

1 Dell® Simple NIC Profile

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147 **1 Scope**

148 The Simple NIC Profile extends the management capabilities of referencing profiles by adding the
149 capability to represent the configuration of NIC and CNA devices. The NIC and CNA devices are
150 modeled using view and attribute class instances. In the case of a NIC device, there is a view instance for
151 each NIC port that represents the configuration of the port and related attribute instances that allow
152 configuration of the port. In case of can device, there is a view instance for each partition of a port and
153 attributes related to each partition that allow configuration of the partition.

154 **2 Normative References**

155 The following referenced documents are indispensable for the application of this document. For dated
156 references, only the edition cited applies. For undated references, the latest edition of the referenced
157 document (including any amendments) applies.

158 **2.1 Approved References**

159 DMTF DSP1033, *Profile Registration Profile 1.0.0*

160 DMTF DSP0226, *Web Services for Management (WS-Management) Specification 1.1.0*

161 **2.2 Other References**

162 ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standards*,
163 <http://isotc.iso.org/livelink/livelink.exe?func=ll&objId=4230456&objAction=browse&sort=subtype>

164 Unified Modeling Language (UML) from the Open Management Group (OMG), <http://www.uml.org>

165 **3 Terms and Definitions**

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

167 **3.1**

168 **can**

169 used for statements of possibility and capability, whether material, physical, or causal

170 **3.2**

171 **cannot**

172 used for statements of possibility and capability, whether material, physical, or causal

173 **3.3**

174 **conditional**

175 indicates requirements to be followed strictly in order to conform to the document when the specified
176 conditions are met

177 **3.4**

178 **mandatory**

179 indicates requirements to be followed strictly in order to conform to the document and from which no
180 deviation is permitted

181 **3.5**

182 **may**

183 indicates a course of action permissible within the limits of the document

184 **3.6**
185 **need not**
186 indicates a course of action permissible within the limits of the document

187 **3.7**
188 **optional**
189 indicates a course of action permissible within the limits of the document

190 **3.8**
191 **referencing profile**
192 indicates a profile that owns the definition of this class and can include a reference to this profile in its
193 "Related Profiles" table

194 **3.9**
195 **shall**
196 indicates requirements to be followed strictly in order to conform to the document and from which no
197 deviation is permitted

198 **3.10**
199 **shall not**
200 indicates requirements to be followed strictly in order to conform to the document and from which no
201 deviation is permitted

202 **3.11**
203 **should**
204 indicates that among several possibilities, one is recommended as particularly suitable, without
205 mentioning or excluding others, or that a certain course of action is preferred but not necessarily required

206 **3.12**
207 **should not**
208 indicates that a certain possibility or course of action is deprecated but not prohibited

209 **3.13**
210 ENUMERATE
211 Refers to WS-MAN ENUMERATE operation as described in Section 8.2 of DSP0226_V1.1 and Section
212 9.1 of DSP0227_V1.0

213 **3.14**
214 GET
215 Refers to WS-MAN GET operation as defined in Section 7.3 of DSP00226_V1.1 and Section 7.1 of
216 DSP0227_V1.0

217

218 **4 Symbols and Abbreviated Terms**

219 **4.1**
220 **CIM**
221 Common Information Model

222 **4.2**
223 **iDRAC**
224 integrated Dell Remote Access Controller – management controller for blades and monolithic servers

225 **4.3**
226 **CMC**
227 Chassis Management Controller – management controller for the modular chassis

228 **4.4**
229 **iSCSI**
230 Internet Small Computer System Interface, an Internet Protocol (IP)-based storage networking standard
231 for linking data storage facilities.

232 **4.5**
233 **NIC**
234 Network Interface Card or LAN adapter is a computer hardware component that interfaces to a computer
235 network.

236 **4.6**
237 **FCoE**
238 Fibre Channel over Ethernet is an encapsulation of Fibre Channel frames over Ethernet networks. This
239 allows Fibre Channel to use 10 Gigabit Ethernet networks (or higher speeds) while preserving the Fibre
240 Channel protocol.

241 **4.7**
242 **CNA**
243 Converged Network Adapters, contain both Fibre Channel Host Bus Adapter (HBA) and Ethernet Network
244 Interface Card (NIC) functionality on the same adapter card. CNAs have one or more physical Ethernet
245 ports.
246
247

248 **5 Synopsis**

249 **Profile Name:** Simple NIC

250 **Version:** 1.0.0

251 **Organization:** Dell Inc.

252 **CIM Schema Version:** 2.19.1

253 **Central Class:** DCIM_NICService

254 **Scoping Class:** CIM_ComputerSystem

255 The Simple NIC Profile extends the management capability of the web services management interface by
256 adding the capability to describe NIC and CNA devices in a simplified fashion. In this profile, a NIC device
257 is represented by a DCIM_NICView class instance for each port. Each port view instance is related by the
258 common Fully Qualified Device Descriptor (FQDD) property to instances of the DCIM_NICAttribute class
259 which represent NIC port related configurable property (See Figure 1).

260 CNA ports can be partitioned and each partition can have a functional personality assigned (such as NIC,
261 iSCSI, FCoE). A partition on a CNA is represented by a DCIM_NICView instance which is related by the
262 common FQDD property to instances of the DCIM_NICAttribute representing a configurable property for
263 that partition (See Figure 2).

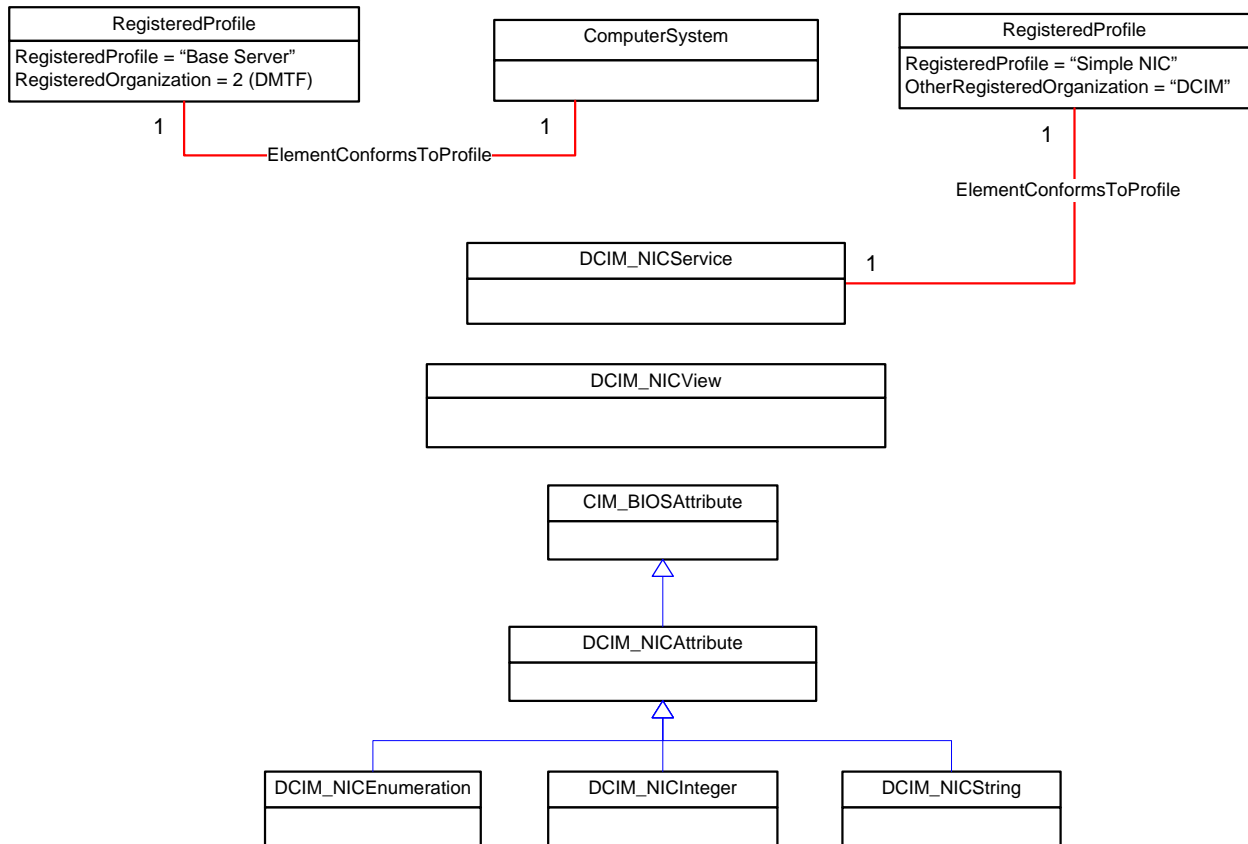
264 DCIM_NICService shall be the Central Class. CIM_ComputerSystem shall be the Scoping Class. The
265 instance of DCIM_NICService shall be the Central Instance. The instance of CIM_ComputerSystem with
266 which the Central Instance is associated through the CIM_HostedService association shall be the
267 Scoping Instance..

