Simple NIC Profile

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Simple NIC Profile

1   Scope

171 The Simple NIC Profile extends the management capabilities of referencing profiles by adding the
172 capability to represent the configuration of NIC network controllers. The NIC controllers are modeled as
173 views and attributes where there is a view for each individual controller and multiple attributes that allow
174 NIC configuration.

2   Normative References

176 Refer to the following documents for more information.

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

179 • DMTF DSP1033, *Profile Registration Profile 1.0.0*
180 • DMTF DSP1061, *Management Profile 1.0.0*
181 • DMTF DSP0200, *CIM Operations over HTTP 1.2.0*
182 • DMTF DSP0004, *CIM Infrastructure Specification 2.3.0*
183 • DMTF DSP1000, *Management Profile Specification Template*
184 • DMTF DSP1001, *Management Profile Specification Usage Guide*
185 • DMTF DSP0226, *Web Services for Management (WS-Management) Specification 1.1.0*
186 • DMTF DSP0227, *WS-Management CIM Binding Specification 1.0.0*
187 • *Dell Lifecycle Controller Best Practices Guide 1.0,*
188   *http://en.community.dell.com/techcenter/extras/m/white_papers/20066173.aspx*
189 • *Dell WSMAN Licenses and Privileges 1.0*
190 • ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards:
191   http://isotc.iso.org/livelink/livelink.exe?func=ll&objId=4230456&objAction=browse&sort=subtype
192 • Unified Modeling Language (UML) from the Open Management Group (OMG):
193   http://www.uml.org
194 • Dell Tech Center MOF Library:

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

196 • Related Managed Object Format (MOF) files:

197   o DCIM_NICService.mof
198   o DCIM_NICView.mof
199   o DCIM_NICEnumeration.mof
200   o DCIM_NICInteger.mof
201   o DCIM_NICString.mof
202   o DCIM_LCElementConformsToProfile.mof
203   o DCIM_LCRegisteredProfile.mof
204

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.

237 **3.13**

238 **Interop Namespace: root/interop**

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

241 **3.14**

242 **Implementation Namespace: root/dcim**

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

245 **3.15**

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

248 **3.16**

249 GET – Refers to WS-MAN GET operation as defined in Section 7.3 of DSP00226_V1.1 and Section
250 7.1 of DSP0227_V1.0

251 # 4   Symbols and Abbreviated Terms

252 **4.1**
253 **CIM -** Common Information Model

254 **4.2**
255 **iDRAC -** Integrated Dell Remote Access Controller – management controller for blades and monolithic
256 servers

257 **4.3**
258 **CMC -** Chassis Management Controller – management controller for the modular chassis

259 **4.4**
260 **iSCSI -** Internet Small Computer System Interface, an Internet Protocol (IP)-based storage networking
261 standard for linking data storage facilities.

262 **4.5**
263 **WBEM -** Web-Based Enterprise Management

264 **4.6**
265 **SRIOV -** Singel Root I/O Virtualization

266 **4.7**
267 **NPIV -** N_Port ID Virtualization

268 **4.8**
269 **DCB -** Data Center Bridging

270 **4.9**
271 **FCF -** FCoE Forwarders

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274   **5**   **Synopsis**

275   **Profile Name:** Simple NIC

276   **Version:** 1.2.0

277   **Organization:** Dell Inc.

278   **CIM Schema Version:** 2.26 Experimental

279   **Central Class:** DCIM_NICService

280   **Scoping Class:** CIM_ComputerSystem

281   The Simple NIC Profile extends the management capability of the referencing profiles by adding the
282   capability to describe NIC controllers in a simple way. In this profile, a NIC is represented by a view
283   instance that aggregates zero or more instances of the DCIM_NICAttribute class, each representing a
284   NIC controller related configurable property.

285   DCIM_NICService shall be the Central Class.

286   CIM_ComputerSystem shall be the Scoping Class.

287   Instance of DCIM_NICService shall be the Central Instance.

288   Instance of CIM_ComputerSystem shall be the Scoping Instance.

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

290   **Table 1 – Related Profiles**

Profile Name	Organization	Version	Relationship
Profile Registration	DCIM	1.0	Reference
LC Management Profile	DCIM	1.5	Reference

291   **6**   **Description**

292   The Simple NIC Profile describes NIC controller's representation and configuration. The profile also
293   describes the relationship of the Simple NIC classes to the DMTF/Dell profile version information.

294   Figure 1 represents the class schema for the Simple NIC Profile. For simplicity, the prefix CIM_ has been
295   removed from the names of the classes.

296   The DCIM_NICView class is a NIC controller's representation that contains controllers' properties.

297   The DCIM_NICAttribute class derives from the CIM_BIOSAttribute class and represents each NIC's
298   configurable attribute.Depending on the data type of the attribute, DCIM_NICAttribute is either
299   instantiated as DCIM_NICEnumeration, DCIM_NICString, or DCIM_NICInteger instance.

300   DCIM_NICView instance represents the NIC/CNA properties.

301   The DCIM_NICService class is used to configure the NIC through its attributes. The SetAttribute() and
302   SetAttributes() methods on the DCIM_NICService class configure NIC attributes, DCIM_NICAttribute
303   subclass instances.

304   The Simple NIC profile information is represented with the instance of CIM_RegisteredProfile.

DCIM_LCRegisteredProfile

RegisteredProfile = "Simple NIC"
OtherRegisteredOrganization = "DCIM"

Interop
Namespace

Implementation
Namespace

DCIM_LCElementConformsToProfile

DCIM_NICService

DCIM_NICView

DCIM_NICCapabilities

DCIM_NICStatistics

CIM_BIOSAttribute

DCIM_NICAttribute

DCIM_NICEnumeration

DCIM_NICInteger

DCIM_NICString

305
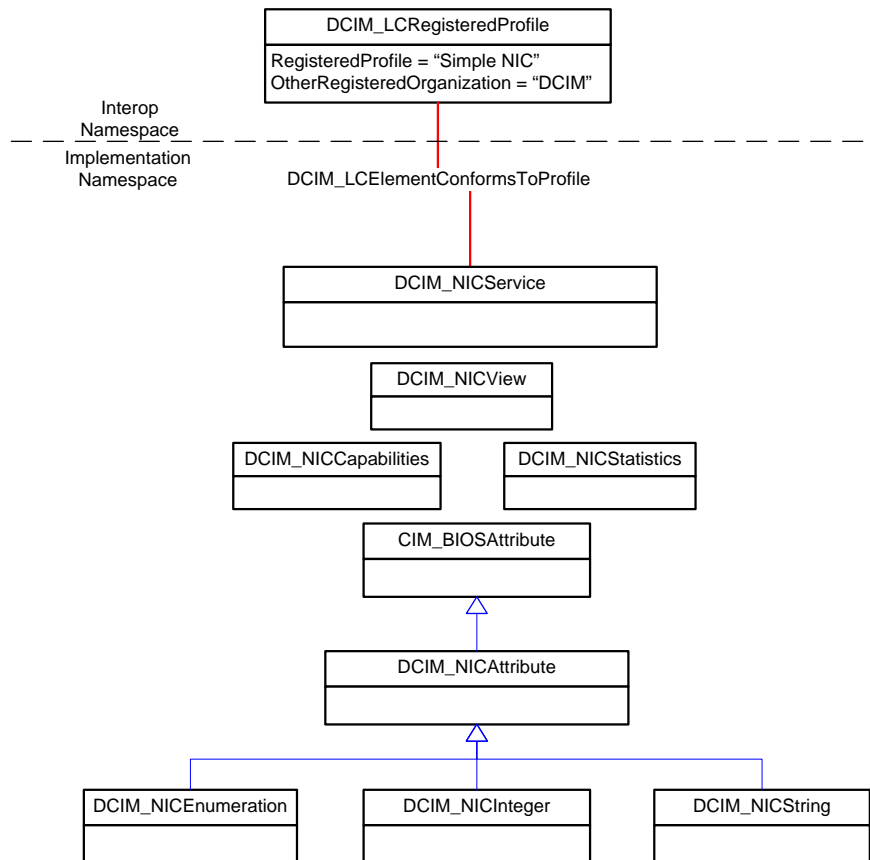
306 **Figure 1 – Simple NIC Profile: Class Diagram**

6.1 Fully Qualified Device Descriptor (FQDD)

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

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

314 For NIC devices, the FQDD is used to uniquely identify a particular port. For CNA devices, FDQQ is used
315 to uniquely identify a partition. See Table 2 - NIC FQDD examples and Table 3 - CNA FQDD Example for
316 examples.

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320   **Table 2 - NIC FQDD examples**

FQDD	Friendly Name
NIC.Integrated.1-2-3	Integrated NIC 1 Port 2 Partition 3
NIC.Slot.3-2-1	NIC in Slot 3 Port 2 Partition 1
NIC.Mezzanine.1B-1-2	NIC in Mezzanine 1 Port 1 Partition 2

321

322   **Table 3 - CNA FQDD Example**

Physical Port	Function Instance off Physical Port	PCI Func #	Config 1 NIC.Slot.n	Config 2 NIC.Slot.n
1	1	0	NIC.Slot.1-1-1	NIC.Slot.1-1-1
	2	2	NIC.Slot.1-1-2	NIC.Slot.1-1-2
	3	4	NIC.Slot.1-1-3	NIC.Slot.1-1-3
	4	6	NIC.Slot.1-1-4	NIC.Slot.1-1-4
2	1	1	NIC.Slot.1-2-1	NIC.Slot.1-2-1
	2	3	NIC.Slot.1-2-2	NIC.Slot.1-2-2
	3	5	NIC.Slot.1-2-3	Disabled
	4	7	NIC.Slot.1-2-4	NIC.Slot.1-2-4

323

324   **6.2   CNA Representation**

325   For CNA devices, an instance of DCIM_NICView is created for each partition of a port. Each partition can
326   have the following personalities:

327   •   NIC
328   •   Fibre Channel Over Ethernet (FCoE)
329   •   Internet Small Computer System Interface Over Ethernet (ISOE).

