or requirements on the value formulation.

Table 13 – Class: DCIM_FCString

Properties	Type	Notes	Additional Requirements
InstanceID	String	Mandatory	The property value shall be formed as follows: "<FQDD property value>:<AttributeName property value>".
AttributeName	String	Mandatory	The property value shall be from the "AttributeName" column in Tables in section 7.7.
AttributeDisplayName	String	Mandatory	The property value shall be NULL.
CurrentValue[]	String	Mandatory	The property value shall be the current value of the attribute.
PendingValue[]	String	Mandatory	The property value shall be the pending value of the attribute.
IsReadOnly	Boolean	Mandatory	The property value shall be from the "IsReadOnly" column in Tables in section 7.7.
FQDD	String	Mandatory	FQDD of the FC HBA that the attribute belongs to.
Dependency	String	Optional	The property shall be formatted as XML describing the attributes dependence on other attribute(s).
MinLength	uint64	Mandatory	The property value shall be the value in the "MinLength" column at the corresponding row in in Tables in section 7.7. The omission or NULL shall denote that no known constraint exists on the CurrentValue and PendingValue properties.
MaxLength	uint64	Mandatory	The property value shall be the value in the "MaxLength" column at the corresponding row in in Tables in section 7.7 The omission or NULL shall denote that no known constraint exists on the CurrentValue and PendingValue properties.
ValueExpression	String	Conditional	The property shall be implemented, if the IsReadOnly property has value FALSE. The omission or NULL shall denote that no known constraint exists on the CurrentValue and PendingValue properties.

430

7.6   DCIM_FCInteger

432   This section describes the implementation for the DCIM_FCInteger class.

433   Each DCIM_FCInteger instance is logically associated to a DCIM_FCView instance, where the
434   DCIM_FCInteger.FQDD praoperty is equal to the FQDD property on the DCIM_FCView instance.

435   This class shall be instantiated in the Implementation Namespace:root/dcim.

7.6.1   Resource URIs for WinRM®

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

439   The key property shall be the InstanceID.

440 The instance Resource URI for DCIM_FCInteger instance shall be:
441 http://schemas.dell.com/wbem/wscim/1/cim-
442 schema/2/DCIM_FCInteger?__cimnamespace=root/dcim+InstanceID= <FQDD>:<AttributName>

443 where <FQDD> is the FQDD property value, and <AttributeName> is the AttributeName property value.

7.6.2   Operations

445 The following table lists the implemented operations on DCIM_FCInteger.

446 **Table 14 – DCIM_FCInteger - Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI
DCIM_FCService.SetAttributte()	Mandatory	See section 8.1
DCIM_FCService.SetAttributes()	Mandatory	See section 8.2

447

7.6.3   Properties

449 The following table details the implemented properties for DCIM_FCInteger instance representing a FC
450 HBA integer attribute. The "Requirements" column shall denote whether the property is implemented (for
451 requirement definitions, see section 3). The "Additional Requirements" column shall denote either
452 possible values for the property, or requirements on the value formulation.

Table 15 – Class: DCIM_FCInteger

Properties	Type	Requirement	Additional Requirements
InstanceID	String	Mandatory	The property value shall be formed as follows: "<FQDD property value>:<AttributeName property value>".
AttributeName	String	Mandatory	The property value shall be from the "AttributeName" column in Tables in section 7.7.
AttributeDisplayName	String	Mandatory	The property value shall be NULL.
CurrentValue[]	String	Mandatory	The property value shall be the current value of the Attribute.
PendingValue[]	String	Mandatory	The property value shall be the pending value of the Attribute.
IsReadOnly	Boolean	Mandatory	The property value shall be from the "IsReadOnly" column in Tables in section 7.
FQDD	String	Mandatory	FQDD of the FC HBA that the attribute belongs to.
Dependency	String	Optional	The property shall be formatted as XML describing the attributes dependence on other attribute(s).
LowerBound	uint64	Mandatory	The property value shall be the value in the "LowerBound" column in the corresponding row in Tables in section 7. The omission or NULL shall denote that no known constraint exists on the CurrentValue and PendingValue properties.
UpperBound	uint64	Mandatory	The property value shall be the value in the "UpperBound" column at the corresponding row in Tables in section 7. The omission or NULL shall denote that no known constraint exists on the CurrentValue and PendingValue properties.