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

269

Table 1 – Related Profiles

Profile Name	Organization	Version	Relationship
Profile Registration Profile	DMTF	1.0	Mandatory



270

271

Figure 1 – Simple NIC Profile: Class Diagram

272

273 **6 Description**

274 The Simple NIC Profile describes the representation and configuration of NIC devices with one or more
 275 ports and Converged Network Adaptors (CNA) representation and configuration. The profile also
 276 describes the relationship of the Simple NIC classes to the DMTF/Dell profile version information.

277 Figure 1 represents the class schema for the Simple NIC Profile.

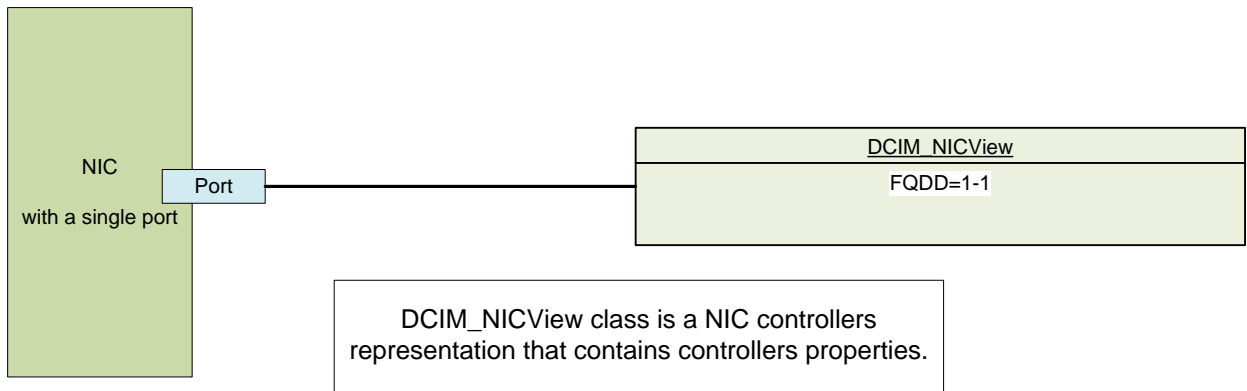
278 For NIC devices, the DCIM_NICView class is a read only representation of important port related
 279 properties of the NIC device. (See Figure 2).

280 For CNA devices, The DCIM_NICView is a read only class representation of important partition related
 281 properties on a port of CNA (See Figure 3).

282 For both NIC and CNA devices, the DCIM_NICAttribute class derives from the DCIM_BIOSAttribute class
 283 and represents configurable attributes for a NIC port or for a partition on a CNA. Further derivations for
 284 string, integer and enumeration datatypes are made from the DCIM_NICAttribute class and each of these
 285 subclasses has additional meta-data specific to that data type (eg. MaxLength for string, PossibleValues
 286 for enumeration, etc.).

287 The SetAttribute() and SetAttributes() methods on the DCIM_NICService class provide the means of
 288 setting configurable attributes. Some attributes may be read only depending on the state of the device
 289 configuration or underlying implementation.

290

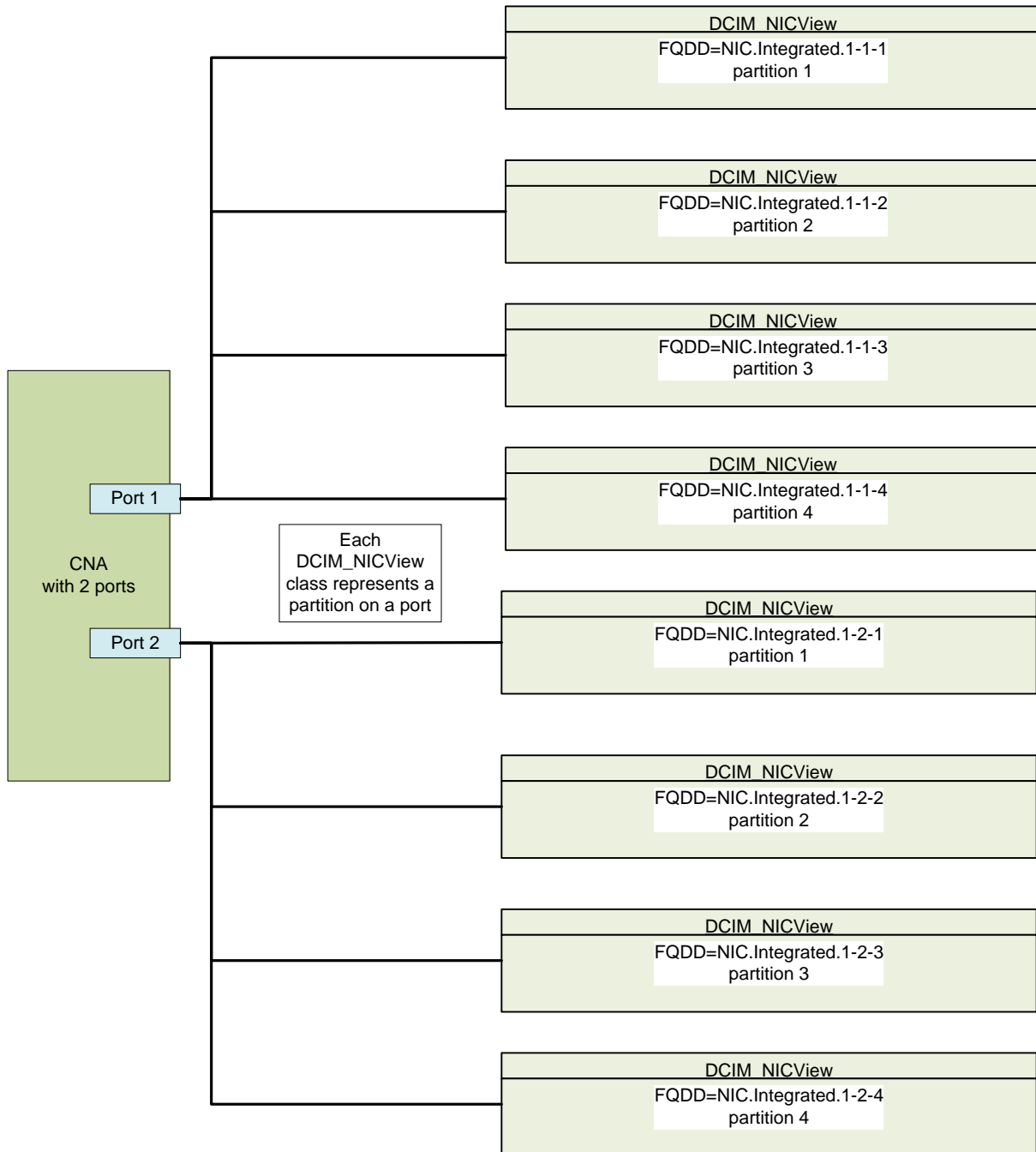


291

292

Figure 2 – Simple NIC Profile: DCIM_NICView class representation for a NIC

293



294

295

Figure 3 – Simple NIC Profile: DCIM_NICView class representation for a CNA

296

297 **6.1 Fully Qualified Device Descriptor (FQDD)**

298 Fully Qualified Device Descriptor (FQDD) is a component identifier that uniquely represents a specific
299 system device or component in a platform, OS, and device vendor independent fashion.. The Dell CIM
300 data model utilizes FQDDs to provide a means of correlating different aspects of representing a
301 component, such as hardware inventory view to configurable attribute to software inventory. FQDDs are
302 used by software, such as BIOS, UEFI applications link Unified Server Configurator (USC), and remote
303 management applications to identify various system components in a persistent correlatable way.

304 For NIC devices, the FQDD is used to uniquely identify a particular port.For CNA devices, FDQQ is used
305 to uniquely identify a partition. See Table 2 and Table 3 for examples.

306

307

308

309

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

310

311

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

312

313 6.2 CNA Representation

314 For CNA devices, there will be an instance of DCIM_NICView created for each partition of a port. Each
 315 partition can have the following personalities:

- 316 • NIC
- 317 • Fibre Channel Over Ethernet (FC)
- 318 • Internet Small Computer System Interface (iSCSI).