330   DCIM_NICView instances are read-only. For traditional NIC devices or CNA devices that have partitioning
331   turned off, one instance of DCIM_NICView is created for each device port.

332   The following DCIM_NICView properties represent the CNA behavior. See Table 4 – CNA Properties in
333   DCIM_NICView.

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340 **Table 4 – CNA Properties in DCIM_NICView**

Personality	Detail
NicMode	Indicates if the NIC personality is enabled or disabled on the current partition
FCoEOffloadMode	Indicates if the Fibre Channel over Ethernet (FCoE) personality is enabled or disabled on the current partition.
iScsiOffloadMode	Indicates if the Internet Small Computer System Interface (iSCSI) personality is enabled or disabled on current partition
MaxBandwidth	Indicates maximum bandwidth on current partition.
MinBandwidth	Indicates minimum bandwidth on current partition.
WWPN	Indicates World Wide Port Name of a port.

341 CNA devices allow a user to provide a range of bandwidth for each partition, which is represented in
342 terms of percentage of total bandwidth.

6.3   Changing personalities on a partition

344 User can enable or disable a personality of a partition by changing the corresponding attribute. Table 5
345 lists the attribute names that represent each personality.

346 **Table 5 – Changing personalities on a partition**

Personality	AttributeName	Detail
NIC	NicMode	Enables or disables NIC personality on the partition.
Fibre Channel Over Ethernet (FCoE)	FCoEOffloadMode	Enables or disables FC personality on the partition.
Internet Small Computer System Interface (iSCSI)	iScsiOffloadMode	Enables or disable iSCSI personality on the partition.

347 Use SetAttribute() or SetAttributes() method on an attribute to change its value. See Section 8.1 and 8.2
348 for more details.

6.4   Enabling or disabling a partition

350 There are four partitions on each port of a CNA device. Partition 1 cannot be disabled on any port.
351 Enabling any personality on a partition enables the partition. Disabling all the personalities on a partition
352 disables the partition (see section 6.3 for information to enable or disable a partition personality).

353 To disable partitioning functionality altogether on all ports simultaneously, set the NicPartitioning attribute
354 to Disabled. After the host system restarts, the CNA device will no longer expose multiple partitions to the
355 host system. Instead, a DCIM_NICView will be created for each port. See section 7.7.2 for more details.

6.5   Changing bandwidth on a partition

357 Use the MaxBandwidth and MinBandwidth attributes to change the bandwidth range of a partition.
358 MinBandwidth is the relative bandwidth allocated to a partition with respect to the entire port. Make sure
359 that the sum of all MinBandwidth should not be greater than 100% and MinBandwidth should be less than
360 MaxBandwidth. See Section 7.7.2 for more details.

6.6 Virtual Address attributes

362 Virtual address attributes include the following attributes:
363   • VirtMacAddr
364   • VirtIscsiMacAddr
365   • VirtFIPMacAddr
366   • VirtWWN
367   • VirtWWPN

368 The default values of these virtual attributes is equal to the permanent addresses programmed onto the
369 controller. For example, the VirtMacAddr default value is MacAddr on that port or partition.

370 Note that the configuration of the above attributes depends on the DCIM_LCEnumeration
371 VirtualAddressManagement attribute described in the LC Management Profile, section 7.2.3. The
372 VirtualAddressManagement attribute needs to have "Console" value in order for the above attributes be
373 configurable.

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

6.6.1 Read Write behavior

377 The virtual address attributes listed above behave as Read-Only attributes if accessed via the System
378 Settings (F2 during POST) → Device Settings menu. However, they behave as Read-Write attributes
379 through the Lifecycle Controller Remote Services interface used by WSMAN clients. This allows a remote
380 application to change the virtual identities of NIC/CNA controllers, similar to the FlexAddress feature that
381 allows a chassis management controller (CMC) to distribute a predefined list of identities across all blade
382 NIC/CNA controllers on a chassis.

6.6.2 Reset behavior

384 Setting a particular Input/Ouput (IO) attribute to zeros causes that particular address to be erased and
385 reset to the default permanent address. The attributes can be set to default permanent values: as
386 equivalent to resetting to factory default and removing a virtual address attribute from a system.

387 When there is AC Power loss to the system, all the virtual address attributes are erased and reset to
388 default addresses when AC Power is restored to the system. AC Power loss includes power loss to both
389 MAIN and AUX power bus.
390 NOTE: This behavior may not be available on the Broadcom CNA.

6.7 Behavior Differences between Broadcom and QLogic CNAs

392 There are few key differences between CNA manufacturers: Broadcom and QLogic. The supported CNAs
393 for Broadcom and QLogic include:
394 **Broadcom:**
395   M710HD Dual Port 10Gig 57712 NDC,
396 **QLogic:**
397   Qlogic QMD8252-K Dual Port 10GbE NDC
398
399 Table 6 – Behavior Differences between Broadcom and QLogic CNAs lists the behaviorial differences.

400 **Table 6 – Behavior Differences between Broadcom and QLogic CNAs**

Difference	Broadcom	QLogic
Offload personalities	Only two Offload personalities (FCoEOffloadMode and iScsiOffloadMode) are allowed per port.	Partition 3 allows iScsiOffloadMode personality and Partition 4 allows FCoEOffloadMode personality.

Difference	Broadcom	QLogic
Port level	If NicPartitioning attribute is disabled, then enumeration and get operations only displays port level attributes.	Not applicable as NicPartitioning cannot be disabled.

Difference	Broadcom	QLogic
MinBandwith	If the MinBandwidth attribute(s) are set, the total sum of all the MinBandwidth attributes for all partitions on a port must add up to 0 or 100 at the conclusion of set operation. For example, if the MinBandwidth needs to be changed to 50 on partition 1, then the Minbandwidth must be changed on other partition(s) to make sure the MinBandwidth for all partitions on the port adds to a 100.	

Port Partition	Current Minbandwidth	New Minbandwidth
1	30	50
2	30	20
3	20	20
4	20	10

If the Minbandwidth does not add up to 0 or 100, then USC advanced configuration may not set any other attribute until this error condition of MinBandWidth is rectified. USC Advanced Configuration does not notify about this error condition.

Note: MinBandwidth summation can be done independently through USC Advanced Configuration or through Remote Services interface that is used by WSMAN clients.

Difference	Broadcom	QLogic
NicPartitioning and partition specific attributes	After NicPartitioning attribute is disabled, partition specific attributes (Seethe following table) does not exist anymore. Therefore, do not disable NicPartitioning attribute and set partition specific attributes together, and then invoke the CreateTargetedConfigJob() method.	Not applicable as NicPartitioning cannot be disabled in QLogic.

Partition specific attributes
MinBandwidth
MaxBandwidth
NicMode
iScsiOffloadMode
FCoEOffloadMode
VirtMacAddr
VirtIscsiMacAddr
VirtFIPMacAddr
VirtWWN
VirtWWPN

Difference	Broadcom	QLogic
NicMode	NicMode is used to enable or disable NIC personality on a partition. NIC personality can be disabled on all partitions.	NIC personality cannot be disabled on partition 1, but can be disabled on remaining partitions.

7 Implementation Description

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

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

Table 7 – CIM Elements: Simple NIC Profile

Element Name	Requirement	Description
Classes		
DCIM_NICService	Mandatory	The class maybe implemented in the *Implementation Namespace: root/dcim.* See sections 7.8
DCIM_NICView	Mandatory	The class shall be implemented in the *Implementation Namespace: root/dcim.* See section 7.1
DCIM_NICCapabilities	Mandatory	The class shall be implemented in the *Implementation Namespace: root/dcim.* See section 0
DCIM_NICStatistics	Mandatory	The class shall be implemented in the *Implementation Namespace: root/dcim.* See section 7.3
DCIM_NICEnumeration	Mandatory	The class shall be implemented in the *Implementation Namespace: root/dcim.* See section 7.4
DCIM_NICInteger	Mandatory	The class shall be implemented in the *Implementation Namespace: root/dcim.* See section 7.6
DCIM_NICString	Mandatory	The class shall be implemented in the *Implementation Namespace: root/dcim.* See section 7.5
DCIM_LCElementConformsToProfile	Mandatory	The class shall be implemented in the *Implementation Namespace: root/dcim.*
DCIM_LCElementConformsToProfile	Mandatory	The class shall be implemented in the *Interop Namespace: root/interop.*
DCIM_LCRegisteredProfile	Mandatory	The class shall be implemented in the *Interop Namespace: root/interop.* See section 7.7
Indications		
None defined in this profile		

408 **7.1   NIC View – DCIM_NICView**

409 This section describes the implementation for the DCIM_NICView class.

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

411 **7.1.1   Resource URIs for WinRM®**

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

414 The key property shall be the InstanceID.

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

418 ### 7.1.2 Operations

419 The following table lists the implemented operations on DCIM_NICView.

420 **Table 8 – DCIM_NICView - Operations**

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

421 ### 7.1.3 Class Properties

422 The following table details the implemented properties for DCIM_NICView instance representing a NIC in
423 a system. The "Requirements" column shall denote whether the property is implemented (for requirement
424 definitions, see section 3). The "Additional Requirements" column shall denote either possible values for
425 the property, or requirements on the value formulation.