454

455 **7.7 FC HBA Attributes**

456 This section lists and describes the attributes and their logical grouping.

457 **7.7.1 Port Configuration**

458 This section describes the attributes for Port Configuration.

459 The following table describes the values for the DCIM_FCEnumeration of this group. Each of the column
460 headings correspond to a property name on the DCIM_FCEnumeration class. The Description column
461 contains the description for each of the attribute. Each of the rows contain the values for the properties
462 listed in the column headings. The PossibleValues property is an array property represented in the table
463 as comma delimited list.

464 **Table 16 – DCIM_FCEnumeration Port Configuration**

AttributeName	Attribute Description	IsReadOnly	PossibleValues	Description

AttributeName	Attribute Description	IsReadOnly	PossibleValues	Description
PortSpeed	Port Speed	FALSE	"Auto", "1G", "2G", "4G", "8G", "16G"	Link Speed

465 The following table describes the values for the DCIM_FCInteger of this group. Each of the column
466 headings correspond to a property name on the DCIM_FCInteger class. Each of the rows contain the
467 values for the properties listed in the column headings.

468 **Table 17 – DCIM_FCInteger Port Configuration**

AttributeName	Attribute Description	IsReadOnly	LowerBound	UpperBound
PortNumber	Port Number	TRUE	0	Vendor Specific[1]

469 NOTE: [1]The UpperBound property for the PortNumber attribute is specific to the FC card model. For example, for
470 Emulex[TM], the value is 255; for Qlogic[TM] 8GB is 2; and for Qlogic[TM] 16Gb is 3.

471 The following table describes the values for the DCIM_FCString of this group. Each of the column
472 headings correspond to a property name on the DCIM_FCString class. Each of the rows contain the
473 values for the properties listed in the column headings.

474 **Table 18 – DCIM_FCString Port Configuration**

AttributeName	Attribute Description	IsReadOnly	MinLength	MaxLength
DeviceName	Device Name	TRUE	0	Vendor Specific[2]
WWN	World Wide Name	TRUE	23	23
VirtualWWN	Virtual World Wide Name	FALSE[3]	23	23
WWPN	World Wide Port Name	TRUE	23	23
VirtualWWPN	Virtual World Wide Port Name	FALSE[3]	23	23

475 NOTE: [2]The MaxLength property for the DeviceName attribute is specific to the FC card model. For example,
476 Emulex[TM] 16 Gb cards, the value is 50; for Qlogic[TM] 8Gb, the value is 16 and for Qlogic[TM] 16Gb cards, the value is
477 32.

478 NOTE: [3]The virtual address attributes such as VirtualWWN and VirtualWWPN are read-only on the QLogic[TM] 8Gb
479 Fibre Channel Adapter.

480 **7.7.2 Fiber Channel Target Configuration**

481 This section describes the attributes for Fiber Channel Target Configuration.

482 The following table describes the values for the DCIM_FCEnumeration of this group. Each of the column
483 headings correspond to a property name on the DCIM_FCEnumeration class. The Description column
484 contains the description for each of the attribute. Each of the rows contain the values for the properties
485 listed in the column headings. The PossibleValues property is an array property represented in the table
486 as comma delimited list.

487 **Table 19 – DCIM_FCEnumeration Fiber Channel Target Configuration**

AttributeName	Attribute Description	IsReadOnly	PossibleValues	Description
BootScanSelection	Boot Scan Selection	FALSE	"Disabled"," FirstLUN"[1] "SpecifiedLUN"	Boot scan Selection

488 NOTE: [1]The "FirstLUN" value in the PossibleValues array property shall be present only on the Qlogic[TM] adapters.

489 The following table describes the values for the DCIM_FCInteger of this group. Each of the column
490 headings correspond to a property name on the DCIM_FCInteger class. Each of the rows contain the
491 values for the properties listed in the column headings.