319 DCIM_NICView instances are read-only. For traditional NIC devices or CNA devices which have
 320 partitioning turned off there will be one instance of DCIM_NICView created for each port of the device..

321 To represent CNA, 6 new properties have been extended in DCIM_NICView class. The properties are:

322

Table 4 – New properties for CNA

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

323 MaxBandwidth property represents amount of maximum bandwidth each partition can use and
 324 MinBandwidth property represents amount of minimum bandwidth each partition can use. CNA devices
 325 allow a user to provide a range of bandwidth for each partition, which is represented in terms of
 326 percentage of total bandwidth.

327 **6.3 Changing personalities on a partition**

328 User can enable or disable a personality of a partition by changing the corresponding attribute. Table 5
 329 lists attribute names which represent each personality.

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

Personality	AttributeName	Detail
NIC	NicMode	Enable/Disable NIC personality on the partition.
Fibre Channel Over Ethernet (FCoE)	FCoEOffloadMode	Enable/Disable FC personality on the partition.
Internet Small Computer System Interface (iSCSI)	iScsiOffloadMode	Enable/Disable iSCSI personality on the partition.

331 Use SetAttribute()/SetAttributes() method on an attribute to change its value. Refer to Section 9.6 for
 332 more details.

333 **6.4 Enabling or disabling a partition**

334 There are 4 partitions on a port of a CNA device. Partition 1 cannot be disabled on any port. Enabling any
 335 personality on a partition will enable the partition, and disabling all personalities on a partition will disable
 336 the partition (see section 6.3 for partition personality enabling/disabling). To enable or disable all
 337 partitions (except for partition 1) on all ports simultaneously, use NicPartitioning attribute. After disabling a
 338 partition and host system restart, the corresponding partition device (NIC, FCoE or iSCSI) will not be
 339 detected by the host system. Refer to Section 9.7 for more details.

340 **6.5 Changing bandwidth on a partition**

341 User can change the range of bandwidth of a partition by changing MaxBandwidth and MinBandwidth
 342 Attribute. MinBandwidth is described as "Relative" bandwidth in HII forms. Ensure that sum of all
 343 MinBandwidth should not be greater than 100%. Also ensure that MinBandwidth should be less than
 344 MaxBandwidth. Refer to Section 9.8 for more details.

345 **6.6 Virtual Address attributes**

346 Virtual address attributes include the following attributes:

- 347 • VirtMacAddr
- 348 • VirtIscsiMacAddr
- 349 • VirtFIPMacAddr
- 350 • VirtWWN
- 351 • VirtWWPN

352 To set these attributes, refer to Section 9.9 for more details. Virtual address attributes behave differently
 353 from rest of the attributes in the following way:

354 **6.6.1 Read Write behavior**

355 Virtual address attributes behave as Read-Only attributes if accessed through HII browser. However, they
 356 behave as Read-Write attributes through Remote Services interface that is used by WSMAN clients. In
 357 other words, the attributes cannot be set through HII browser but can be set through Remote Services
 358 interface.

359 **6.6.2 Reset behavior**

360 Setting a particular IO attribute to zeros causes that particular address to be erased and reset to the
 361 default permanent address. The attributes can be set to default permanent values to achieve equivalency
 362 for resetting to factory default and removing an virtual address attribute from a system.

363 Upon AC Power loss to the system, all virtual address attributes are erased and reset to default
 364 addresses when AC Power is restored to the system. AC Power loss includes power loss to both MAIN
 365 and AUX power bus.

366 **6.7 Behavior Differences between Broadcom and QLogic CNAs**

367 There are some key differences between CNA of manufacturer Broadcom and QLogic. Here are the
 368 following supported CNAs for Broadcom and QLogic:

369 **Broadcom:**

370 M710HD Dual Port 10Gig 57712 NDC,

371 **QLogic:**

372 Qlogic QMD8252-K Dual Port 10GbE NDC

373 Qlogic QME8242 10GbE Embedded Mezz Card

374

375 Table 6 lists the behavioral differences.

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

Difference	Broadcom	QLogic															
Offload personalities	Only 2 Offload personalities (FCoEOffloadMode, iScsiOffloadMode) are allowed per port.	Only Partition 3 allows iScsiOffloadMode personality and only Partition 4 allows FCoEOffloadMode personality.															
Port level attributes	If NicPartitioning attribute is disabled, then enumeration and get operations will only show port level attributes.	Not applicable as NicPartitioning cannot be disabled.															
MinBandwidth summation	<p>Note that 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 will also need to be changed on other partition(s) to ensure the MinBandwidth for all partitions on the port adds to a 100.</p> <table border="1"> <thead> <tr> <th>Port Partition</th> <th>Current Minbandwidth</th> <th>New Minbandwidth</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>30</td> <td>50</td> </tr> <tr> <td>2</td> <td>30</td> <td>20</td> </tr> <tr> <td>3</td> <td>20</td> <td>20</td> </tr> <tr> <td>4</td> <td>20</td> <td>10</td> </tr> </tbody> </table> <p>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 not adding to 0 or 100 is rectified. USC Advanced Configuration will not notify about this error condition. Note that MinBandwidth summation can be done independently through USC Advanced Configuration or through Remote Services interface that is used by WSMAN clients.</p>	Port Partition	Current Minbandwidth	New Minbandwidth	1	30	50	2	30	20	3	20	20	4	20	10	Not Applicable.
Port Partition	Current Minbandwidth	New Minbandwidth															
1	30	50															
2	30	20															
3	20	20															
4	20	10															

Difference	Broadcom	QLogic											
NicPartitioning and partition specific attributes	<p>After NicPartitioning attribute is disabled, partition specific attributes (See table below) will not exist anymore. Hence, do not disable NicPartitioning attribute and set partition specific attributes together, and then invoke CreateTargetedConfigJob() method.</p> <table border="1" data-bbox="386 319 776 743"> <thead> <tr> <th data-bbox="386 319 776 359">Partition specific attributes</th> </tr> </thead> <tbody> <tr> <td data-bbox="386 359 776 399">MinBandwidth</td> </tr> <tr> <td data-bbox="386 399 776 438">MaxBandwidth</td> </tr> <tr> <td data-bbox="386 438 776 478">NicMode</td> </tr> <tr> <td data-bbox="386 478 776 518">iScsiOffloadMode</td> </tr> <tr> <td data-bbox="386 518 776 558">FCoEOffloadMode</td> </tr> <tr> <td data-bbox="386 558 776 598">VirtMacAddr</td> </tr> <tr> <td data-bbox="386 598 776 638">VirtIscsiMacAddr</td> </tr> <tr> <td data-bbox="386 638 776 678">VirtFIPMacAddr</td> </tr> <tr> <td data-bbox="386 678 776 718">VirtWWN</td> </tr> <tr> <td data-bbox="386 718 776 743">VirtWWPN</td> </tr> </tbody> </table>	Partition specific attributes	MinBandwidth	MaxBandwidth	NicMode	iScsiOffloadMode	FCoEOffloadMode	VirtMacAddr	VirtIscsiMacAddr	VirtFIPMacAddr	VirtWWN	VirtWWPN	Not applicable as NicPartitioning cannot be disabled in QLogic.
Partition specific attributes													
MinBandwidth													
MaxBandwidth													
NicMode													
iScsiOffloadMode													
FCoEOffloadMode													
VirtMacAddr													
VirtIscsiMacAddr													
VirtFIPMacAddr													
VirtWWN													
VirtWWPN													
NicMode	NicMode is used to enable/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.											

377

378

379 **7 Implementation Requirements**

380 Requirements and guidelines for propagating and formulating various properties of the classes in the
 381 Simple NIC Profile are discussed in this section. Methods are listed in section 8.