426 **Table 9 – DCIM_NICView - 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.
AutoNegotiation	Mandatory	uint8	Indicates if the auto negotiation is Off/On/Unknown.
BusNumber	Mandatory	uint8	The bus number where this PCI device resides.
ControllerBIOSVersion	Mandatory	String	Controller BIOS Version.
CurrentMACAddress	Mandatory	String	A string containing the current MAC address.
DataBusWidth	Mandatory	String	DataBusWidth of the PCI.
DeviceNumber	Mandatory	uint8	The device number assigned to this PCI device for this bus.
EFIVersion	Mandatory	String	EFI Version.
FCoEOffloadMode	Mandatory	String	Indicates if the partition has FC personality enabled.
FCoEWWNN	Mandatory	String	Indicates FCoE World Wide Node Name.
FamilyVersion	Mandatory	String	Indicates the firmware family version.
FunctionNumber	Mandatory	uint8	The function number for this PCI device.
LinkDuplex	Mandatory	String	Indicates whether the Link is full or half duplex.
LinkSpeed	Mandatory	String	Indicates the link speed.
MaxBandwidth	Mandatory	uint16	Indicates the maximum bandwidth of current partition of this NIC or Converged Network Adapter. It is represented in percentage.
MediaType	Mandatory	String	Indicates the different media types.
MinBandwidth	Mandatory	uint16	Indicates the minimum bandwidth of current partition of this NIC or Converged Network Adapter. It is represented in percentage.
NicMode	Mandatory	String	Indicates if the partition has NIC personality enabled.
PCIDeviceID	Mandatory	string	The property contains a value assigned by the device manufacturer used to identify the type of device.

Property Name	Requirement	Type	Requirement and description
PCISubDeviceID	Mandatory	string	The property contains a value assigned by the vendor manufacturer used to identify the type of device.
PCISubVendorID	Mandatory	string	Indicates the subsystem vendor ID.
PCIVendorID	Mandatory	string	The property contains a value assigned by the PCI SIG used to identify the manufacturer of the device.
PermanentFCOEMACAddress	Mandatory	string	Indicates the permanent FCoE MAC Address.
PermanentMACAddress	Mandatory	string	PermanentMACAddress defines the network address that is hardcoded into a port.
PermanentiSCSIMACAddress	Mandatory	string	Defines the network address that is hardcoded into a port and dedicated to iSCSI usage.
ProductName	Mandatory	string	A string containing the product name.
ReceiveFlowControl	Mandatory	string	Indicates if receive flow control is Off or On.
SlotLength	Mandatory	string	Slot length of the PCI.
SlotType	Mandatory	string	Slot type of the PCI.
TransmitFlowControl	Mandatory	string	Indicates if the transmit flow control is Off or On.
VendorName	Mandatory	string	Indicates the NIC Vendor Name.
WWPN	Mandatory	String	Indicates the Worldwide Port Name of this port.
iScsiOffloadMode	Mandatory	String	Indicates if the partition has iSCSI personality enabled.
LastSystemInventoryTime	Mandatory	String	This property provides the last time \"System \"Inventory Collection On Reboot(CSIOR)\" was performed. The value is represented as yyyymmddHHMMSS.
LastUpdateTime	Mandatory	String	This property provides the last time the data was updated. The value is represented as yyyymmddHHMMSS.

427
428

429 ## 7.2   NIC Capabilities – DCIM_NICCapabilities

430 This section describes the implementation for the DCIM_NICCapabilities class.

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

432 ### 7.2.1   Resource URIs for WinRM®

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

435 The key property shall be the InstanceID.

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

439 ### 7.2.2   Operations

440 The following table lists the implemented operations on DCIM_NICCapabilities.

441 **Table 10 – DCIM_NICCapabilities - Operations**

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

442

443 ### 7.2.3   Class Properties

444 The following table lists the implemented properties for DCIM_NICCapabilities instance representing a
445 NIC in a system. The "Requirements" column shall denote whether the property is implemented (for
446 requirement definitions, see section 3). The "Additional Requirements" column shall denote either
447 possible values for the property, or requirements on the value formulation.

448 **Table 11 – DCIM_NICCapabilities - Properties**

Property Name	Requirement	Type	Requirement and description
BPESupport	Mandatory	uint8	The property shall represent the BPE support for a NIC port.
CongestionNotification	Mandatory	uint8	The property shall represent congestion notification support for a NIC port.
DCBExchangeProtocol	Mandatory	uint8	The property shall represent DCB Exchange protocol support for a NIC port.
ETS	Mandatory	uint8	The property shall represent Enhanced Transmission Selection support for a NIC port.
EVBModesSupport	Mandatory	uint8	The property shall represent EVB - Edge Virtual Bridging modes support for a NIC port.
EnergyEfficientEthernet	Mandatory	uint8	The property shall represent energy efficient ethernet support for a NIC port.
FCoEBootSupport	Mandatory	uint8	The property shall represent FCoE boot support for a NIC port.

Property Name	Requirement	Type	Requirement and description
FCoEMaxIOsPerSession	Mandatory	uint16	The property shall represent maximum number of IOs per connection supported for the NIC.
FCoEMaxNPIVPerPort	Mandatory	uint16	The property shall represent maximum number of FCoE targets supported for the NIC.
FCoEMaxNumberExchanges	Mandatory	uint16	The property shall represent maximum number of exchanges for the NIC.
FCoEMaxNumberLogins	Mandatory	uint16	The property shall represent maximum logins per port for the NIC.
FCoEMaxNumberOfFCTargets	Mandatory	uint16	The property shall represent maximum number of FCoE targets supported for the NIC.
FCoEMaxNumberOutStandingCommands	Mandatory	uint16	The property shall represent maximum number of outstanding commands supported across all connections for the NIC.
FCoEOffloadSupport	Mandatory	uint8	The property shall represent FCoE offload support for the NIC.
FQDD	Mandatory	string	A string containing the Fully Qualified Device Description a user-friendly name for the object.
FeatureLicensingSupport	Mandatory	uint8	The property shall represent feature licensing support for the NIC.
FlexAddressingSupport	Mandatory	uint8	The property shall represent flex adddressing support for a NIC port.
IPSecOffloadSupport	Mandatory	uint8	The property shall represent IPSec offload support for a NIC port.
InstanceID	Mandatory	string	The property value shall be the FQDD property value.
MACSecSupport	Mandatory	uint8	The property shall represent secure MAC support for a NIC port.
NWManagementPassThrough	Mandatory	uint8	The property shall represent network management pass through support for a NIC port.
NicPartitioningSupport	Mandatory	uint8	The property shall represent partitioning support for the NIC.
OSBMCManagementPassThrough	Mandatory	uint8	The property shall represent OS-inband to BMC-out-of-band management pass through support for a NIC port.
OnChipThermalSensor	Mandatory	uint8	The property shall represent on chip thermal sensor support for the NIC.
OpenFlowSupport	Mandatory	uint8	The property shall represent open flow support for a NIC port.
PXEBootSupport	Mandatory	uint8	The property shall represent PXE boot support for a NIC port.
PartitionWOLSupport	Mandatory	uint8	The property shall represent Wake-On-LAN support for a NIC partition.
PriorityFlowControl	Mandatory	uint8	The property shall represent priority flow control support for a NIC port.
RDMASupport	Mandatory	uint8	The property shall represent RDMA support for a NIC port.

Property Name	Requirement	Type	Requirement and description
RXFlowControl	Mandatory	uint8	The property shall represent RX flow control support for a NIC port.
RemotePHY	Mandatory	uint8	The property shall represent remote PHY support for a NIC port.
TCPChimneySupport	Mandatory	uint8	The property shall represent TCP Chimney support for a NIC port.
TXBandwidthControlMaximum	Mandatory	uint8	The property shall represent open flow support for a NIC partition.
TXBandwidthControlMinimum	Mandatory	uint8	The property shall represent open flow support for a NIC partition.
TXFlowControl	Mandatory	uint8	The property shall represent TX flow control support for a NIC partition.
VEBVEPAMultiChannel	Mandatory	uint8	The property shall represent VEB-VEPA (Virtual Ethernet Bridging and Virtual Ethernet Port Aggregator) multi channel for a NIC port.
VEBVEPASingleChannel	Mandatory	uint8	The property shall represent VEB-VEPA (Virtual Ethernet Bridging and Virtual Ethernet Port Aggregator) - single channel support for a NIC port.
VFSRIOVSupport	Mandatory	uint8	The property shall represent for Virtual Function of Single Root I/O Virtualization support for a NIC port.
VirtualLinkControl	Mandatory	uint8	The property shall represent virtual link control support for a NIC partition.
WOLSupport	Mandatory	uint8	The property shall represent Wake-On-LAN support for a NIC port.
iSCSIBootSupport	Mandatory	uint8	The property shall represent iSCSI boot support for a NIC port.
iSCSIOffloadSupport	Mandatory	uint8	The property shall represent iSCSI offload support for a NIC port.
uEFISupport	Mandatory	uint8	The property shall represent UEFI support for a NIC port.

449   ## 7.3   NIC Statistics – DCIM_NICStatistics

450   This section describes the implementation for the DCIM_NICStatistics class.

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

452   ### 7.3.1   Resource URIs for WinRM®

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

455   The key property shall be the InstanceID.

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

459   ### 7.3.2   Operations

460   The following table lists the implemented operations on DCIM_NICStatistics.

461 **Table 12 – DCIM_NICStatistics - Operations**

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

462 ### 7.3.3 Properties

463 The following table details the implemented properties for DCIM_NICStatistics instance representing a
464 NIC in a system. The "Requirements" column shall denote whether the property is implemented (for
465 requirement definitions, see section 3). The "Additional Requirements" column shall denote either
466 possible values for the property, or requirements on the value formulation.