492 **Table 20 – DCIM_FCInteger Fiber Channel Target Configuration**

AttributeName	Attribute Description	IsReadOnly	LowerBound	UpperBound
FirstFCTargetLUN	First FC Target LUN	FALSE[2]	0	Vendor Specific[3]
SecondFCTargetLUN	Second FC Target LUN	FALSE[2]	0	Vendor Specific[3]

493 NOTE: [2]FirstFCTargetLUN and SecondFCTargetLUN attributes shall be read-only and IsReadOnly property shall
494 be set to TRUE, if the BootScanSelection attribute's CurrentValue property has value "Disabled".

495 NOTE: [3]The UpperBound property for the FirstFCTargetLUN and SecondFCTargetLUN is specific to the FC card
496 vendor. For example, for Emulex[TM] cards, the value is 255 and for Qlogic[TM] cards, the value is 65535.

497 **Table 21 – DCIM_FCString Fiber Channel Target Configuration**

AttributeName	Attribute Description	IsReadOnly	Min Length	Max Length
FirstFCTargetWWPN	First FC Target World Wide Port Name	FALSE[4]	23	23
SecondFCTargetWWPN	Second FC Target World Wide Port Name	FALSE[4]	23	23

498 NOTE: [4]FirstFCTargetWWPN and SecondFCTargetWWPN attributes shall be read-only and IsReadOnly property
499 shall be set to TRUE, if the BootScanSelection attribute's CurrentValue property has value "Disabled".

500 ### 7.7.3 HBA Configuration

501 This section describes the attributes for HBA Configuration.

502 The following table describes the values for the DCIM_FCEnumeration of this group. Each of the column
503 headings correspond to a property name on the DCIM_FCEnumeration class. The Description column
504 contains the description for each of the attribute. Each of the rows contain the values for the properties
505 listed in the column headings. The PossibleValues property is an array property represented in the table
506 as comma delimited list.

507 **Table 22 – DCIM_FCEnumeration HBA Configuration**

AttributeName	Attribute Description	IsReadOnly	PossibleValues	Description

AttributeName	Attribute Description	IsReadOnly	PossibleValues	Description
FCTape[1]	FC Tape Enable	FALSE	"Disabled", "Enabled"	FC Tape Enable
HardZone[1]	Hard Zone Enable	FALSE	"Disabled", "Enabled"	Hard Zone Enable
FramePayloadSize[1]	Frame Payload Size	FALSE	"Auto", "512", "1024", "2048", "2112"	Frame Payload Size

508   NOTE: [1]Attribute is optional and may not be available on enumerations.

509   The following table describes the values for the DCIM_FCInteger of this group. Each of the column
510   headings correspond to a property name on the DCIM_FCInteger class. Each of the rows contain the
511   values for the properties listed in the column headings.

512   **Table 23 – DCIM_FCInteger HBA Configuration**

AttributeName	Attribute Description	IsReadOnly	LowerBound	UpperBound
LoopResetDelay[2]	Loop Reset Delay	FALSE	0	60
FabricLoginRetryCount [2]	Fabric Login Retry Count	FALSE	1	255
FabricLoginTimeout[2]	Fabric Login Timeout	FALSE	1	255000
PortLoginRetryCount[2]	Port Login Retry Count	FALSE	0	255
PortLoginTimeout[2]	Port Login Timeout	FALSE	1	255000
PortDownTimeout[2]	Port Down Timeout	FALSE	1	255000
PortDownRetryCount[2]	Port Down Retry Count	FALSE	0	255
LinkDownTimeout[2]	Link Down Timeout	FALSE	1	255000

513   NOTE: [2]Attribute is optional and may not be available on enumerations.

7.7.4   Firmware and Device Information

515   This section describes the attributes Firmware and Device Information. Partition attributes are also used
516   to configure the physical port.