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

385 **Table 7 – CIM Elements: Simple NIC Profile**

Element Name	Requirement	Description
Classes		
DCIM_HostedService	Optional	The class maybe implemented in the Implementation Namespace.
DCIM_NICService	Mandatory	The class maybe implemented in the Implementation Namespace. See sections 7.5
DCIM_HostedService	Mandatory	The class shall be implemented in the Implementation Namespace.
DCIM_NICView	Mandatory	The class shall be implemented in the Implementation Namespace. See section 7.1
DCIM_NICEnumeration	Mandatory	The class shall be implemented in the Implementation Namespace. See section 7.2
DCIM_NICInteger	Mandatory	The class shall be implemented in the Implementation Namespace. See section 7.4
DCIM_NICString	Mandatory	The class shall be implemented in the Implementation Namespace. See section 7.3
DCIM_LCElementConformsToProfile	Mandatory	The class shall be implemented in the Implementation Namespace.
DCIM_LCElementConformsToProfile	Mandatory	The class shall be implemented in the Interop Namespace.
CIM_RegisteredProfile	Mandatory	The class shall be implemented in the Interop Namespace. See section 7.6
Indications		
None defined in this profile		

386

387 **7.1 NIC View**

388 This section describes the implementation for the DCIM_NICView class.

389 This class shall be instantiated in the Implementation Namespace.

390 **7.1.1 WBEM URIs**

391 The DCIM_NICView class WBEM URI shall be “http://schemas.dell.com/wbem/wscim/1/cim-
 392 schema/2/DCIM_NICView?__cimnamespace=<Implementation Namespace>”

393 The key property shall be the InstanceID.

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

397 **7.1.2 Operations**

398 The following table details the implemented operations on DCIM_NICView. Please note during
 399 enumeration operation,

400 **Table 8 – DCIM_NICView - Operations**

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

401

402 **7.1.3 Properties**

403 The following table details the implemented properties for DCIM_NICView instance representing a NIC
 404 port or CNA partition in a system. The "Requirements" column shall denote the implementation
 405 requirement for the corresponding property. The column "Property Name" denotes the DCIM_NICView
 406 class property name which shall have the data type denoted in column "Type" and shall be implemented
 407 according to the requirements in the corresponding column "Requirement and Description".

408

409 **Table 9 – DCIM_NICView - Properties**

Property Name	Requirement	Type	Requirement and Description
InstanceID	Mandatory	String	The property value shall be the FQDD property value.
NicMode	Mandatory	String	Represents if the partition has NIC personality enabled.
FCoEOffloadMode	Mandatory	String	Represents if the partition has FC personality enabled.
iScsiOffloadMode	Mandatory	String	Represents if the partition has iSCSI personality enabled.
MaxBandwidth	Mandatory	uint16	Represents maximum bandwidth of current partition of this NIC or Converged Network Adapter. It will be represented in terms of percentage.
MinBandwidth	Mandatory	uint16	Represents minimum bandwidth of current partition of this NIC or Converged Network Adapter. It will be represented in terms of percentage.
WWPN	Mandatory	String	Represents Worldwide Port Name of this port.
FQDD	Mandatory	String	A string containing the Fully Qualified Device Description a user-friendly name for the object.
BusNumber	Mandatory	uint8	The bus number where this PCI device resides
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.
FunctionNumber	Mandatory	uint8	The function number for this PCI device

PCIDeviceID	Mandatory	string	The property contains a value assigned by the device manufacturer used to identify the type of device.
PCISubDeviceID	Mandatory	string	The property contains a value assigned by the vendor manufacturer used to identify the type of device.
PCISubVendorID	Mandatory	string	Subsystem vendor ID.
PCIVendorID	Mandatory	string	The property contains a value assigned by the PCI SIG used to identify the manufacturer of the device.
PermanentiSCSIMACAddress	Mandatory	string	PermanentiSCSIMACAddress defines the network address that is hardcoded into a port and dedicated to iSCSI usage.
PermanentMACAddress	Mandatory	string	PermanentAddress defines the network address that is hardcoded into a port.
ProductName	Mandatory	string	A string containing the product name
SlotLength	Mandatory	string	Slot length of the PCI.
SlotType	Mandatory	string	Slot type of the PCI.
LastSystemInventoryTime	Mandatory	string	This property provides the last time "\"System Inventory Collection On Reboot(CSIOR)\\"" was performed. The value is represented as yyyyymmddHHMMSS.
LastUpdateTime	Mandatory	string	This property provides the last time the data was updated. The value is represented as yyyyymmddHHMMSS

410

411 7.2 DCIM_NICEenumeration

412 This section describes the implementation for the DCIM_NICEenumeration class.

413 Each DCIM_NICEenumeration instance is logically associated to a DCIM_NICView instance, where the
414 DCIM_NICEenumeration.FQDD property is equal to the FQDD property on the DCIM_NICView instance.

415 This class shall be instantiated in the Implementation Namespace. For common errors, refer to ANNEX C.

416 7.2.1 WBEM URIs

417 The class WBEM URI shall be "http://schemas.dell.com/wbem/wscim/1/cim-
418 schema/2/DCIM_NICEenumeration?__cimnamespace=<Implementation Namespace>"

419 The key property shall be the InstanceID.

420 The instance WBEM URI for DCIM_NICEenumeration instance shall be:

421 "http://schemas.dell.com/wbem/wscim/1/cim-
422 schema/2/DCIM_NICEenumeration?__cimnamespace=<Implementation Namespace>+InstanceID=
423 <FQDD>:<AttributeName>"

424 7.2.2 Operations

425 The following table details the implemented operations on DCIM_NICEenumeration.

426 **Table 10 – DCIM_NICEenumeration - Operations**

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

427

428 **7.2.3 Properties**

429 The following table details the implemented properties for DCIM_NICEenumeration instance representing
 430 a NIC port related enumeration attribute and CNA partition port related enumeration attribute. The
 431 “Requirements” column shall denote the implementation requirement for the corresponding property. If
 432 the column “Property Name” matches the property name, the property either shall have the value denoted
 433 in the corresponding column “Additional Requirement”, or shall be implemented according to the
 434 requirements in the corresponding column “Additional Requirement”.

435 **Table 11 – Class: DCIM_NICEenumeration**

Properties	Notes	Additional Requirements
InstanceID	Mandatory	The property value shall be formed as follows: “<FQDD property value>:<AttributeName property value>”.
AttributeName	Mandatory	The property value shall be from the “AttributeName” column in Table 12.
CurrentValue	Mandatory	The property value shall be one of the values in the “PossibleValues” column at the corresponding row in Table 12.
PendingValue	Mandatory	The property value shall be one of the values in the “PossibleValues” column at the corresponding row in Table 12.
IsReadOnly	Mandatory	The property value shall be FALSE.
FQDD	Mandatory	FQDD of the NIC that the attribute belongs to.
PossibleValues	Mandatory	The property value shall be equal to the array of the values in “PossibleValues” column at the corresponding row in Table 12.

436
 437 The following table describes the requirements for the AttributeName, and PossibleValues properties.
 438 The PossibleValues is an array property represented in the table as comma delimited list.

439 **Table 12 – DCIM_NICEenumeration Attributes**

AttributeName	Description	IsReadOnly	PossibleValues
NicMode	Enable/Disable NIC personality on the partition.	FALSE	“Disabled”, “Enabled”
FCoEOffloadMode	Enable/Disable FC personality on the partition.	FALSE	“Disabled”, “Enabled”
iScsiOffloadMode	Enable/Disable iSCSI personality on the partition.	FALSE	“Disabled”, “Enabled”
LinkStatus	Link Status	TRUE	“Connected”, “Disconnected”
FlowControlSetting	Flow Control Setting	FALSE	Auto (default) TX Flow Control RX Flow Control TX / RX Flow Control
NicPartitioning	NIC Partitioning	FALSE	“Enabled”, “Disabled”
BootToTarget	Boot to iSCSI target after connect on	FALSE	“Enabled”, “Disabled”
SRIOVConfigure	SRIOV Configure	FALSE	“Enabled”, “Disabled”

AttributeName	Description	IsReadOnly	PossibleValues
WindowsHBABootMode	Windows HBA Boot Mode	FALSE	"Enabled", "Disabled"
ConnectFirstFCoETarget	Connect	FALSE	"Enabled", "Disabled"
ConnectFirstTgt	Enable/Disable first target establishment for iSCSI.	FALSE	"Disabled", "Enabled"
ConnectSecondTgt	Enable/Disable second target establishment for iSCSI.	FALSE	"Disabled", "Enabled"
LegacyBootProto	Select non-UEFI Boot Protocol: Preboot Execution Environment (PXE)/iSCSI/NONE for Managed Boot Agent. Note: It can be overwritten by BIOS.	FALSE	"PXE", "iSCSI", "FCoE" "NONE"
LnkSpeed	Configure link speed for Managed Boot Agent.	FALSE	"AutoNeg", "10Mbps Half", "10Mbps Full", "100Mbps Half", "100Mbps Full"
WakeOnLan	Configure preboot Wake on LAN (WOL) for Managed Boot Agent..	FALSE	"Disabled", "Enabled"
VlanMode	Configure virtual LAN mode for Managed Boot Agent.	FALSE	"Disabled", "Enabled"
UseIndTgtPortal	Use independent target portal when multipath I/O is enabled.	FALSE	"Disabled", "Enabled"
UseIndTgtName	Use independent target name when multipath I/O is enabled.	FALSE	"Disabled", "Enabled"
WakeOnLanLnkSpeed	WOL Link Speed**	FALSE	"AutoNeg", "10MbpsHalf", "10MbpsFull", "100MbpsHalf", "100MbpsFull"
TcpIpViaDHCP	TCP/IP configuration via DHCP	FALSE	"Enabled", "Disabled"
IpAutoConfig	TCP/IP Configuration via Stateful or Stateless AutoConfiguration	FALSE	"Enabled", "Disabled"
IscsiViaDHCP	iSCSI parameters via DHCP	FALSE	"Enabled", "Disabled"
ChapAuthEnable	CHAP Authentication	FALSE	"Enabled", "Disabled"
TcpTimestmp	TCP Timestamp	FALSE	"Enabled", "Disabled"
ChapMutualAuth	CHAP Mutual Authentication	FALSE	"Enabled", "Disabled", "None"
IpVer	IP Version support. Modifying this parameter will reset all IP-related fields	FALSE	"IPv4", "IPv6"
MTUParams	CNA MTU Setting	FALSE	"Global", "Per DCB Priority", "Per VLAN"