467 **Table 13 – DCIM_NICStatistics - Properties**

Property Name	Requirement	Type	Requirement and description
DiscardedPkts	Mandatory	uint32	Counts the total number of discarded packets.
FCCRCErrorCount	Mandatory	uint32	Counts the number of FC frames with CRC errors.
FCOELinkFailures	Mandatory	uint32	Counts the number of FCoE/FIP Login failures.
FCOEPktRxCount	Mandatory	uint64	Counts the number of good (FCS valid) packets received with the
FCOEPktTxCount	Mandatory	uint64	Counts the number of good (FCS valid) packets transmitted that
FCOERxPktDroppedCount	Mandatory	uint32	Counts the number of receive packets with FCS errors.
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.
LinkStatus	Mandatory	uint8	Indicates whether the link is up (OK) or down (Error).
OSDriverState	Mandatory	uint8	Indicates operating system driver states.
PartitionLinkStatus	Mandatory	uint8	Indicates whether the partition link is up (OK) or down (Error).
PartitionOSDriverState	Mandatory	uint8	Indicates partitions operating system driver states.
RxBroadcast	Mandatory	uint64	Counts the total number of good broadcast packets received.
RxBytes	Mandatory	uint64	Counts the total number of bytes received, including host and remote management pass through traffic (remote management pass through traffic is applicable to LOMs only).
RxErrorPktAlignmentErrors	Mandatory	uint32	Counts the total number of packets received with alignment errors.
RxErrorPktFCSErrors	Mandatory	uint32	Counts the total number of packets received with FCS errors.
RxFalseCarrierDetection	Mandatory	uint32	Counts the total number of false carrier errors received from PHY.
RxJabberPkt	Mandatory	uint32	Counts the total number of frames that are too long.
RxMutlicast	Mandatory	uint64	Counts the total number of good multicast packets transmitted.
RxPauseXOFFFrames	Mandatory	uint32	Counts the flow control frames from the network to pause transmission.

Property Name	Requirement	Type	Requirement and description
RxPauseXONFrames	Mandatory	uint32	Counts the flow control frames from the network to resume transmission.
RxRuntPkt	Mandatory	uint32	Counts the total number of frames that are too short (< 64 bytes).
RxUnicast	Mandatory	uint64	Counts the total number of good unicast packets transmitted.
StartStatisticTime	Mandatory	datetime	Indicates the measurment time for the first NIC statistics. The property shall be used with the StatisticTime property to calculate the duration over which the NIC statistics has been gathered.
StatisticTime	Mandatory	datetime	Indicates the most recent measurement time for NIC statistics. The property shall be used with the StatisticStartTime property to calculate the duration over which the NIC statistics has been gathered.
TxBroadcast	Mandatory	uint64	Counts the total number of good broadcast packets transmitted.
TxBytes	Mandatory	uint64	Counts the total number of bytes transmitted, including host and remote management pass through traffic (remote management pass through traffic is applicable to LOMs only).
TxErrorPktExcessiveCollision	Mandatory	uint32	Counts the number of times that 16 or more collisions occurred on a single transmit packet.
TxErrorPktLateCollision	Mandatory	uint32	Counts the number of collisions that occurred after one slot time (defined by IEEE 802.3).
TxErrorPktMultipleCollision	Mandatory	uint32	Counts the number of times that a transmitted packet encountered more than one collision but fewer than 16.
TxErrorPktSingleCollision	Mandatory	uint32	Counts the number of times that a successfully transmitted packet encountered a single collision.
TxMutlicast	Mandatory	uint64	Counts the total number of good multicast packets transmitted.
TxPauseXONFrames	Mandatory	uint32	Counts the number of XON packets transmitted to the network.
TxPauseXOFFFrames	Mandatory	uint32	Counts the number of XOFF packets transmitted to the network.
TxUnicast	Mandatory	uint64	Counts the total number of good unicast packets transmitted.

468 7.4   DCIM_NICEnumeration

469 This section describes the implementation for the DCIM_NICEnumeration class.

470 Each DCIM_NICEnumeration instance is logically associated to a DCIM_NICView instance, where the
471 DCIM_NICEnumeration. FQDD property is equal to the FQDD property on the DCIM_NICView instance.

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

473 7.4.1   Resource URIs for WinRM®

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

476 The key property shall be the InstanceID.

477 The instance Resource URI for DCIM_NICEnumeration instance shall be:
478 "http://schemas.dell.com/wbem/wscim/1/cim-
479 schema/2/DCIM_NICEnumeration?__cimnamespace=root/dcim+InstanceID= <FQDD>:<AttributeName>"

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

7.4.2 Operations

482 The following table lists the implemented operations on DCIM_NICEnumeration.

483 **Table 14 – DCIM_NICEnumeration - Operations**

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

7.4.3 Class Properties

485 The following table details the implemented properties for DCIM_NICEnumeration instance representing
486 a NIC controller enumeration attribute. The "Requirements" column shall denote whether the property is
487 implemented (for requirement definitions, see section 3). The "Additional Requirements" column shall
488 denote either possible values for the property, or requirements on the value formulation.

Table 15 – Class: DCIM_NICEnumeration

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 from the "AttributeDisplayName" column in Tables in section 7.7.
GroupID	String	Mandatory	See section 7.7.
GroupDisplayName	String	Mandatory	See section 7.7.
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 NIC that the attribute belongs to.
DisplayOrder	uint16	Mandatory	The property shall represent the sequence number denoting the preferred placement of the attribute in the list of all NIC attributes.
Dependency	String	Optional	The property shall be formatted as XML describing the attributes dependence on other attribute(s).
PossibleValues	String	Mandatory	The property value shall be equal to the array of the values in "PossibleValues" column in the corresponding row in in Tables in section 7.7.
PossibleValuesDescription	String	Mandatory	The array property's each value shall represent the description of the value in the PossibleValue array property at the corresponding index.

7.5 DCIM_NICString

491 This section describes the implementation for the DCIM_NICString class.

492 Each DCIM_NICString instance is logically associated to a DCIM_NICView instance, where the
493 DCIM_NICString. FQDD property is equal to the FQDD property on the DCIM_NICView instance.

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

7.5.1 Resource URIs for WinRM®

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

498 The key property shall be the InstanceID.

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

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

503 ## 7.5.2 Operations

504 The following table lists the implemented operations on DCIM_NICString.

505 **Table 16 – DCIM_NICString - Operations**

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

506

507 ## 7.5.3 Class Properties

508 The following table details the implemented properties for DCIM_NICString instance representing a NIC
509 controller string attribute. The "Requirements" column shall denote whether the property is implemented
510 (for requirement definitions, see section 3). The "Additional Requirements" column shall denote either
511 possible values for the property, or requirements on the value formulation.

Table 17 – Class: DCIM_NICString

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 from the "AttributeDisplayName" column in in Tables in section 7.7.
GroupID	String	Mandatory	See section 7.7.
GroupDisplayName	String	Mandatory	See section 7.7.
CurrentValue[]	String	Mandatory	The property value shall be one of the values in the "PossibleValues" column at 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 at 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 NIC that the attribute belongs to.
DisplayOrder	uint16	Mandatory	The property shall represent the sequence number denoting the preferred placement of the attribute in the list of all NIC attributes.
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.

513

7.6 DCIM_NICInteger

514

515 This section describes the implementation for the DCIM_NICInteger class.

516 Each DCIM_NICInteger instance is logically associated to a DCIM_NICView instance, where the
517 DCIM_NICInteger.FQDD property is equal to the FQDD property on the DCIM_NICView instance.

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

7.6.1 Resource URIs for WinRM®

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

522 The key property shall be the InstanceID.

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

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

7.6.2 Operations

528 The following table lists the implemented operations on DCIM_NICInteger.

529 **Table 18 – DCIM_NICInteger - Operations**

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

530

7.6.3 Properties

532 The following table details the implemented properties for DCIM_NICInteger instance representing a NIC
533 controller integer attribute. The "Requirements" column shall denote whether the property is implemented
534 (for requirement definitions, see section 3). The "Additional Requirements" column shall denote either
535 possible values for the property, or requirements on the value formulation.

Table 19 – Class: DCIM_NICInteger

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 from the "AttributeDisplayName" column in in Tables in section 7.7.
GroupID	String	Mandatory	See section 7.7.
GroupDisplayName	String	Mandatory	See section 7.7.
CurrentValue[]	String	Mandatory	The property value shall be one of the values in the "PossibleValues" column at 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 at 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 NIC that the attribute belongs to.
DisplayOrder	uint16	Mandatory	The property shall represent the sequence number denoting the preferred placement of the attribute in the list of all NIC attributes.
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 7.7. 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 7.7. The omission or NULL shall denote that no known constraint exists on the CurrentValue and PendingValue properties.

537

7.7 NIC Attributes

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

7.7.1 NIC Configuration

541 This section describes the attributes for NIC's Configuration.

542 The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
543 "NICConfig".

544 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
545 DCIM_NICInteger shall be "NIC Configuration".

546 The following table describes the values for the DCIM_NICEnumeration of this group. Each of the column
547 headings correspond to a property name on the DCIM_NICEnumeration class. The Description column
548 contains the description for each of the attribute. Each of the rows contain the values for the properties
549 listed in the column headings. The PossibleValues property is an array property represented in the table
550 as comma delimited list.