517   The GroupID property for the DCIM_FCString shall be "FWDeviceForm".

518   The GroupDisplayName property for the DCIM_FCString shall be "Firmware and Device Information".

519   The following table describes the values for the DCIM_FCString of this group. Each of the column
520   headings correspond to a property name on the DCIM_FCString class. The Value Expression column
521   contains constraints on string value formulation. Each of the rows contain the values for the properties
522   listed in the column headings.

523   **Table 24 – DCIM_FCString Firmware and Device Information**

AttributeName	Attribute Description	IsReadOnly	Min Length	Max Length
ChipMdl[1]	Chip Type	TRUE	0	Vendor Specific[2]

AttributeName	Attribute Description	IsReadOnly	Min Length	Max Length
PCIDeviceID	PCI Device ID	TRUE	4	4
BusDeviceFunction	Bus:Device:Function	TRUE	8	8
FamilyVersion	Firmware Family Version	TRUE	5	8
EFIVersion	EFI	TRUE	5	8

524 NOTE: [1]Attribute is optional and may not be available on enumerations.

525 NOTE: [2]The MaxLength property for the ChipMdl is specific to the FC card vendor. For example, for Emulex[TM]
526 cards, the value is 6; for Qlogic[TM] 8Gb cards, the value is 15; and for Qlogic[TM] 16Gb cards, the value is 13.

527 7.8 DCIM_FCService

528 This section describes the implementation for the DCIM_FCService class.

529 This class shall be instantiated in the Implementation Namespace:root/dcim.

530 The DCIM_LCElementConformsToProfile association(s)' ManagedElement property shall reference the
531 DCIM_FCService instance(s).

532 7.8.1 Resource URIs for WinRM®

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

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

537 The instance Resource URI for DCIM_FCService instance shall be:
538 "http://schemas.dell.com/wbem/wscim/1/cim-
539 schema/2/DCIM_FCService?__cimnamespace=root/dcim+SystemCreationClassName=DCIM_ComputerSyste
540 m+CreationClassName=DCIM_FCService+ SystemName=DCIM:ComputerSystem+Name= DCIM:FCService"

541 7.8.2 Operations

542 The following table lists the implemented operations on DCIM_FCService.

543 **Table 25 – DCIM_FCService – Operations**

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

544

545 7.8.3 Properties

546 The following table details the implemented properties for DCIM_FCService instance representing a
547 system in a system. The "Requirements" column shall denote whether the property is implemented (for
548 requirement definitions, see section 3). The "Additional Requirements" column shall denote either
549 possible values for the property, or requirements on the value formulation.

550

551

Table 26 – Class: DCIM_FCService

Properties and Methods	Requirement	Description
SystemCreationClassName	Mandatory	The property value shall be "DCIM_ComputerSystem".
CreationClassName	Mandatory	The property value shall be "DCIM_FCService".
ElementName	Mandatory	The property value shall be "FC Service"
SystemName	Mandatory	The property value shall be "DCIM:ComputerSystem".
Name	Mandatory	The property value shall be "DCIM:FCService"

7.9 Fiber Channel Profile Registration

553 This section describes the implementation for the DCIM_LCRegisteredProfile class.

554 This class shall be instantiated in the Interop Namespace: root/interop.

555 The DCIM_ElementConformsToProfile association(s)' ConformantStandard property shall reference the
556 DCIM_LCRegisteredProfile instance.

7.9.1 Resource URIs for WinRM®

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

560 The key property shall be the InstanceID property.

561 The instance Resource URI shall be: "http://schemas.dell.com/wbem/wscim/1/cim-
562 schema/2/DCIM_LCRegisteredProfile?__cimnamespace=root/interop+InstanceID=DCIM:FC:1"

7.9.2 Operations

564 The following table lists the implemented operations on DCIM_FCView.

565 **Table 27 – DCIM_LCRegisteredProfile - Operations**

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

566

7.9.3 Properties

568 The following table details the implemented properties for DCIM_LCRegisteredProfile instance
569 representing Fiber Channel Profile implementation. The "Requirements" column shall denote whether the
570 property is implemented (for requirement definitions, see section 3). The "Additional Requirements"
571 column shall denote either possible values for the property, or requirements on the value formulation.