440 7.3 DCIM_NICString

441 This section describes the implementation for the DCIM_NICString class.

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

444 This class shall be instantiated in the Implementation Namespace. For common errors, refer to Section
445 ANNEX C.

446 7.3.1 WBEM URIs

447 The class WBEM URI shall be "http://schemas.dell.com/wbem/wscim/1/cim-
448 schema/2/DCIM_NICString?__cimnamespace=<Implementation Namespace>"

449 The key property shall be the InstanceID.

450 The instance WBEM URI for DCIM_NICString instance shall be:

451 "http://schemas.dell.com/wbem/wscim/1/cim-
452 schema/2/DCIM_NICString?__cimnamespace=<Implementation Namespace>+InstanceID= <FQDD>"

453 7.3.2 Operations

454 The following table details the implemented operations on DCIM_NICString.

455 **Table 13 – DCIM_NICString - Operations**

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

456

457 7.3.3 Properties

458 The following table details the implemented properties for DCIM_NICString instance representing a NIC
459 port related string attribute or CNA partition related string attribute. The "Requirements" column shall
460 denote the implementation requirement for the corresponding property. If the column "Property Name"
461 matches the property name, the property either shall have the value denoted in the corresponding column
462 "Additional Requirement", or shall be implemented according to the requirements in the corresponding
463 column "Additional Requirement".
464

Table 14 – Class: DCIM_NICString

Properties	Notes	Additional Requirements
InstanceID	Mandatory	The property value shall be formed as follows: “<FQDD property value>:<AttributeName property value>”.
AttributeName	Mandatory	The property value shall be from the “AttributeName” column in Table 15.
CurrentValue	Mandatory	The property value shall match the format described in “Value Expression” column at the corresponding in Table 15.
PendingValue	Mandatory	The property value shall match the format described in “Value Expression” column at the corresponding row in Table 15.
IsReadOnly	Mandatory	The property value shall be the value in the “IsReadOnly” column at the corresponding row in Table 15.
FQDD	Mandatory	FQDD of the NIC that the attribute belongs to.
MinLength	Mandatory	The property value shall be the value in the “MinLength” column at the corresponding row in Table 15.
MaxLength	Mandatory	The property value shall be the value in the “MaxLength” column at the corresponding row in Table 15.

466

467 The following table describes possible DCIM_NICString attributes and the requirements for the
 468 AttributeName, MinLength, and MaxLength properties.

469 The AttributeValue shall be read-only if IsReadOnly property value from the corresponding row in the
 470 below table contains “TRUE”.

471 The AttributeValue string shall have equal or lower number of characters than the MaxLength property
 472 value from the corresponding row.

473 The AttributeValue string shall have equal or higher number of characters than the MinLength property
 474 value from the corresponding row.

475 The AttributeValue shall conform to the ValueExpression form from the corresponding row.

476 For special DCIM_NICString attributes (eg: MacAddr) with ValueExpression of MAC Address, if string
 477 entered is not in the format of a MAC Address (eg: 01:20:AB:BB:10:11) using SetAttribute() or
 478 SetAttributes() method (See Section 8.1), then the value of the attribute will not be set upon reboot (See
 479 Section 8.3).

Table 15 – DCIM_NICString Attributes

AttributeName	Description	IsReadOnly	MinLength	MaxLength	Value Expression
DCBXSupport	DCB XSupport	TRUE	0	0	String
FCoEOffloadSupport	FCoE offload support	TRUE	0	0	String
iSCSIOffloadSupport	iSCSI offload support	TRUE	0	0	String
OnChipThermalSensor	On-Chip Thermal Sensor	TRUE	0	0	String
FlexAddressing	Flex Addressing	TRUE	0	0	String
iSCSIBootSupport	iSCSI Boot Support	TRUE	0	0	String
TOESupport	TOE Support	TRUE	0	0	String
FCoEBootSupport	FCoE Boot Support	TRUE	0	0	String
PXEBootSupport	PXE Boot Support	TRUE	0	0	String
NWManagementPassThrough	NW Management Pass Through	TRUE	0	0	String
EnergyEfficientEthernet	Energy efficient Ethernet (EEE)	TRUE	0	0	String
NicPartitioningSupport	Nic Partitioning Support	TRUE	0	0	String
RemotePHY	RemotePHY	TRUE	0	0	String
FeatureLicensingSupport	Feature Licensing Support	TRUE	0	0	String
VirtualLinkControl	Virtual Link Control	TRUE	0	0	String
RXFlowControl	RX Flow Control	TRUE	0	0	String
TXFlowControl	TX Flow Control	TRUE	0	0	String
TXBandwidthControlMaximum	TX Bandwidth Control Maximum	TRUE	0	0	String
TXBandwidthControlMinimum	TX Bandwidth Control Minimum	TRUE	0	0	String
OSBMCManagementPassThrough	OS BMC Management Pass Through	TRUE	0	0	String
VFSRIOVSupport	VF/SR-IOV Support	TRUE	0	0	String
EVBModesSupport	EVB Modes Support	TRUE	0	0	String
EnhancedTransmissionSelection	Enhanced Transmission Selection	TRUE	0	0	String
PriorityFlowControl	Priority Flow Control	TRUE	0	0	String
DCBExchangeProtocol	DCB Exchange Protocol	TRUE	0	0	String
CongestionNotification	Congestion Notification	TRUE	0	0	String
MTUReconfigurationSupport	MTU Reconfiguration Support	TRUE	0	0	String
AddressingMode	Addressing Mode	TRUE	0	0	String
VirtFIPMacAddr	Virtual FIP Mac	FALSE	0	0	MAC Address

AttributeName	Description	IsReadOnly	MinLength	MaxLength	Value Expression
	Address				
DeviceClassCode	Device Class Code	TRUE	0	0	String
DhcpVndorID	Vendor ID for DHCP configuration	FALSE	0	0	
IscsiInitiatorIpAddr	iSCSI initiator IP address.	FALSE	2	39	IP Address
IscsiInitiatorSubnet	iSCSI initiator subnet mask.	FALSE	2	39	IP Address
IscsiInitiatorGateway	iSCSI initiator default gateway IP address.	FALSE	2	39	IP Address
IscsiInitiatorPrimDns	iSCSI initiator primary DNS IP address.	FALSE	2	39	IP Address
IscsiInitiatorSecDns	iSCSI initiator secondary DNS IP address.	FALSE	2	39	IP Address
IscsiInitiatorName	iSCSI initiator name.	FALSE	0	128	String
IscsiInitiatorChapId	iSCSI initiator CHAP ID.	FALSE	0	32	String
FirstTgtIpAddress	iSCSI first target IP address.	FALSE	2	39	IP Address
FirstTgtIscsiName	iSCSI first target name.	FALSE	0	128	String
FirstTgtChapId	iSCSI first target CHAP ID.	FALSE	0	32	String
SecondTgtIpAddress	iSCSI second target IP address.	FALSE	2	39	IP address
SecondTgtIscsiName	iSCSI second target name.	FALSE	0	128	String
SecondTgtChapId	iSCSI second target CHAP ID.	FALSE	0	32	String
SecondTgtChapPwd	CHAP Secret	FALSE	0	16	String
SecondaryDeviceMacAddr	Secondary device MAC address. Note: To set Secondary Mac address (via RE or USC), you must set it to a valid Mac address for a device on the system. Otherwise, the set operation will fail.	FALSE	17	17	IP address
FirstFCoEWWPNTarget	World Wide Port Name FCoe Target	FALSE			String
ChipMdl	Chip Type/Revision	TRUE			
BusDeviceFunction	Bus, Device, Function values	TRUE			
DeviceName	This name should be consistent with the name displayed in the operating	TRUE			