551 **Table 20 – DCIM_NICEnumeration NIC Configuration**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues	Description
LegacyBootProto[1]	Legacy Boot Protocol	FALSE	1105	"PXE", "iSCSI"[1], "iSCSIPrimary"[1], "iSCSISecondary"[1], "FCoE", "NONE"	Non-UEFI Boot Protocol
LnkSpeed	Configure link speed for Managed Boot Agent.	FALSE	1106	"AutoNeg", "10Mbps Half", "10Mbps Full", "100Mbps Half", "100Mbps Full"	Link Speed
VLanMode	Virtual LAN mode for Managed Boot Agent.	FALSE	1108	"Disabled", "Enabled"	Virtual LAN mode
WakeOnLan	Preboot Wake on LAN (WOL) for Managed Boot Agent..	FALSE	1109	"Disabled", "Enabled"	Preboot Wake on LAN
WakeOnLanLnkSpeed	WOL Link Speed**	FALSE	1110	"AutoNeg", "10Mbps Half", "10Mbps Full", "100Mbps Half", "100Mbps Full"	Wake On LAN(WOL) link speed

552 NOTE: 1 – PossibleValues property shall contain either "iSCSI" value or "iSCSIPrimary" and "iSCSISecondary"
553   values. "iSCSI" value denotes that the selection of the NIC in the non-UEFI boot sequence shall boot the
554   system to an iSCSI target. Further, the IPVer attribute in the iSCSI General Parameters group shall denote
555   the IP version of the configured target's IP address for iSCSI.

556   "iSCSIPrimary" value denotes that the NIC is the primary iSCSI boot source in the non-UEFI boot sequence.
557   Thus, if the booting to this iSCSI NIC fails, the iSCSI target configured in the secondary iSCSI NIC shall be
558   attempted automatically. The secondary iSCSI NIC shall be denoted by "iSCSISecondary" value for this
559   attribute.

560 The following table describes the values for the DCIM_NICInteger of this group. Each of the column
561 headings correspond to a property name on the DCIM_NICInteger class. Each of the rows contain the
562 values for the properties listed in the column headings.

563 **Table 21 – DCIM_NICInteger NIC Configuration**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound
VLanId	Virtual LAN ID	FALSE	1107	0	4095

564 ### 7.7.2   Main Configuration

565 This section describes the attributes for NIC's Main Configuration.

566 The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
567 "VndrConfigPage".

568 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
569 DCIM_NICInteger shall be "Main Configuration Page".

570 The following table describes the values for the DCIM_NICEnumeration of this group. Each of the column
571 headings correspond to a property name on the DCIM_NICEnumeration class. The Description column
572 contains the description for each of the attribute. Each of the rows contain the values for the properties
573 listed in the column headings. The PossibleValues property is an array property represented in the table
574 as comma delimited list.

575 **Table 22 – DCIM_NICEnumeration Main Configuration Page**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues	Description
FCoEOffloadMode	Enable/Disable FC personality on the partition.	FALSE	1208	"Disabled", "Enabled"	FCoE Offload Mode
iScsiOffloadMode	iSCSI personality on the partition.	FALSE	1214	"Disabled", "Enabled"	iSCSI Offload Mode
LinkStatus	Link Status	TRUE	1216	"Connected", "Disconnected"	Link Status
NicMode	Enable/Disable NIC personality on the partition.	FALSE	1218	"Disabled", "Enabled"	NIC Mode

576 The following table describes the values for the DCIM_NICString of this group. Each of the column
577 headings correspond to a property name on the DCIM_NICString class. The Value Expression column
578 contains constraints on string value formulation. Each of the rows contain the values for the properties
579 listed in the column headings.

580 **Table 23 – DCIM_NICString Main Configuration Page**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength	Value Expression

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength	Value Expression
BusDeviceFunction	Bus, Device, Function values	TRUE	1202			
ChipMdl	Chip Type/Revision	TRUE	1203			
DCBXSupport	DCB XSupport	TRUE	1204	0	0	
DeviceName	This name should be consistent with the name displayed in the operating system.	TRUE	1205			
EnergyEfficientEthernet	Energy efficient Ethernet (EEE)	TRUE	1206	0	0	
FCoEBootSupport	FCoE Boot Support	TRUE	1207	0	0	
FCoEOffloadSupport	FCoE offload support	TRUE	1209	0	0	
FeatureLicensingSupport	Feature Licensing Support	TRUE	1210	0	0	
FIPMacAddr	CNA FIP MAC Address	FALSE	1211			MAC Address
FlexAddressing	Flex Addressing	TRUE	1212	0	0	
ISCSIBootSupport	iSCSI Boot Support	TRUE	1213	0	0	
iSCSIOffloadSupport	iSCSI offload support	TRUE	1215	0	0	
MacAddr	CNA MAC Address	TRUE	1217			
NicPartitioningSupport	Nic Partitioning Support	TRUE	1219	0	0	
NWManagementPassThrough	NW Management Pass Through	TRUE	1220	0	0	
OnChipThermalSensor	On-Chip Thermal Sensor	TRUE	1221	0	0	
OSBMCManagementPassThrough	OS BMC Management Pass Through	TRUE	1222	0	0	
PCIDeviceID	PCI Device ID	TRUE	1223			
PXEBootSupport	PXE Boot Support	TRUE	1224	0	0	

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength	Value Expression
RemotePHY	RemotePHY	TRUE	1225	0	0	
RXFlowControl	RX Flow Control	TRUE	1226	0	0	
TOESupport	TOE Support	TRUE	1227	0	0	
TXBandwidthControlMaximum	TX Bandwidth Control Maximum	TRUE	1229	0	0	
TXBandwidthControlMaximum	TX Bandwidth Control Maximum	TRUE	1228	0	0	
TXBandwidthControlMinimum	TX Bandwidth Control Minimum	TRUE	1230	0	0	
TXBandwidthControlMinimum	TX Bandwidth Control Minimum	TRUE	1231	0	0	
TXFlowControl	TX Flow Control	TRUE	1232	0	0	
TXFlowControl	TX Flow Control	TRUE	1233	0	0	
VirtFIPMacAddr	Virtual FIP Mac Address	FALSE[1]	1234	0	0	MAC Address
VirtIscsiMacAddr	Virtual iSCSI MAC Address	FALSE[1]	1235			MAC Address
VirtMacAddr	CNA Part1 Virtual MAC Address	FALSE[1]	1236			MAC Address
VirtualLinkControl	Virtual Link Control	TRUE	1237	0	0	
VirtWWN	CNA Virtual World Wide Name	FALSE[1]	1238			
VirtWWPN	CNA Virtual World Wide Part Name	FALSE[1]	1202			
WWN	CNA World Wide Name	TRUE	1203			
WWPN	CNA World Wide Part Name	TRUE	1204			

581 [1] Note: VirtMacAddr, VirtIscsiMacAddr, VirtFIPMacAddr, VirtWWN, and VirtWWPN attributes shall be
582 settable, only if the DCIM_LCEnumeration VirtualAddressManagement attribute has "Console" value.

583 The following table describes the values for the DCIM_NICInteger of this group. Each of the column
584 headings correspond to a property name on the DCIM_NICInteger class. Each of the rows contain the
585 values for the properties listed in the column headings.

586 **Table 24 – DCIM_NICInteger Main Configuration Page**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound
BlnkLeds	Blink LEDs for a duration up to 15 seconds.	FALSE	1201	0	15

7.7.3 NIC Partitioning Configuration

This section describes the attributes for NIC's Partitioning Configuration.

The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be "NICPartitioningConfig".

The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be "NIC Partitioning Configuration".

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

Table 25 – DCIM_NICEnumeration NIC Partitioning Configuration

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues	Description
NicPartitioning	NIC Partitioning	FALSE	1101	"Disabled", "Enabled"	NIC Partitioning

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

Table 26 – DCIM_NICInteger NIC Partitioning Configuration

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound
NParNumberPartitions	Number of Partitions Supported per port.	TRUE	1111	1	
NumberPCIEFunctionsEnabled	Number of Functions currently enabled per port	TRUE	1102	1	
NumberPCIEFunctionsSupported	Number of PCI-e functions supported per port	TRUE	1103	1	

7.7.4 Partition Configuration

This section describes the attributes for NIC's Partition 1 Configuration. Partition attributes are also used to configure the physical port.

The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be "ConfigureForm<n>" where <n> is the partition number.

The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be "Partition <n> Configuration" where <n> is the partition number.

610 The following table describes the values for the DCIM_NICEnumeration of this group. Each of the column
611 headings correspond to a property name on the DCIM_NICEnumeration class. The Description column
612 contains the description for each of the attribute. Each of the rows contain the values for the properties
613 listed in the column headings. The PossibleValues property is an array property represented in the table
614 as comma delimited list.

615 **Table 27 – DCIM_NICEnumeration Partition Configuration**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues	Description
SRIOVConfigure	SRIOV Configure	FALSE	104	"Disabled", "Enabled"	SRIOV Configure

616 The following table describes the values for the DCIM_NICString of this group. Each of the column
617 headings correspond to a property name on the DCIM_NICString class. The Value Expression column
618 contains constraints on string value formulation. Each of the rows contain the values for the properties
619 listed in the column headings.

620 **Table 28 – DCIM_NICString Partition Configuration**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength
DeviceClassCode	Device Class Code	TRUE	101	0	0

621 The following table describes the values for the DCIM_NICInteger of this group. Each of the column
622 headings correspond to a property name on the DCIM_NICInteger class. Each of the rows contain the
623 values for the properties listed in the column headings.

624 **Table 29 – DCIM_NICInteger Partition Configuration**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound
InstanceNumber	Instance Number	FALSE	102	1	
PortNumber	Port Number	FALSE	103	1	

625 ### 7.7.5 DCB Settings

626 This section describes the attributes for the NIC's DCB Settings.

627 The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
628 "DCBSettings".

629 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
630 DCIM_NICInteger shall be "DCB Settings".

631 The following table describes the values for the DCIM_NICString of this group. Each of the column
632 headings correspond to a property name on the DCIM_NICString class. The Value Expression column
633 contains constraints on string value formulation. Each of the rows contain the values for the properties
634 listed in the column headings.