572 **Table 28 – Class: DCIM_LCRegisteredProfile**

Properties	Requirement	Type	Description
InstanceID	Mandatory	String	"DCIM:FC:1"
RegisteredName	Mandatory	String	This property shall have a value of "Fiber Channel".

RegisteredVersion	Mandatory	String	This property shall have a value of "1.0.0".
RegisteredOrganization	Mandatory	String	This property shall have a value of 1 (Other).
OtherRegisteredOrganization	Mandatory	Uint16	This property shall match "DCIM"
AdvertisedTypes[]	Mandatory	Uint16	This property array shall contain [1(Other), 1 (Other)].
AdvertiseTypeDescriptions[]	Mandatory	String	This property array shall contain ["WS-Identify", "Interop Namespace"].
ProfileRequireLicense[]	Mandatory	String	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[]	Mandatory	String	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: • "LICENSED" • "NOT_LICENSED" If no license is required for the profile, the property shall have value NULL.

573 8 Methods

574 This section details the requirements for supporting intrinsic operations and extrinsic methods for the CIM
575 elements defined by this profile.

576 8.1 DCIM_FCService.SetAttribute()

577 The SetAttribute() method is used to set or change the value of a FC attribute.

578 Invocation of the SetAttribute() method shall change the value of the DCIM_FCAttribute.CurrentValue or
579 DCIM_FCAttribute.PendingValue property to the value specified by the AttributeValue parameter if the
580 DCIM_FCAttribute.IsReadOnly property is FALSE. Invocation of this method when the
581 DCIM_FCAttribute.IsReadOnly property is TRUE shall result in no change to the value of the
582 DCIM_FCAttribute.CurrentValue property. The results of changing this value is described with the
583 SetResult parameter.

584 Return code values for the SetAttribute() method are specified in Table 29 and parameters are specified
585 in Table 30. Invoking the SetAttribute() method multiple times can result in the earlier requests being
586 overwritten or lost.

587 **Table 29 – DCIM_FCService.SetAttribute( ) Method: Return Code Values**

Value	Description
0	Completed with no error
2	Failed

588 **Table 30 – DCIM_FCService.SetAttribute( ) Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	FQDD of the FC
IN, REQ	AttributeName	String	Shall contain the AttributeName property value for the attribute to be modified.
IN, REQ	AttributeValue[]	String	Shall contain the desired attribute value. If the value is valid, the CurrentValue or PendingValue property of the specified attribute will be modified.
OUT	SetResult	String	Returns: • "Set CurrentValue property" when the attributes current value is set. • "Set PendingValue" when the attributes pending value is set.
OUT	RebootRequired	String	Returns: • "Yes" if reboot is required, • "No" if reboot is not required.
OUT	MessageID	String	Error MessageID
OUT	Message	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

589 **Table 31 – DCIM_FCService.SetAttribute( ) Method: Standard Messages**

MessageID (OUT parameter)	Message	MessageArguments[]
FC001	The command was successful	
FC002	Resource allocation failure	
FC003	Missing required parameter	
FC004	Invalid parameter value for <parameter name>	Parameter
FC005	Mismatch in AttributeName and AttributeValue count	
FC006	Configuration job already created, cannot set attribute on specified target until existing job is completed or is cancelled	
FC007	Configuration job already created, cannot create another config job on specified target until existing job is completed or is cancelled	
FC008	No pending data is present to create a Configuration job	
FC009	Lifecycle Controller is currently in use.	
FC010	Lifecycle Controller is not enabled, cannot create Configuration job.	

MessageID (OUT parameter)	Message	MessageArguments[]
FC011	Configuration job already created, pending data cannot be deleted	
FC012	No pending data present to delete	
FC013	Invalid AttributeName <parameter name>	AttributeName
FC014	Invalid AttributeValue for AttributeName <parameter name>	AttributeName
FC015	AttributeValue cannot be changed for read only AttributeName <parameter name>	AttributeName
FC016	AttributeValue cannot be changed for disabled AttributeName <parameter name>	AttributeName
FC017	Cannot perform the operation due to an unknown error in iDRAC	
FC018	Set operation failed as the attribute is read only.	
LC062	An instance of Export or Import System Configuration is already running.	

