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Ethernet Port Profile

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67   Foreword

68   The *Ethernet Port Profile* (DSP1014) was prepared by the Server Management Working Group and the
69   Physical Platform Profiles Working Group of the DMTF.

70   DMTF is a not-for-profit association of industry members dedicated to promoting enterprise and systems
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88

89   Introduction

90   The information in this specification should be sufficient for a provider or consumer of this data to identify
91   unambiguously the classes, properties, methods, and values that shall be instantiated and manipulated to
92   represent and manage an Ethernet port and its associated configuration information. The target audience
93   for this specification is implementers who are writing CIM-based providers or consumers of management
94   interfaces that represent the component described in this document.

95

96 # Ethernet Port Profile

97 ## 1 Scope

98 The *Ethernet Port Profile* extends the management capability of referencing profiles by adding the
99 capability to represent an Ethernet port, its associated controller, and Ethernet interfaces. Associations
100 with the port's physical aspects and profile-implementation version information are modeled in this profile.

101 ## 2 Normative References

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

105 DMTF DSP0004, *CIM Infrastructure Specification 2.6*,
106 http://www.dmtf.org/standards/published_documents/DSP0004_2.6.pdf

107 DMTF DSP0200, *CIM Operations over HTTP 1.3,*
108 http://www.dmtf.org/standards/published_documents/DSP0200_1.3.pdf

109 DMTF DSP1001, *Management Profile Specification Usage Guide 1.0*,
110 http://www.dmtf.org/standards/published_documents/DSP1001_1.0.pdf

111 DMTF DSP1004, *Base Server Profile 1.0,*
112 http://www.dmtf.org/standards/published_documents/DSP1004_1.0.pdf

113 DMTF DSP1033, *Profile Registration Profile 1.0*,
114 http://www.dmtf.org/standards/published_documents/DSP1033_1.0.pdf

115 DMTF DSP1035, *Host LAN Network Port Profile 1.0*,
116 http://www.dmtf.org/standards/published_documents/DSP1035_1.0.pdf

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

119 ## 3 Terms and Definitions

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

121 **3.1.1**
122 **can**
123 used for statements of possibility and capability, whether material, physical, or causal

124 **3.1.2**
125 **cannot**
126 used for statements of possibility and capability, whether material, physical, or causal

127 **3.1.3**
128 **conditional**
129 indicates requirements to be followed strictly in order to conform to the document when the specified
130 conditions are met

131   **3.1.4**
132   **mandatory**
133   indicates requirements to be followed strictly in order to conform to the document and from which no
134   deviation is permitted

135   **3.1.5**
136   **may**
137   indicates a course of action permissible within the limits of the document

138   **3.1.6**
139   **need not**
140   indicates a course of action permissible within the limits of the document

141   **3.1.7**
142   **optional**
143   indicates a course of action permissible within the limits of the document

144   **3.1.8**
145   **referencing profile**
146   indicates a profile that owns the definition of this class and can include a reference to this profile in its
147   "Referenced Profiles" table

148   **3.1.9**
149   **shall**
150   indicates requirements to be followed strictly in order to conform to the document and from which no
151   deviation is permitted

152   **3.1.10**
153   **shall not**
154   indicates requirements to be followed strictly in order to conform to the document and from which no
155   deviation is permitted

156   **3.1.11**
157   **should**
158   indicates that among several possibilities, one is recommended as particularly suitable, without
159   mentioning or excluding others, or that a certain course of action is preferred but not necessarily required

160   **3.1.12**
161   **should not**
162   indicates that a certain possibility or course of action is deprecated but not prohibited

163   # 4   Symbols and Abbreviated Terms

164   The following symbols and abbreviations are used in this document.

165   **4.1**
166   **CIM**
167   Common Information Model

168   **4.2**
169   **LAN**
170   Local Area Network

171 5   Synopsis

172 **Profile Name:** Ethernet Port

173 **Version:** 1.0.1

174 **Organization:** DMTF

175 **CIM Schema Version:** 2.18

176 **Central Class:** CIM_EthernetPort

177 **Scoping Class:** CIM_ComputerSystem

178 **Specializes:** DMTF *Host LAN Network Port Profile, 1.0*

179 The *Ethernet Port Profile* extends the management capability of referencing profiles by adding the
180 capability to represent an Ethernet interface in a managed system.

181 CIM_EthernetPort shall be the Central Class of this profile. The instance of CIM_EthernetPort shall be the
182 Central Instance of this profile. CIM_ComputerSystem shall be the Scoping Class of this profile. The
183 instance of CIM_ComputerSystem with which the Central Instance is associated through an instance of
184 CIM_SystemDevice shall be the Scoping Instance of this profile.