635 **Table 30 – DCIM_NICString DCB Settings**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength
CongestionNotification	Congestion Notification	TRUE	201	0	0
DCBExchangeProtocol	DCB Exchange Protocol	TRUE	202	0	0
EnhancedTransmissionSelection	Enhanced Transmission Selection	TRUE	203	0	0
PriorityFlowControl	Priority Flow Control	TRUE	204	0	0

7.7.6 Device Level Configuration

636

637 This section describes the attributes for the NIC's Device Level Configuration.

638 The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
639 "DeviceLevelConfig".

640 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
641 DCIM_NICInteger shall be "Device Level Configuration".

642 The following table describes the values for the DCIM_NICEnumeration of this group. Each of the column
643 headings correspond to a property name on the DCIM_NICEnumeration class. The Description column
644 contains the description for each of the attribute. Each of the rows contain the values for the properties
645 listed in the column headings. The PossibleValues property is an array property represented in the table
646 as comma delimited list.

647 **Table 31 – DCIM_NICEnumeration Device Level Configuration**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues	Description
FlowControlSetting	Flow Control Setting	FALSE	1101	"Auto (default)", "TX Flow Control", "RX Flow Control", "TX / RX Flow Control"	Flow Control Setting

648

649 The following table describes the values for the DCIM_NICString of this group. Each of the column
650 headings correspond to a property name on the DCIM_NICString class. The Value Expression column
651 contains constraints on string value formulation. Each of the rows contain the values for the properties
652 listed in the column headings.

653 **Table 32 – DCIM_NICString Device Level Configuration**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength
EVBModesSupport	EVB Modes Support	TRUE	301	0	0
VFSRIOVSupport	VF/SR-IOV Support	TRUE	302	0	0

654

655 **7.7.7 FCoE Capabilities**

656 This section describes the attributes for NIC's FCoE Capabilities.

657 The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
658 "FCOECapabilities".

659 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
660 DCIM_NICInteger shall be "FCoE Capabilities".

661 The following table describes the values for the DCIM_NICString of this group. Each of the column
662 headings correspond to a property name on the DCIM_NICString class. The Value Expression column
663 contains constraints on string value formulation. Each of the rows contain the values for the properties
664 listed in the column headings.

665 **Table 33 – DCIM_NICString FCoE Capabilities**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength
AddressingMode	Addressing Mode	TRUE	401	0	0
MTUReconfigurationSupport	MTU Reconfiguration Support	TRUE	409	0	0

666 The following table describes the values for the DCIM_NICInteger of this group. Each of the column
667 headings correspond to a property name on the DCIM_NICInteger class. Each of the rows contain the
668 values for the properties listed in the column headings.

669 **Table 34 – DCIM_NICInteger FCoE Capabilities**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound
MaxFrameSize	Max Frame Size	TRUE	402	0	
MaxIOsPerSession	Max Number of IOs per session supported	TRUE	407		
MaxNPIVPerPort	Max NPIV WWN per port	TRUE	403		
MaxNumberExchanges	Max Number of exchanges	TRUE	405		
MaxNumberLogins	Max Number LOGINs per port	TRUE	404		
MaxNumberOfFCTargets	Max Number of FC Targets Supported	TRUE	406		
MaxNumberOutStandingCommands	Max Number of outstanding commands supported across all sessions	TRUE	408		

670 **7.7.8 FCoE Configuration**

671 This section describes the attributes for NIC's FCoE Configuration.

672 The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
673 "FCoEConfiguration".

674 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
675 DCIM_NICInteger shall be "FCoE Configuration".

676　The following table describes the values for the DCIM_NICEnumeration of this group. Each of the column
677　headings correspond to a property name on the DCIM_NICEnumeration class. The Description column
678　contains the description for each of the attribute. Each of the rows contain the values for the properties
679　listed in the column headings. The PossibleValues property is an array property represented in the table
680　as comma delimited list.

681　**Table 35 – DCIM_NICEnumeration FCoE Configuration**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues	Description
ConnectFirstFCoETarget	Connect	FALSE	411	"Disabled", "Enabled"	Connect FCoE Boot Lun Target
MTUParams	CNA MTU Setting	FALSE	410	"Global", "Per DCB", "Priority", "Per VLAN"	MTU Parameters

682　The following table describes the values for the DCIM_NICString of this group. Each of the column
683　headings correspond to a property name on the DCIM_NICString class. The Value Expression column
684　contains constraints on string value formulation. Each of the rows contain the values for the properties
685　listed in the column headings.

686　**Table 36 – DCIM_NICString FCoE Configuration**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength
FirstFCoEWWPNTarget	World Wide Port Name FCoe Target	FALSE	414		

687　The following table describes the values for the DCIM_NICInteger of this group. Each of the column
688　headings correspond to a property name on the DCIM_NICInteger class. Each of the rows contain the
689　values for the properties listed in the column headings.

690　**Table 37 – DCIM_NICInteger FCoE Configuration**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound
FirstFCoEBootTargetLUN	FCoE Boot Lun Target	FALSE	412		
FirstFCoEFCFVLANID	FCoE FCF VLAN ID	FALSE	413		

691

7.7.9　Firmware Image Properties

693　This section describes the attributes for NIC's Firmware Image Properties.

694　The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
695　"FrmwImgMenu".

696　 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
697　DCIM_NICInteger shall be "Firmware Image Properties".

698　The following table describes the values for the DCIM_NICString of this group. Each of the column
699　headings correspond to a property name on the DCIM_NICString class. The Value Expression column
700　contains constraints on string value formulation. Each of the rows contain the values for the properties
701　listed in the column headings.

702 **Table 38 – DCIM_NICString Firmware Image Properties**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength
FamilyVersion	Family Version	TRUE	415		

703 **7.7.10 Global Bandwidth Allocation**

704 This section describes the attributes for NIC's Partition 1 Configuration.

705 The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
706 "GlobalBandwidthAllocation".

707 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
708 DCIM_NICInteger shall be "Global Bandwidth Allocation".

709 The following table describes the values for the DCIM_NICInteger of this group. Each of the column
710 headings correspond to a property name on the DCIM_NICInteger class. Each of the rows contain the
711 values for the properties listed in the column headings.

712 **Table 39 – DCIM_NICInteger Global Bandwidth Allocation**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound
MaxBandwidth	Maximum bandwidth of current partition of this NIC or Converged Network Adapter.	FALSE	501	0	100
MinBandwidth	Minimum bandwidth of current partition of this NIC or Converged Network Adapter.	FALSE	502	0	100

713 **7.7.11 iSCSI First Target Parameters**

714 This section describes the attributes for NIC's iSCSI First Target Parameters.

715 The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
716 "IscsiFirstTgtParams".

717 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
718 DCIM_NICInteger shall be "iSCSI First Target Parameters".

719 The following table describes the values for the DCIM_NICEnumeration of this group. Each of the column
720 headings correspond to a property name on the DCIM_NICEnumeration class. The Description column
721 contains the description for each of the attribute. Each of the rows contain the values for the properties
722 listed in the column headings. The PossibleValues property is an array property represented in the table
723 as comma delimited list.

724 **Table 40 – DCIM_NICEnumeration iSCSI First Target Parameters**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues	Description
ConnectFirstTgt	First target establishment for iSCSI.	FALSE	601	"Disabled", "Enabled"	First Target establishment

725 The following table describes the values for the DCIM_NICString of this group. Each of the column
726 headings correspond to a property name on the DCIM_NICString class. The Value Expression column

727 contains constraints on string value formulation. Each of the rows contain the values for the properties
728 listed in the column headings.

729 **Table 41 – DCIM_NICString iSCSI First Target Parameters**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength	Value Expression
FirstTgtChapId	iSCSI first target CHAP ID.	FALSE	604	0	32	String
FirstTgtIpAddress	iSCSI first target IP address.	FALSE	605	2	39	IP Address
FirstTgtIscsiName	iSCSI first target name.	FALSE	606	0	128	String

730 The following table describes the values for the DCIM_NICInteger of this group. Each of the column
731 headings correspond to a property name on the DCIM_NICInteger class. Each of the rows contain the
732 values for the properties listed in the column headings.

733 **Table 42 – DCIM_NICInteger iSCSI First Target Parameters**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound
FirstTgtBootLun	First Target Boot LUN number (0 .. 255)	FALSE	602	0	255
FirstTgtTcpPort	First Target TCP Port number (1..65535)	FALSE	603	1	65535

734 ### 7.7.12 iSCSI General Parameters

735 This section describes the attributes for NIC's iSCSI General Parameters.

736 The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
737 "IscsiGenParams".

738 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
739 DCIM_NICInteger shall be "iSCSI General Parameters".

740 The following table describes the values for the DCIM_NICEnumeration of this group. Each of the column
741 headings correspond to a property name on the DCIM_NICEnumeration class. The Description column
742 contains the description for each of the attribute. Each of the rows contain the values for the properties
743 listed in the column headings. The PossibleValues property is an array property represented in the table
744 as comma delimited list.