590

8.2 DCIM_FCService.SetAttributes( )

592 The SetAttributes( ) method is used to set or change the values of a group of attributes.

593 Successful SetAttributes( ) method invocation shall change the values of the CurrentValue or
594 PendingValue properties of the DCIM_FCAttribute instance that correspond to the names specified by the
595 AttributeName parameter, with the values specified by the AttributeValue parameter.

596 If the respective DCIM_FCAttribute.IsReadOnly property is TRUE, the method invocation shall fail and
597 shall result in no change to the corresponding value of the DCIM_FCAttribute.CurrentValue property.

598 Return code values for the SetAttributes( ) method are specified in Table 32, and parameters are
599 specified in Table 33.

600 Invoking the SetAttributes( ) method multiple times can result in the earlier requests being overwritten or
601 lost.

602 **Table 32 – DCIM_FCService.SetAttributes( ) Method: Return Code Values**

Value	Description
0	Completed with no error
2	Failed

603 **Table 33 – DCIM_FCService.SetAttributes( ) Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	FQDD of the FC
IN, REQ	AttributeName[]	String	Shall contain an array of the AttributeName property values for the attributes to be modified.

Qualifiers	Name	Type	Description/Values
IN, REQ	AttributeValue[]	String	Shall contain the desired attribute values. If the value is valid, the CurrentValue or PendingValue property of the specified attribute will be modified.
OUT	SetResult[]	String	Returns: • "Set CurrentValue property" when the attributes current value is set. • "Set PendingValue property" when the attributes pending value is set.
OUT	RebootRequired[]	String	Returns: • "Yes" if reboot is required, • "No" if reboot is not required.
OUT	MessageID[]	String	Error MessageID
OUT	Message[]	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

604 **Table 34 – DCIM_FCService.SetAttributes( ) Method: Standard Messages**

MessageID (OUT parameter)	Message	MessageArguments[]
FC001	The command was successful	
FC002	Resource allocation failure	
FC003	Missing required parameter	
FC004	Invalid parameter value for <parameter name>	Parameter
FC005	Mismatch in AttributeName and AttributeValue count	
FC006	Configuration job already created, cannot set attribute on specified target until existing job is completed or is cancelled	
FC007	Configuration job already created, cannot create another config job on specified target until existing job is completed or is cancelled	
FC008	No pending data is present to create a Configuration job	
FC009	Lifecycle Controller is currently in use.	
FC010	Lifecycle Controller is not enabled, cannot create Configuration job.	
FC011	Configuration job already created, pending data cannot be deleted	
FC012	No pending data present to delete	
FC013	Invalid AttributeName <parameter name>	AttributeName
FC014	Invalid AttributeValue for AttributeName <parameter name>	AttributeName

MessageID (OUT parameter)	Message	MessageArguments[]
FC015	AttributeValue cannot be changed for read only AttributeName <parameter name>	AttributeName
FC016	AttributeValue cannot be changed for disabled AttributeName <parameter name>	AttributeName
FC017	Cannot perform the operation due to an unknown error in iDRAC	
FC018	Set operation failed as the attribute is read only.	
LC062	An instance of Export or Import System Configuration is already running.	

8.3 DCIM_FCService.CreateTargetedConfigJob( )

606 The CreateTargetedConfigJob( ) method is used to apply the pending values created by the SetAttribute
607 and SetAttributes methods. The successful execution of this method creates a job for application of
608 pending attribute values.

609 CreateTargetedConfigJob method supports the following optional input parameters

610   1. RebootJobType: When provided in the input parameters, creates a specific reboot job to
611   "PowerCycle", "Graceful Reboot without forced shutdown", or "Graceful Reboot with forced shutdown".
612   This parameter only creates the RebootJob and does not schedule it.