AttributeName	Description	IsReadOnly	MinLength	MaxLength	Value Expression
	system.				
PCIDeviceID	PCI Device ID	TRUE			
MacAddr	MAC Address	TRUE			MAC Address
VirtMacAddr	Virtual MAC Address	FALSE			MAC Address
FIPMacAddr	FIP MAC Address	FALSE			MAC Address
IscsiMacAddr	iSCSI MAC Address	TRUE			MAC Address
VirtIscsiMacAddr	Virtual iSCSI MAC Address	FALSE			MAC Address
IscsiInitiatorSubnetPrefix	Initiator IP Subnet Mask Prefix	FALSE			Max string length 39
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			
WWN	World Wide Name	TRUE			
WWPN	World Wide Part Name	TRUE			
VirtWWN	Virtual World Wide Name	FALSE			
VirtWWPN	Virtual World Wide Part Name	FALSE			
FamilyVersion	Family Version	TRUE			

482

483 7.4 DCIM_NICInteger

484 This section describes the implementation for the DCIM_NICInteger class.

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

487 This class shall be instantiated in the Implementation Namespace. For common errors, refer to Section
488 ANNEX C.

489 7.4.1 WBEM URIs

490 The class WBEM URI shall be “http://schemas.dell.com/wbem/wscim/1/cim-
491 schema/2/DCIM_NICInteger?__cimnamespace=<Implementation Namespace>”

492 The key property shall be the InstanceID.

493 The instance WBEM URI for DCIM_NICInteger instance shall be:
494 “http://schemas.dell.com/wbem/wscim/1/cim-
495 schema/2/DCIM_NICInteger?__cimnamespace=<Implementation Namespace>+InstanceID= <FQDD>”

496 7.4.2 Operations

497 The following table details the implemented operations on DCIM_NICInteger.

498 **Table 16 – DCIM_NICInteger - Operations**

Operation Name	Requirements	Required Input
----------------	--------------	----------------

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

499

500 7.4.3 Properties

501 The following table details the implemented properties for DCIM_NICInteger instance representing a NIC
502 port related integer attribute or CNA partition related integer attribute. The “Requirements” column shall
503 denote the implementation requirement for the corresponding property. If the column “Property Name”
504 matches the property name, the property either shall have the value denoted in the corresponding column
505 “Additional Requirement”, or shall be implemented according to the requirements in the corresponding
506 column “Additional Requirement”.

507 **Table 17 – Class: DCIM_NICInteger**

Properties	Notes	Additional Requirements
InstanceID	Mandatory	The property value shall be formed as follows: “<FQDD property value>:<AttributeName property value>”.
AttributeName	Mandatory	The property value shall be from the “AttributeName” column in Table 18.
CurrentValue	Mandatory	The property value shall match the format described in “Value Expression” column at the corresponding row in Table 18.
PendingValue	Mandatory	The property value shall match the format described in “Value Expression” column at the corresponding row in Table 18.
IsReadOnly	Mandatory	The property value shall be the value in the “IsReadOnly” column at the corresponding row in Table 18.
FQDD	Mandatory	FQDD of the NIC that the attribute belongs to.
LowerBound	Mandatory	The property value shall be the value in the “LowerBound” column at the corresponding row in Table 18.
UpperBound	Mandatory	The property value shall be the value in the “UpperBound” column at the corresponding row in Table 18.

508

509 The following table describes possible DCIM_NICInteger attributes and the requirements for the
510 AttributeName, IsReadOnly, LowerBound, and UpperBound properties.

511 The AttributeValue shall be read-only if IsReadOnly property value from the corresponding row in the
512 below table contains “TRUE”.

513 The AttributeValue shall be equal or lower than the UpperBound property value from the corresponding
514 row.

515 The AttributeValue shall be equal or higher than the LowerBound property value from the corresponding
516 row.

517 **Table 18 – DCIM_NICInteger Attributes**

AttributeName	Description	IsReadOnly	LowerBound	UpperBound
---------------	-------------	------------	------------	------------

AttributeName	Description	IsReadOnly	LowerBound	UpperBound
MaxBandwidth	Represents maximum bandwidth of current partition of this NIC or Converged Network Adapter. It will be represented in terms of percentage.	FALSE	0	100
MinBandwidth	Represents minimum bandwidth of current partition of this NIC or Converged Network Adapter. It will be represented in terms of percentage.	FALSE	0	100
BlinkLeds	Blink LEDs for a duration up to 15 seconds.	FALSE	0	15
NParNumberPartitions	Number of Partitions Supported per port.	TRUE	1	
NumberPCIEFunctionsSupported	Number of PCI-e functions supported per port	TRUE	1	
NumberPCIEFunctionsEnabled	Number of Functions currently enabled per port	TRUE	1	
MaxFrameSize	Max Frame Size	TRUE	0	
MaxIOsPerSession	Max Number of IOs per session supported	TRUE		
MaxNumberLogins	Max Number LOGINs per port	TRUE		
MaxNumberExchanges	Max Number of exchanges	TRUE		
MaxNPIVPerPort	Max NPIV WWN per port	TRUE		
MaxNumberOfFCTargets	Max Number of FC Targets Supported	TRUE		
MaxNumberOutStandingCommands	Max Number of outstanding commands supported across all sessions	TRUE		
PortNumber	Port Number	TRUE	1	
InstanceNumber	Instance Number	TRUE	1	
VLANId	Virtual LAN ID	FALSE	0	4095
LunBusyRetryCnt	Number of retries in 2 sec intervals when LUN is busy (0..60)	FALSE	0	60
LinkUpDelayTime	Link Up Delay Time	TRUE		
FirstTgtTcpPort	First Target TCP Port number (1..65535)	FALSE	1	65535
FirstTgtBootLun	First Target Boot LUN number (0 .. 255)	FALSE	0	255
SecondTgtTcpPort	Second Target TCP Port number (1..65535)	FALSE	1	65535
SecondTgtBootLun	Second Target Boot LUN number (0 .. 255)	FALSE	0	255
FirstFCoEBootTargetLUN	FCoE Boot Lun Target	FALSE		
FirstFCoEFCFVLANID	FCoE FCF VLAN ID	FALSE		

520 7.5 DCIM_NICService

521 This section describes the implementation for the DCIM_NICService class.

522 This class shall be instantiated in the Implementation Namespace.

523 The DCIM_LCElementConformsToProfile association(s) shall reference the DCIM_NICService
524 instance(s).

525 7.5.1 WBEM URIs

526 The class WBEM URI shall be “http://schemas.dell.com/wbem/wscim/1/cim-
527 schema/2/DCIM_NICService?__cimnamespace=<Implementation Namespace>”

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

530 The instance WBEM URI for DCIM_NICService instance shall be:
531 “http://schemas.dell.com/wbem/wscim/1/cim-
532 schema/2/DCIM_NICService?__cimnamespace=<Implementation
533 Namespace>+SystemCreationClassName=DCIM_ComputerSystem+CreationClassName=DCIM_NICService+
534 SystemName=DCIM:ComputerSystem+Name= DCIM:NICService”

535 7.5.2 Operations

536 The following table details the implemented operations on DCIM_NICService.

537 **Table 19 – DCIM_NICService – Operations**

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

538

539 7.5.3 Properties

540 The following table details the implemented properties for DCIM_NICService instance representing a
541 system in a system. The “Requirements” column shall denote the implementation requirement for the
542 corresponding property. If the column “Property Name” matches the property name, the property either
543 shall have the value denoted in the corresponding column “Additional Requirement”, or shall be
544 implemented according to the requirements in the corresponding column “Additional Requirement”.

545 **Table 20 – 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”.
SystemName	Mandatory	The property value shall be “DCIM:ComputerSystem”.
Name	Mandatory	The property value shall be “DCIM:NICService”

546 7.6 Simple NIC Profile Registration

547 This section describes the implementation for the DCIM_LCRegisteredProfile class.

548 This class shall be instantiated in the Interop Namespace.

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

551 **7.6.1 WBEM URIs**

552 The class WBEM URI shall be "http://schemas.dmtf.org/wbem/wscim/1/cim-
553 schema/2/CIM_RegisteredProfile?__cimnamespace=<Interop Namespace>"

554 The key property shall be the InstanceID property.

555 The instance WBEM URI shall be: "http://schemas.dell.com/wbem/wscim/1/cim-
556 schema/2/DCIM_LCRegisteredProfile?__cimnamespace=<InteropNamespace>+InstanceID=
557 DCIM:SimpleNIC:1.0.0"

558 **7.6.2 Operations**

559 The following table details the implemented operations on DCIM_SystemView.

560 **Table 21 – DCIM_LCRegisteredProfile - Operations**

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

561

562 **7.6.3 Properties**

563 The following table details the implemented properties for DCIM_LCRegisteredProfile instance
564 representing Simple NIC Profile implementation. The "Requirements" column shall denote the
565 implementation requirement for the corresponding property. If the column "Name" matches the property
566 name, the property either shall have the value denoted in the corresponding column "Additional
567 Requirements", or shall be implemented according to the requirements in the corresponding column
568 "Additional Requirements".