745 **Table 43 – DCIM_NICEnumeration iSCSI General Parameters**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues	Description

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues	Description
BootToTarget	Boot to iSCSI target after connection	FALSE	701	"Disabled", "Enabled"	Boot to iSCSI target after connection
ChapAuthEnable	CHAP Authentication	FALSE	702	"Disabled", "Enabled"	CHAP Authentication
ChapMutualAuth	CHAP Mutual Authentication	FALSE	703	"Disabled", "Enabled", "NONE"	CHAP Mutual Authentication
IpAutoConfig	TCP/IP Configuration via Stateful or Stateless AutoConfiguration	FALSE	710	"Disabled", "Enabled"	TCP/IP Configuration via Stateful or Stateless AutoConfiguration
IpVer	IP Version support.	FALSE	704	"IPv4", "IPv6"	IP Version support. Modifying this parameter will reset all IP-related fields
IscsiViaDHCP	iSCSI parameters via DHCP	FALSE	705	"Disabled", "Enabled"	iSCSI parameters via DHCP
TcpIpViaDHCP	TCP/IP configuration via DHCP	FALSE	709	"Disabled", "Enabled"	TCP/IP configuration via DHCP
TcpTimestmp	TCP Timestamp	FALSE	708	"Disabled", "Enabled"	TCP Timestamp
WindowsHBABootMode	Windows HBA Boot Mode	FALSE	712	"Disabled", "Enabled"	

746 The following table describes the values for the DCIM_NICString of this group. Each of the column
747 headings correspond to a property name on the DCIM_NICString class. The Value Expression column
748 contains constraints on string value formulation. Each of the rows contain the values for the properties
749 listed in the column headings.

750 **Table 44 – DCIM_NICString iSCSI General Parameters**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength	Value Expression
DhcpVndorID	Vendor ID for DHCP configuration	FALSE	711	0	0	

751 The following table describes the values for the DCIM_NICInteger of this group. Each of the column
752 headings correspond to a property name on the DCIM_NICInteger class. Each of the rows contain the
753 values for the properties listed in the column headings.

754 **Table 45 – DCIM_NICInteger iSCSI General Parameters**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound
LinkUpDelayTime	Link Up Delay Time	FALSE	706		
LunBusyRetryCnt	Number of retries in 2 sec intervals when LUN is busy (0..60)	TRUE	707	0	

7.7.13 iSCSI Initiator Parameters

756 This section describes the attributes for NIC's iSCSI Initiator Parameters.

757 The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
758 "IscsiInitiatorParams".

759 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
760 DCIM_NICInteger shall be "iSCSI Initiator Parameters".

761 The following table describes the values for the DCIM_NICString of this group. Each of the column
762 headings correspond to a property name on the DCIM_NICString class. The Value Expression column
763 contains constraints on string value formulation. Each of the rows contain the values for the properties
764 listed in the column headings.

765 **Table 46 – DCIM_NICString iSCSI Initiator Parameters**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength	Value Expression

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength	Value Expression
IscsiInitiatorChapId	iSCSI initiator CHAP ID.	FALSE	804	0	32	String
IscsiInitiatorChapPwd	Initiator CHAP Secret (12 to 16 characters in length).Note: this attribute can either take a value of '0'or 12 to 16.	FALSE	801			
IscsiInitiatorGateway	iSCSI initiator default gateway IP address.	FALSE	805	2	39	IP Address
IscsiInitiatorIpAddr	iSCSI initiator IP address.	FALSE	806	2	39	IP Address
IscsiInitiatorName	iSCSI initiator name.	FALSE	803	0	128	String
IscsiInitiatorPrimDns	iSCSI initiator primary DNS IP address.	FALSE	807	2	39	IP Address
IscsiInitiatorSecDns	iSCSI initiator secondary DNS IP address.	FALSE	808	2	39	IP Address
IscsiInitiatorSubnet	iSCSI initiator subnet mask.	FALSE	809	2	39	IP Address
IscsiInitiatorSubnetPrefix	Initiator IP Subnet Mask Prefix	FALSE	802			
IscsiMacAddr	iSCSI MAC Address	FALSE	810			MAC Address

766 **7.7.14 iSCSI Secondary Device Parameters**

767 This section describes the attributes for NIC's iSCSI Secondary Device Parameters.

768 The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
769 "IscsiSecondaryDeviceParams".

770 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
771 DCIM_NICInteger shall be "iSCSI Secondary Device Parameters".

772 The following table describes the values for the DCIM_NICEnumeration of this group. Each of the column
773 headings correspond to a property name on the DCIM_NICEnumeration class. The Description column
774 contains the description for each of the attribute. Each of the rows contain the values for the properties
775 listed in the column headings. The PossibleValues property is an array property represented in the table
776 as comma delimited list.

777 **Table 47 – DCIM_NICEnumeration iSCSI Secondary Device Parameters**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues	Description

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues	Description
UseIndTgtName	Use independent target name when multipath I/O is enabled.	FALSE	902	"Disabled", "Enabled"	Use Independent Target Name when multipath I/O is enabled
UseIndTgtPortal	Use independent target portal when multipath I/O is enabled.	FALSE	903	"Disabled", "Enabled"	Use Independent Target Portal when multipath I/O is enabled

778 The following table describes the values for the DCIM_NICString of this group. Each of the column
779 headings correspond to a property name on the DCIM_NICString class. The Value Expression column
780 contains constraints on string value formulation. Each of the rows contain the values for the properties
781 listed in the column headings.

782 **Table 48 – DCIM_NICString iSCSI Secondary Device Parameters**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength	Value Expression
SecondaryDeviceMacAddr	Secondary device MAC address.	FALSE	901	17	17	IP address

7.7.15 iSCSI Second Target Parameters

784 This section describes the attributes for NIC's iSCSI Second Target Parameters.

785 The GroupID property for the DCIM_NICEnumeration, DCIM_NICString, and DCIM_NICInteger shall be
786 "IscsiSecondTgtParams".

787 The GroupDisplayName property for the DCIM_NICEnumeration, DCIM_NICString, and
788 DCIM_NICInteger shall be "iSCSI Second Target Parameters".

789 The following table describes the values for the DCIM_NICEnumeration of this group. Each of the column
790 headings correspond to a property name on the DCIM_NICEnumeration class. The Description column
791 contains the description for each of the attribute. Each of the rows contain the values for the properties
792 listed in the column headings. The PossibleValues property is an array property represented in the table
793 as comma delimited list.

794 **Table 49 – DCIM_NICEnumeration iSCSI Second Target Parameters**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	PossibleValues	Description
ConnectSecondTgt	First target establishment for iSCSI.	FALSE	1002	"Disabled", "Enabled"	Second Target establishment

795 The following table describes the values for the DCIM_NICString of this group. Each of the column
796 headings correspond to a property name on the DCIM_NICString class. The Value Expression column
797 contains constraints on string value formulation. Each of the rows contain the values for the properties
798 listed in the column headings.

799   **Table 50 – DCIM_NICString iSCSI Second Target Parameters**

AttributeName	Attribute Description	IsReadOnly	Display Order	MinLength	MaxLength	Value Expression
SecondTgtChapId	iSCSI second target CHAP ID.	FALSE	1003	0	32	String
SecondTgtChapPwd	CHAP Secret	FALSE	1001			N/A
SecondTgtIpAddress	iSCSI second target IP address.	FALSE	1004	2	39	IP address
SecondTgtIscsiName	iSCSI second target name.	FALSE	1005	0	128	String

800   The following table describes the values for the DCIM_NICInteger of this group. Each of the column
801   headings correspond to a property name on the DCIM_NICInteger class. Each of the rows contain the
802   values for the properties listed in the column headings.

803   **Table 51 – DCIM_NICInteger iSCSI Second Target Parameters**

AttributeName	AttributeDisplayName	IsReadOnly	Display Order	LowerBound	UpperBound
SecondTgtBootLun	Second Target Boot LUN number (0 .. 255)	FALSE	1006	0	255
SecondTgtTcpPort	Second Target TCP Port number (1..65535)	FALSE	1007	1	65535

804   ## 7.8   DCIM_NICService

805   This section describes the implementation for the DCIM_NICService class.

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

807   The DCIM_LCElementConformsToProfile association(s)' ManagedElement property shall reference the
808   DCIM_NICService instance(s).

809   ### 7.8.1   Resource URIs for WinRM®

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

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

814   The instance Resource URI for DCIM_NICService instance shall be:
815   "http://schemas.dell.com/wbem/wscim/1/cim-
816   schema/2/DCIM_NICService?__cimnamespace=root/dcim+SystemCreationClassName=DCIM_ComputerSyst
817   em+CreationClassName=DCIM_NICService+ SystemName=DCIM:ComputerSystem+Name= DCIM:NICService"

818   ### 7.8.2   Operations

819   The following table lists the implemented operations on DCIM_NICService.

820   **Table 52 – DCIM_NICService – Operations**

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

Invoke	Mandatory	Instance URI

821

7.8.3 Properties

823 The following table details the implemented properties for DCIM_NICService instance representing a
824 system in a system. The "Requirements" column shall denote whether the property is implemented (for
825 requirement definitions, see section 3). The "Additional Requirements" column shall denote either
826 possible values for the property, or requirements on the value formulation.

827

828 **Table 53 – Class: DCIM_NICService**

Properties and Methods	Requirement	Description
SystemCreationClassName	Mandatory	The property value shall be "DCIM_ComputerSystem".
CreationClassName	Mandatory	The property value shall be "DCIM_NICService".
ElementName	Mandatory	The property value shall be "NIC Service"
SystemName	Mandatory	The property value shall be "DCIM:ComputerSystem".
Name	Mandatory	The property value shall be "DCIM:NICService"

7.9 Simple NIC Profile Registration

830 This section describes the implementation for the DCIM_LCRegisteredProfile class.

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

832 The DCIM_ElementConformsToProfile association(s)' ConformantStandard property shall reference the
833 DCIM_LCRegisteredProfile instance.