613   2. ScheduledStartTime: When provided in the input parameters, schedules the "configuration job" and the
614   optional "reboot job" at the specified start time. A special value of "TIME_NOW" schedules the job(s)
615   immediately.

616   3. UntilTime: This parameter has a dependency on "ScheduledStartTime", together "ScheduledStartTime" and
617   "UntilTime" define a time window for scheduling the job(s). Once scheduled, jobs will be executed within the
618   time window.

619 If CreateTargetedConfigJob method is executed without the three optional parameters discussed above, then
620 configuration job is created but not scheduled. However, this configuration job can be scheduled later using the
621 DCIM_JobService.SetupJobQueue () method from the "Job Control Profile". DCIM_JobService.SetupJobQueue ()
622 can be executed to schedule several configuration jobs including the reboot job. Refer to "Job Control Profile" for
623 more details.

624 Return code values for the CreateTargetedConfigJob( ) method are specified in Table 35, and parameters
625 are specified in Table 36.

626 Subsequent calls to CreateTargetedConfigJob after the first CreateTargetedConfigJob will result in error
627 until the first job is completed.

628   **Table 35 – DCIM_FCService.CreateTargetedConfigJob( ) Method: Return Code Values**

Value	Description
2	Failed
4096[1]	Job Created[1]

Table 36 – DCIM_FCService.CreateTargetedConfigJob( ) Method: Parameters

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	FQDD of the FC
IN	RebootJobType	Uint16	Shall contain the requested reboot type: • 1 - PowerCycle • 2 - Graceful Reboot without forced shutdown • 3 - Graceful Reboot with forced shutdown.
IN	ScheduledStartTime	String	Start time for the job execution in format: yyyymmddhhmmss. The string "TIME_NOW" means immediate.
IN	UntilTime	String	End time for the job execution in format: yyyymmddhhmmss. : If this parameter is not NULL, then ScheduledStartTime parameter shall also be specified.
OUT	Job[1]	CIM_ConcreteJob REF	Reference to the newly created pending value application job.[1]
OUT	MessageID	String	Error MessageID
OUT	Message	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

630 NOTE: 1 – If return code is 4096 (Job Created), the newly created job will not execute if the LC core services are not
631 running (DCIM_LCEnumeration with AttributeName equal to "LifecycleControllerState" has the CurrentValue property
632 equal to "Disabled").

633

634 **Table 37 – DCIM_FCService.CreateTargetedConfigJob( ) Method: Standard Messages**

MessageID (OUT parameter)	Message	MessageArguments[]
FC001	The command was successful	
FC002	Resource allocation failure	
FC003	Missing required parameter	
FC004	Invalid parameter value for <parameter name>	Parameter
FC005	Mismatch in AttributeName and AttributeValue count	
FC006	Configuration job already created, cannot set attribute on specified target until existing job is completed or is cancelled	
FC007	Configuration job already created, cannot create another config job on specified target until existing job is completed or is cancelled	
FC008	No pending data is present to create a Configuration job	
FC009	Lifecycle Controller is currently in use.	
FC010	Lifecycle Controller is not enabled,	

MessageID (OUT parameter)	Message	MessageArguments[]
	cannot create Configuration job.	
FC011	Configuration job already created, pending data cannot be deleted	
FC012	No pending data present to delete	
FC013	Invalid AttributeName <parameter name>	AttributeName
FC014	Invalid AttributeValue for AttributeName <parameter name>	AttributeName
FC015	AttributeValue cannot be changed for read only AttributeName <parameter name>	AttributeName
FC016	AttributeValue cannot be changed for disabled AttributeName <parameter name>	AttributeName
FC017	Cannot perform the operation due to an unknown error in iDRAC	
FC018	Set operation failed as the attribute is read only.	
LC062	Export or Import server profile operation is already running.	