569 **Table 22 – Class: CIM_RegisteredProfile**

Properties	Requirement	Description
RegisteredName	Mandatory	This property shall have a value of "Simple NIC".
RegisteredVersion	Mandatory	This property shall have a value of "1.1.0".
RegisteredOrganization	Mandatory	This property shall have a value of 1 (Other).
OtherRegisteredOrganization	Mandatory	This property shall match "DCIM"

570

571

572 8 Methods

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

575 8.1 CIM_SimpleNICService.SetAttribute()

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

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

583 Return code values for the SetAttribute() method are specified in Table 23 and parameters are specified
584 in Table 24. Invoking the SetAttribute() method multiple times can result in the earlier requests being
585 overwritten or lost.

586 **Table 23 – SetAttribute() Method: Return Code Values**

Value	Description
0	Completed with no error
1	Not supported
2	Failed

587

588 **Table 24 – SetAttribute() Method: Parameters**

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

589

590 8.2 DCIM_NICService.SetAttributes()

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

592 Invocation of the SetAttributes() method shall change the values of the DCIM_NICAttribute.CurrentValue
 593 or PendingValue properties that correspond to the names specified by the AttributeName parameter and
 594 the values specified by the AttributeValue parameter if the respective DCIM_NICAttribute.IsReadOnly
 595 property is FALSE. Invocation of this method when the respective DCIM_NICAttribute.IsReadOnly
 596 property is TRUE shall result in no change to the corresponding value of the
 597 DCIM_NICAttribute.CurrentValue property.

598 Return code values for the SetAttributes() method are specified in Table 25, and parameters are
 599 specified in Table 26. Invoking the SetAttributes() method multiple times can result in the earlier requests
 600 being overwritten or lost.

601 **Table 25 – SetAttributes() Method: Return Code Values**

Value	Description
0	Completed with no error
1	Not supported
2	Failed

602

603 **Table 26 – SetAttributes() Method: Parameters**

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

604 **8.3 DCIM_NICService.CreateTargetedConfigJob()**

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

608 Return code values for the CreateTargetedConfigJob() method are specified in Table 27, and parameters
 609 are specified in Table 28.

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

612

613

614

Table 27 – CreateTargetedConfigJob() Method: Return Code Values

Value	Description
0	Success
1	Not supported
2	Failed
4096	Job Created

615

Table 28 – 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 pending value application job in format: yyyyymmddhhmmss. The string "TIME_NOW" means immediate. If this parameter is not NULL, then UntilTime parameter shall also be specified.
IN	UntilTime	String	End time for the job execution in format: yyyyymmddhhmmss. : If this parameter is not NULL, then ScheduledStartTime parameter shall also be specified.
OUT	Job	CIM_ConcreteJob REF	Reference to the newly created pending value application job.
OUT	MessageID	String	Error MessageID
OUT	Message	String	Error Message
OUT	MessageArguments[]	String	Error MessageArguments

616

617 8.4 DCIM_NICService.DeletePendingConfiguration()

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

624

625 Return code values for the DeletePendingConfiguration() method are specified in Table 29, and
626 parameters are specified in Table 30.

627

Table 29 – DeletePendingConfiguration() Method: Return Code Values

Value	Description
0	Success
1	Not supported
2	Failed

628

629

Table 30 – DeletePendingConfiguration() Method: Parameters

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

630

631 **9 Use Cases**

632 This section contains use cases for the Dell NIC Profile. For the general instance and class URI
633 structure, see 16 under WBEM URIs sub-sections.

634 **9.1 Discovery of NIC profile support**

635 Use one of the two procedures below to confirm the existence of NIC profile support.

636 A) GET the *DCIM_LCRegisteredProfile* instance using an *InstanceID* of
637 *DCIM:SimpleNIC:1.1.0*. See section 0 for a definition of GET .

638 Instance URI:

639 [http://schemas.dmtf.org/wbem/wscim/1/cim-
schema/2/DCIM_LCRegisteredProfile?_cimnamespace=root/interop+InstanceID=DCIM:Simple
NIC:1.1.0](http://schemas.dmtf.org/wbem/wscim/1/cim-
640 schema/2/DCIM_LCRegisteredProfile?_cimnamespace=root/interop+InstanceID=DCIM:Simple
641 NIC:1.1.0)

642 Results for the *InstanceID* of *DCIM:SimpleNIC:1.1.0* shown below. If no instance is returned, the
643 profile is not supported. . Note that InstanceID value is just an example and may change.

644 *DCIM_LCRegisteredProfile*
645 *AdvertiseTypeDescriptions = WS-Identify, Interop Namespace*
646 *AdvertiseTypes = 1, 1*
647 *InstanceID = DCIM:SimpleNIC:1.1.0*
648 *OtherRegisteredOrganization = DCIM*
649 *RegisteredName = Simple NIC*
650 *RegisteredOrganization = 1*
651 *RegisteredVersion = 1.1.0*

652
653 B) ENUMERATE the *CIM_RegisteredProfile* class. See section 0 for a definition of
654 ENUMERATE .

655 Class URI:

656 [http://schemas.dmtf.org/wbem/wscim/1/cim-
schema/2/CIM_RegisteredProfile?_cimnamespace=root/interop](http://schemas.dmtf.org/wbem/wscim/1/cim-
657 schema/2/CIM_RegisteredProfile?_cimnamespace=root/interop)

658 Then query the result for the following properties:

659 *RegisteredName = Simple NIC, OtherRegisteredOrganization = DCIM, RegisteredVersion = 1.1.0*

660 9.2 Inventory of NICs in system

661 ENUMERATE the *DCIM_NICView* class to view all available instances of the class

662 Class URI:

663 [http://schemas.dell.com/wbem/wscim/1/cim-
schema/2/DCIM_NICView?_cimnamespace=root/dcim](http://schemas.dell.com/wbem/wscim/1/cim-
664 schema/2/DCIM_NICView?_cimnamespace=root/dcim)

665 The instance information of all available NICs will be returned

666 9.3 Get the first NIC's information

667 The URI for getting particular instance information is deterministic (i.e the *InstanceID* will be
668 unique for each instance)

669 For the first NIC in the system, the instance URI will be:

670 [http://schemas.dell.com/wbem/wscim/1/cim-
schema/2/DCIM_NICView?_cimnamespace=root/dcim+InstanceID=NIC.Embedded.1-1](http://schemas.dell.com/wbem/wscim/1/cim-
671 schema/2/DCIM_NICView?_cimnamespace=root/dcim+InstanceID=NIC.Embedded.1-1)

672 The instance of *DCIM_NICView* that contains the information on the first NIC will be returned

673 9.4 List all NIC attributes

674 ENUMERATE the *DCIM_NICAttribute* class to view all available attributes and possible values of
675 all NICs

676 Class URI:

677 [http://schemas.dell.com/wbem/wscim/1/cim-
schema/2/DCIM_NICAttribute?_cimnamespace=root/dcim](http://schemas.dell.com/wbem/wscim/1/cim-
678 schema/2/DCIM_NICAttribute?_cimnamespace=root/dcim)

679 9.5 Setting attributes

680 A) ENUMERATE the *DCIM_NICAttribute* class as shown in section 9.4 and identify the
681 applicable instance.

682 B) Confirm the *IsReadOnly* field is set to false.

683 C) To invoke the *SetAttribute()* or *SetAttributes()* method, extract the instance information
684 from A) and construct the input parameters per Table 24 or Table 26.

685 D) INVOKE the *SetAttribute()* or *SetAttributes()* method

686 Class URI:

687 [http://schemas.dell.com/wbem/wscim/1/cim-
schema/2/DCIM_NICService?_cimnamespace=root/dcim](http://schemas.dell.com/wbem/wscim/1/cim-
688 schema/2/DCIM_NICService?_cimnamespace=root/dcim)

689 E) Examine output parameters per Table 23 or Table 26.

690 F) Apply the pending values, per section 9.10, using the FQDD obtained from A).

691 G) Repeat A) to confirm successful execution of the method.

692 9.6 Setting personality on CNA

693 A) NIC personality is enabled or disabled using *NicMode* attribute. iSCSI personality is
694 enabled or disabled using *iScsiOffloadMode* attribute. FCoE personality is enabled or
695 disabled using *FCoEOffloadMode* attribute.