7.9.1 Resource URIs for WinRM®

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

837 The key property shall be the InstanceID property.

838 The instance Resource URI shall be: "http://schemas.dell.com/wbem/wscim/1/cim-
839 schema/2/DCIM_LCRegisteredProfile?__cimnamespace=root/interop+InstanceID=
840 DCIM:SimpleNIC:1.0.0"

7.9.2 Operations

842 The following table lists the implemented operations on DCIM_NICView.

843 **Table 54 – DCIM_LCRegisteredProfile - Operations**

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

844

7.9.3 Properties

The following table details the implemented properties for DCIM_LCRegisteredProfile instance
representing Simple NIC Profile implementation. 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 55 – Class: DCIM_LCRegisteredProfile

Properties	Requirement	Type	Description
InstanceID	Mandatory	String	"DCIM:SimpleNIC:1.0.0"
RegisteredName	Mandatory	String	This property shall have a value of "Simple NIC".
RegisteredVersion	Mandatory	String	This property shall have a value of "1.2.0".
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.

8 Methods

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

8.1 DCIM_NICService.SetAttribute( )

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

Invocation of the SetAttribute( ) method shall change the value of the DCIM_NICAttribute.CurrentValue or
DCIM_NICAttribute.PendingValue property to the value specified by the AttributeValue parameter if the

858 DCIM_NICAttribute.IsReadOnly property is FALSE. Invocation of this method when the
859 DCIM_NICAttribute.IsReadOnly property is TRUE shall result in no change to the value of the
860 DCIM_NICAttribute.CurrentValue property. The results of changing this value is described with the
861 SetResult parameter.

862 Return code values for the SetAttribute( ) method are specified in Table 56 and parameters are specified
863 in Table 57. Invoking the SetAttribute( ) method multiple times can result in the earlier requests being
864 overwritten or lost.

865 **Table 56 – DCIM_NICService.SetAttribute( ) Method: Return Code Values**

Value	Description
0	Completed with no error
2	Failed

866 **Table 57 – DCIM_NICService.SetAttribute( ) Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	FQDD of the NIC
IN, REQ	AttributeName[]	String	Shall be formatted in the following way: <GroupID property value>#<AttributeName property value>. Example: "MyGroup#MyAttribute"
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

867 **Table 58 – DCIM_NICService.SetAttribute( ) Method: Standard Messages**

MessageID (OUT parameter)	Message	MessageArguments[]
NIC001	The command was successful	
NIC002	Resource allocation failure	
NIC003	Missing required parameter	
NIC004	Invalid parameter value for <parameter name>	Parameter
NIC005	Mismatch in AttributeName and AttributeValue count	
NIC006	Configuration job already created, cannot set attribute on specified	

MessageID (OUT parameter)	Message	MessageArguments[]
	target until existing job is completed or is cancelled	
NIC007	Configuration job already created, cannot create another config job on specified target until existing job is completed or is cancelled	
NIC008	No pending data is present to create a Configuration job	
NIC009	System Services is currently in use, cannot create Configuration job	
NIC010	System Services is disabled, cannot create Configuration job	
NIC011	Configuration job already created, pending data cannot be deleted	
NIC012	No pending data present to delete	
NIC013	Invalid AttributeName %s	AttributeName
NIC014	Invalid AttributeValue for AttributeName %s	AttributeName
NIC015	AttributeValue cannot be changed for ReadOnly AttributeName %s	AttributeName
NIC016	AttributeValue cannot be changed for Disabled AttributeName %s	AttributeName
NIC017	Unable to delete vFlash pending one-time boot configuration	

868

8.2   DCIM_NICService.SetAttributes( )

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

871   Successful SetAttributes( ) method invocation shall change the values of the CurrentValue or
872   PendingValue properties of the DCIM_NICAttribute instance that correspond to the names specified by
873   the AttributeName parameter, with the values specified by the AttributeValue parameter.

874   If the respective DCIM_NICAttribute.IsReadOnly property is TRUE, the method invocation shall fail and
875   shall result in no change to the corresponding value of the DCIM_NICAttribute.CurrentValue property.

876   Return code values for the SetAttributes( ) method are specified in Table 59, and parameters are
877   specified in Table 60.

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

880   **Table 59 – DCIM_NICService.SetAttributes( ) Method: Return Code Values**

Value	Description
0	Completed with no error
2	Failed

Table 60 – DCIM_NICService.SetAttributes( ) Method: Parameters

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	FQDD of the NIC
IN, REQ	AttributeName[]	String	An array of values where each value shall be formatted in the following way: <GroupID property value>#<AttributeName property value>. Example: "MyGroup#MyAttribute"
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

Table 61 – DCIM_NICService.SetAttribute( ) Method: Standard Messages

MessageID (OUT parameter)	Message	MessageArguments[]
NIC001	The command was successful	
NIC002	Resource allocation failure	
NIC003	Missing required parameter	
NIC004	Invalid parameter value for <parameter name>	Parameter
NIC005	Mismatch in AttributeName and AttributeValue count	
NIC013	Invalid AttributeName %s	AttributeName
NIC014	Invalid AttributeValue for AttributeName %s	AttributeName
NIC015	AttributeValue cannot be changed for ReadOnly AttributeName %s	AttributeName
NIC016	AttributeValue cannot be changed for Disabled AttributeName %s	AttributeName

883   8.3   DCIM_NICService.CreateTargetedConfigJob( )

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

887   CreateTargetedConfigJob method supports the following optional input parameters

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

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

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

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

902 Return code values for the CreateTargetedConfigJob( ) method are specified in Table 62, and parameters
903 are specified in Table 63.

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

906   **Table 62 – DCIM_NICService.CreateTargetedConfigJob( ) Method: Return Code Values**

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

907   **Table 63 – DCIM_NICService.CreateTargetedConfigJob( ) Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	FQDD of the NIC
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

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

911

912 **Table 64 – DCIM_NICService.CreateTargetedConfigJob( ) Method: Standard Messages**

MessageID (OUT parameter)	Message	MessageArguments[]
NIC001	The command was successful	
NIC002	Resource allocation failure	
NIC003	Missing required parameter	
NIC004	Invalid parameter value for <parameter name>	Parameter
NIC007	Configuration job already created, cannot create another config job on specified target until existing job is completed or is cancelled	
NIC008	No pending data is present to create a Configuration job	
NIC009	System Services is currently in use, cannot create Configuration job	
NIC010	System Services is disabled, cannot create Configuration job	
NIC011	Configuration job already created, pending data cannot be deleted	
NIC012	No pending data present to delete	
NIC017	Unable to delete vFlash pending one-time boot configuration	

913 8.4 DCIM_NICService.DeletePendingConfiguration( )

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

920 Return code values for the DeletePendingConfiguration( ) method are specified in Table 65, and
921 parameters are specified in Table 66.

922 **Table 65 – DCIM_NICService.DeletePendingConfiguration( ) Method: Return Code Values**

Value	Description
0	Success
2	Failed

923 **Table 66 – DCIM_NICService.DeletePendingConfiguration( ) Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	Target	String	FQDD of the NIC
OUT	MessageID	String	Error MessageID

Qualifiers	Name	Type	Description/Values
OUT	Message	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

924 **Table 67 – DCIM_NICService.DeletePendingConfiguration( ) Method: Standard Messages**

MessageID (OUT parameter)	Message	MessageArguments[]
NIC001	The command was successful	
NIC002	Resource allocation failure	
NIC003	Missing required parameter	
NIC004	Invalid parameter value for <parameter name>	Parameter
NIC011	Configuration job already created, pending data cannot be deleted	
NIC012	No pending data present to delete	
NIC017	Unable to delete vFlash pending one-time boot configuration	

925 # 9 Use Cases

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

927 # 10 CIM Elements

928 No additional details specified.

929 # 11 Privilege and License Requirement

930 The following table describes the privilege and license requirements for the listed operations. For the
931 detailed explanation of the privileges and licenses, refer to the Dell WSMAN Licenses and Privileges
932 specification.

933 **Table 68 – Privilege and License Requirements**

Class and Method	Operation	User Privilege Required	License Required
DCIM_NICEnumeration	ENUMERATE, GET	Login	LM_REMOTE_CONFIGURATION
DCIM_NICInteger	ENUMERATE, GET	Login	LM_REMOTE_CONFIGURATION
DCIM_NICString	ENUMERATE, GET	Login	LM_REMOTE_CONFIGURATION
DCIM_NICView	ENUMERATE, GET	Login	LM_REMOTE_ASSET_INVENTORY
DCIM_NICStatistics	ENUMERATE, GET	Login	LM_DEVICE_MONITORING
DCIM_NICCapabilities	ENUMERATE, GET	Login	LM_REMOTE_ASSET_INVENTORY
DCIM_NICService	ENUMERATE, GET	Login	None.
DCIM_NICService.SetAttribute()	INVOKE	Login, Configure	LM_REMOTE_CONFIGURATION
DCIM_NICService.SetAttributes()	INVOKE	Login, Configure	LM_REMOTE_CONFIGURATION

Class and Method	Operation	User Privilege Required	License Required
DCIM_NICService. CreateTargetedConfigJob()	INVOKE	Login, Configure	LM_REMOTE_CONFIGURATION
DCIM_NICService. DeletePendingConfiguration()	INVOKE	Login, Configure	LM_REMOTE_CONFIGURATION
DCIM_LCRegisteredProfile	ENUMERATE, GET	Login	None.
DCIM_LCElementConformsToProfile	ENUMERATE, GET	Login	None.

934

935 # ANNEX A
936 # (informative)
937

938

939 # Change Log

Version	Date	Description
1.2.1	03/21/2012	Removed the following properties from the DCIM_NICStatistics class: RxValidBytes, RxErrorPktsRunt, RxErrorsPktsJabber, and RxControlFrames.
1.2.2	08/30/2012	Qlogic supports setting of minimum bandwidth for CNA partitions.
1.2.3	04/16/2013	Updated CNA model list, and also added dependency information for setting virtual address attributes.

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