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

186   **Table 1 – Referenced Profiles**

Profile Name	Organization	Version	Description
Profile Registration	DMTF	1.0	Mandatory
Host LAN Network Port	DMTF	1.0	Specializes

187 6   Description

188 The *Ethernet Port Profile* specializes the DMTF Host LAN Network Port Profile, 1.0. The *Ethernet Port*
189 *Profile* constrains the generalized model of a network port to usage for modeling an Ethernet port. This
190 profile is limited to defining CIM elements and constraints beyond those defined in the specialized profile.
191 To implement this profile, it is necessary to understand and implement the *Host LAN Network Port Profile*.

192 The following functionality is mandatory within the scope of this profile:

193   • a specification of the Ethernet port and related hardware

194   • network interfaces active over the network port

195 The following functionality is optional within the scope of this profile:

196   • modeling of the controller and its relationship with the Ethernet port

197 The following functionality is not covered in this profile:

198   • modeling of the networks in which the Ethernet interface participates

199 Figure 1 represents the class schema of the *Ethernet Port Profile*. The CIM_EthernetPort class is a
200 subclass (specialization) of the CIM_NetworkPort class. It replaces the CIM_NetworkPort class as the
201 subject for constraints defined in the *Host LAN Network Port Profile*. The CIM_EthernetPort class
202 represents the Ethernet port. The CIM_LANEndpoint class represents an access point at the data-link
203 layer, which in this case is identified by a MAC address to which the Ethernet port will respond on the
204 network.
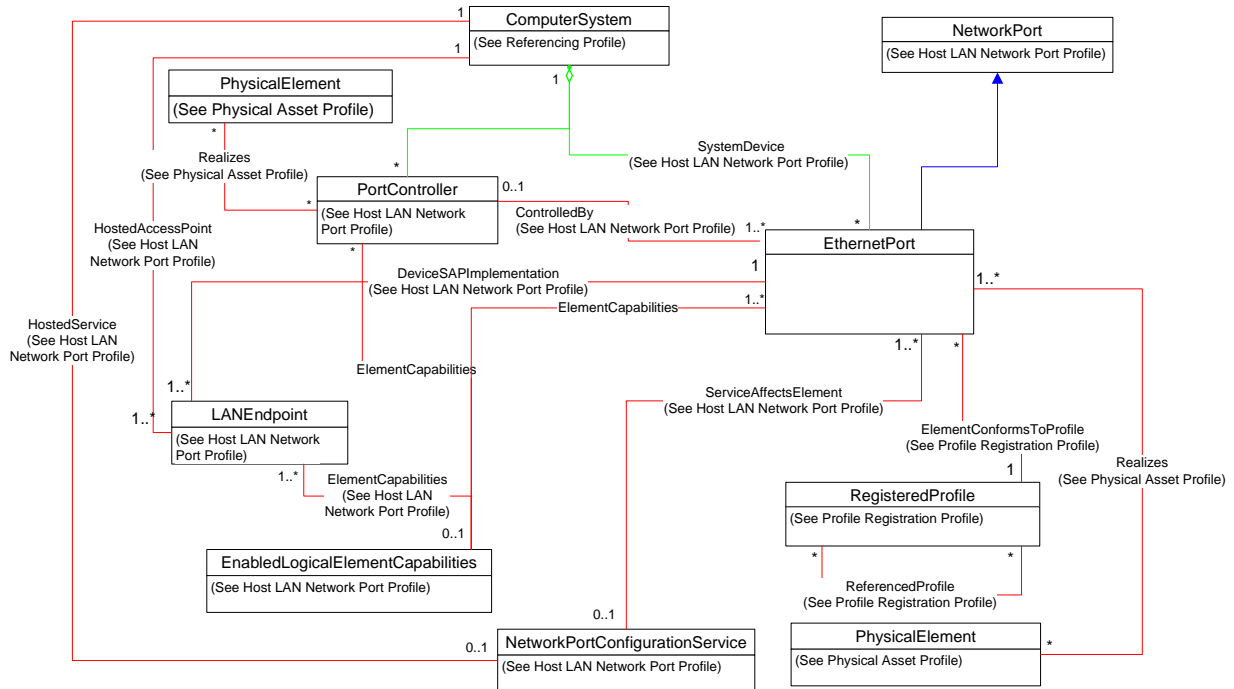
205

206   **Figure 1 – Ethernet Port Profile: Class Diagram**

207 7 Implementation Requirements

208 This section details the requirements related to the arrangement of instances and properties of instances
209 for implementations of this profile.