696 B) ENUMERATE the *DCIM_NICEnumeration* class as shown in section 7.2 and find
697 *NicMode*, *iScsiOffloadMode* and *FCoEOffloadMode*.

- 698 C) Confirm the *IsReadOnly* field is set to false.
- 699 D) To invoke the *SetAttribute()* or *SetAttributes()* method, extract the instance information
700 from B) and construct the input parameters per Table 24 or Table 26.
- 701 E) INVOKE the *SetAttribute()* or *SetAttributes()* method
- 702 Class URI:
- 703 [http://schemas.dell.com/wbem/wscim/1/cim-
schema/2/DCIM_NICService?__cimnamespace=root/dcim](http://schemas.dell.com/wbem/wscim/1/cim-
704 schema/2/DCIM_NICService?__cimnamespace=root/dcim)
- 705 F) Examine output parameters per Table 23 or Table 26.
- 706 G) Apply the pending values, per section 9.10, using the FQDD obtained from B).
- 707 H) Repeat B) to confirm successful execution of the method.

708 9.7 Setting partition on CNA

- 709 A) To enable or disable a partition, use *NicPartitioning* attribute. Note that partition 1 cannot
710 be disabled.
- 711 B) ENUMERATE the *DCIM_NICEnumeration* class as shown in section 7.2 and find
712 *NicPartitioning* attribute.
- 713 C) Confirm the *IsReadOnly* field is set to false.
- 714 D) To invoke the *SetAttribute()* or *SetAttributes()* method, extract the instance information
715 from B) and construct the input parameters per Table 24 or Table 26.
- 716 E) INVOKE the *SetAttribute()* or *SetAttributes()* method
- 717 Class URI:
- 718 [http://schemas.dell.com/wbem/wscim/1/cim-
schema/2/DCIM_NICService?__cimnamespace=root/dcim](http://schemas.dell.com/wbem/wscim/1/cim-
719 schema/2/DCIM_NICService?__cimnamespace=root/dcim)
- 720 F) Examine output parameters per Table 23 or Table 26.
- 721 G) Apply the pending values, per section 9.10, using the FQDD obtained from B).
- 722 H) Repeat B) to confirm successful execution of the method.

723 9.8 Setting bandwidth on CNA

- 724 A) Bandwidth of a partition on a port on CNA can be set using *MaxBandwidth* and
725 *MinBandwidth* attributes.
- 726 B) ENUMERATE the *DCIM_NICInteger* class as shown in section 7.4 and find
727 *MaxBandwidth* and *MinBandwidth*.
- 728 C) Confirm the *IsReadOnly* field is set to false.
- 729 D) To invoke the *SetAttribute()* or *SetAttributes()* method, extract the instance information
730 from B) and construct the input parameters per Table 23 or Table 26.
- 731 E) INVOKE the *SetAttribute()* or *SetAttributes()* method on each attributes
- 732 Class URI:
- 733 [http://schemas.dell.com/wbem/wscim/1/cim-
schema/2/DCIM_NICService?__cimnamespace=root/dcim](http://schemas.dell.com/wbem/wscim/1/cim-
734 schema/2/DCIM_NICService?__cimnamespace=root/dcim)
- 735 F) Examine output parameters per Table 23 or Table 26.

736 G) Apply the pending values, per section 9.10, using the FQDD obtained from B).

737 H) Repeat B) to confirm successful execution of the method.

738 9.9 Setting virtual address attributes on CNA

739 A) Following are the virtual address attributes on a CNA:

- 740 • VirtMacAddr
- 741 • VirtLscsiMacAddr
- 742 • VirtFIPMacAddr
- 743 • VirtWWN
- 744 • VirtWWPN

745 **Note:**

- 746 • Before setting virtual address attributes, the management application must be given
747 control by setting VirtualAddressManagement attribute to “console”. Optionally, It is
748 recommended to name the Virtual Address Management Application by setting
749 VirtualAddressManagementApplication attribute to a name representing management application
750 (Refer to LC Management profile for more info.)
- 751 • If Flex Address virtual addresses are in use, they will be unchanged until server is restarted after
752 setting VirtualAddressManagement attribute. CMC and iDRAC GUI will be updated only after
753 server is restarted. The virtual address attributes can then be changed using Remote Services.

754 B) ENUMERATE the *DCIM_NICString* class as shown in section 7.3 and find virtual
755 address attributes.

756 C) Confirm the *IsReadOnly* field is set to false.

757 D) To invoke the SetAttribute() or SetAttributes() method, extract the instance information
758 from B) and construct the input parameters per Table 23 or Table 26.

759 E) INVOKE the SetAttribute() or SetAttributes() method on each attributes

760 Class URI:

761 [http://schemas.dell.com/wbem/wscim/1/cim-
schema/2/DCIM_NICService?__cimnamespace=root/dcim](http://schemas.dell.com/wbem/wscim/1/cim-
762 schema/2/DCIM_NICService?__cimnamespace=root/dcim)

763 F) Examine output parameters per Table 23 or Table 26.

764 G) Apply the pending values, per section 9.10, using the FQDD obtained from B).

765 I) Repeat B) to confirm successful execution of the method.

766

767 9.10 Apply SetAttribute(s) pending values for a specific NIC

768 A) To invoke the CreateTargetedConfigJob() method, construct input parameters per Table
769 28 – CreateTargetedConfigJob() Method: Parameters and use the specific NIC’s FQDD.

770 B) INVOKE CreateTargetedConfigJob() method

771 Class URI:

772 [http://schemas.dell.com/wbem/wscim/1/cim-
schema/2/DCIM_NICService?__cimnamespace=root/dcim](http://schemas.dell.com/wbem/wscim/1/cim-
773 schema/2/DCIM_NICService?__cimnamespace=root/dcim)

774 Note that the following steps need to be followed to create the jobs when more than one partition
775 on a port has a configuration change.

776 When calling CreateTargetedConfigJob() the RebootJobType and ScheduledStartTime should not
777 be specified. The Job should be scheduled using the Job control profile methods: Create a reboot
778 job with CreateRebootJob() then schedule all the partition jobs and the reboot job together using
779 SetupJobQueue(). Pending changes on partitions are lost if they are not scheduled to run together.

780

781 C) To invoke the DeletePendingConfiguration() method, construct input parameters per
782 Table 30 – DeletePendingConfiguration() Method: Parameters and use the specific NIC's
783 FQDD

784 D) INVOKE DeletePendingConfiguration() method

785 Class URI:

786 [http://schemas.dell.com/wbem/wscim/1/cim-
schema/2/DCIM_NICService?_cimnamespace=root/dcim](http://schemas.dell.com/wbem/wscim/1/cim-
787 schema/2/DCIM_NICService?_cimnamespace=root/dcim)

788 E) If return message indicates success per Table 29 – DeletePendingConfiguration()
789 Method: Return Code Values, no further action is necessary.

790 **ANNEX A: Related MOF Files**

791 Dell Tech Center MOF Library:

792 <http://www.delltechcenter.com/page/DCIM.Library.MOF>

793

794 Related Managed Object Format (MOF) files:

795 DCIM_NICAttribute.mof

796 DCIM_NICEnumeration.mof

797 DCIM_NICInteger.mof

798 DCIM_NICService.mof

799 DCIM_NICString.mof

800 DCIM_NICView.mof

801

802 **ANNEX B: Supported CNA manufacturers**

803 Following are supported CNAs for Broadcom and QLogic:

804 **Broadcom:**

805 M710HD Dual Port 10Gig 57712 NDC,

806 **QLogic:**

807 Qlogic QMD8252-K Dual Port 10GbE NDC

808 Qlogic QME8242 10GbE Embedded Mezz Card)

809 ANNEX C: Common errors

810 9.10.2 The maximum envelope size in the request is too large.

811 This error occurs when data received by wsman client is bigger than its allowed envelope size.
812 This can happen while enumerating DCIM_NICEnumeration, DCIM_NICString or
813 DCIM_NICString, when many instances are returned back.

814 **Resolution:**

815 Increase the envelope size of wsman command invoked by client. In case of winrm, run the
816 following command and a recommended size will be 1024 KB.

817 *winrm set winrm/config @{MaxEnvelopeSizekb="1024"}*
818