8.4 DCIM_FCService.DeletePendingConfiguration( )

The DeletePendingConfiguration( ) method is used to cancel the pending values created by the SetAttribute and SetAttributes methods. The DeletePendingConfiguration( ) method cancels the pending configuration changes made before the configuration job is created with CreateTargetedConfigJob(). This method only operates on the pending changes prior to CreateTargetedConfigJob() being called. After the configuration job is created, the pending changes can only be canceled by calling DeleteJobQueue() method in the Job Control profile.

Return code values for the DeletePendingConfiguration( ) method are specified in Table 38, and parameters are specified in Table 39.

Table 38 – DCIM_FCService.DeletePendingConfiguration( ) Method: Return Code Values

Value	Description
0	Success
2	Failed

Table 39 – DCIM_FCService.DeletePendingConfiguration( ) Method: Parameters

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	FQDD of the FC
OUT	MessageID	String	Error MessageID
OUT	Message	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

Table 40 – DCIM_FCService.DeletePendingConfiguration( ) Method: Standard Messages

MessageID (OUT parameter)	Message	MessageArguments[]
FC001	The command was successful	
FC002	Resource allocation failure	
FC003	Missing required parameter	
FC004	Invalid parameter value for <parameter name>	Parameter
FC005	Mismatch in AttributeName and AttributeValue count	
FC006	Configuration job already created, cannot set attribute on specified target until existing job is completed or is cancelled	
FC007	Configuration job already created, cannot create another config job on specified target until existing job is completed or is cancelled	
FC008	No pending data is present to create a Configuration job	
FC009	Lifecycle Controller is currently in use.	
FC010	Lifecycle Controller is not enabled, cannot create Configuration job.	
FC011	Configuration job already created, pending data cannot be deleted	
FC012	No pending data present to delete	
FC013	Invalid AttributeName <parameter name>	AttributeName
FC014	Invalid AttributeValue for AttributeName <parameter name>	AttributeName
FC015	AttributeValue cannot be changed for read only AttributeName <parameter name>	AttributeName
FC016	AttributeValue cannot be changed for disabled AttributeName <parameter name>	AttributeName
FC017	Cannot perform the operation due to an unknown error in iDRAC	
FC018	Set operation failed as the attribute is read only.	
LC062	An instance of Export or Import System Configuration is already running.	

647 **9   Use Cases**

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

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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 41 – Privilege and License Requirements

Class and Method	Operation	User Privilege Required	License Required
DCIM_FCEnumeration	ENUMERATE, GET	Login	LM_REMOTE_CONFIGURATION
DCIM_FCInteger	ENUMERATE, GET	Login	LM_REMOTE_CONFIGURATION
DCIM_FCString	ENUMERATE, GET	Login	LM_REMOTE_CONFIGURATION
DCIM_FCView	ENUMERATE, GET	Login	LM_REMOTE_ASSET_INVENTORY
DCIM_FCStatistics	ENUMERATE, GET	Login	LM_DEVICE_MONITORING
DCIM_FCCapabilities	ENUMERATE, GET	Login	LM_REMOTE_ASSET_INVENTORY
DCIM_FCService	ENUMERATE, GET	Login	None.
DCIM_FCService.SetAttribute()	INVOKE	Login, Server Control	LM_REMOTE_CONFIGURATION
DCIM_FCService.SetAttributes()	INVOKE	Login, Server Control	LM_REMOTE_CONFIGURATION
DCIM_FCService. CreateTargetedConfigJob()	INVOKE	Login, Server Control	LM_REMOTE_CONFIGURATION
DCIM_FCService. DeletePendingConfiguration()	INVOKE	Login, Server Control	LM_REMOTE_CONFIGURATION
DCIM_LCRegisteredProfile	ENUMERATE, GET	Login	None.
DCIM_LCElementConformsToProfile	ENUMERATE, GET	Login	None.

ANNEX A
(informative)

Change Log

Version	Date	Description
1.0.0		Initial version.
1.0.0	8/30/2012	Adding DCIM_FCCapabilities and DCIM_FCStatistics.
1.0.0	9/26/2012	Remove from DCIM_FCView: PortEnable, PortStatus, OSDriverState, FirstFCTargetConnect, SecondFCTargetConnect