210 7.1 CIM_EthernetPort.PermanentAddress

211 When the permanent address is known, the PermanentAddress property shall be formatted as 12
212 contiguous case insensitive hex digits (pattern "^[0123456789ABCDEFabcdef]{12}$"). When the
213 permanent address is not known, the PermanentAddress property shall be formatted as a zero-length
214 string (pattern .{0}).

215 8 Methods

216 This profile does not define any extrinsic methods beyond those defined in the *Host LAN Network Port*
217 *Profile*.

218 8.1 CIM_EthernetPort

219 All operations are supported as for CIM_NetworkPort in the *Host LAN Network Port Profile, 1.0.0*.

220 9 Use Cases

221 This section contains object diagrams and use cases for the *Ethernet Port Profile*.

222   **9.1   Object Diagrams**

223   The object diagram in Figure 2 shows how instances of CIM_RegisteredProfile are used to identify the
224   version of the *Ethernet Port Profile* with which an instance of CIM_EthernetPort and its associated
225   instances are conformant. An instance of CIM_RegisteredProfile exists for each profile that is
226   instrumented in the system. One instance of CIM_RegisteredProfile identifies the DMTF *Base Server*
227   *Profile*, version 1.0. The other instance identifies the *Ethernet Port Profile*, version 1.0.

228   The CIM_EthernetPort instance is scoped to an instance of CIM_ComputerSystem. This instance of
229   CIM_ComputerSystem is conformant with the DMTF *Base Server Profile*, version 1.0 as indicated by the
230   CIM_ElementConformsToProfile association to the CIM_RegisteredProfile instance. The Scoping
231   Instance in Figure 2 is the CIM_ComputerSystem instance. The Central Instance is the
232   CIM_EthernetPort. The CIM_ReferencedProfile relationship between *server* and *net* places the
233   CIM_EthernetPort instance within the scope of *net.* Thus, the CIM_EthernetPort instance is conformant
234   with the *Ethernet Port Profile* version 1.0.
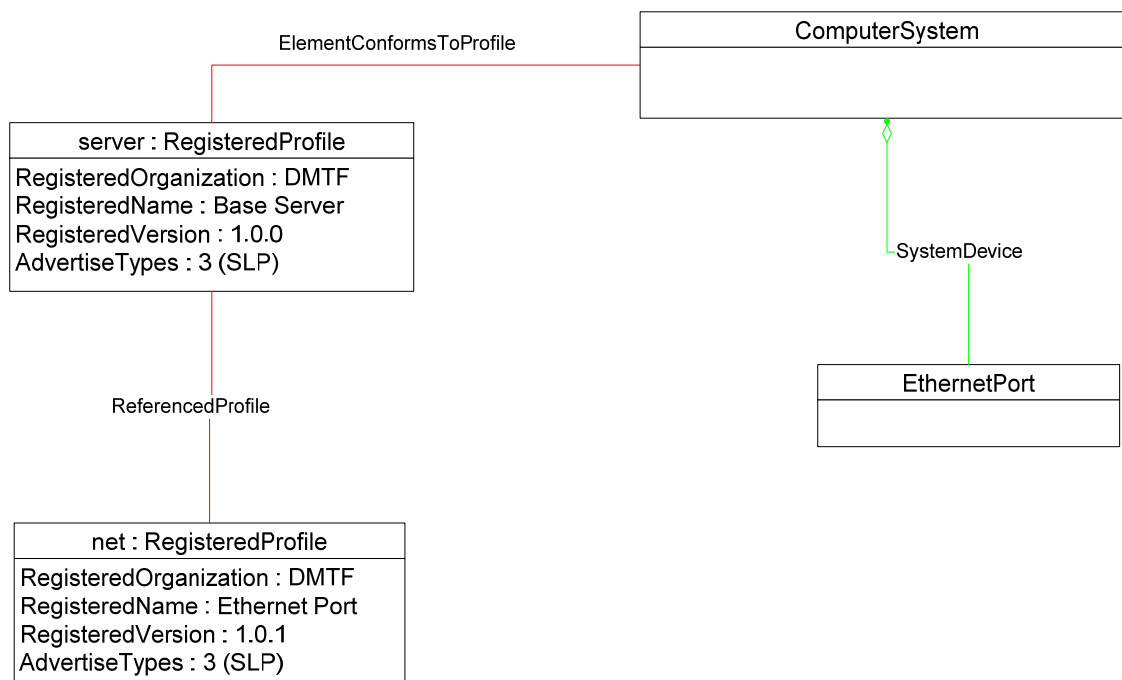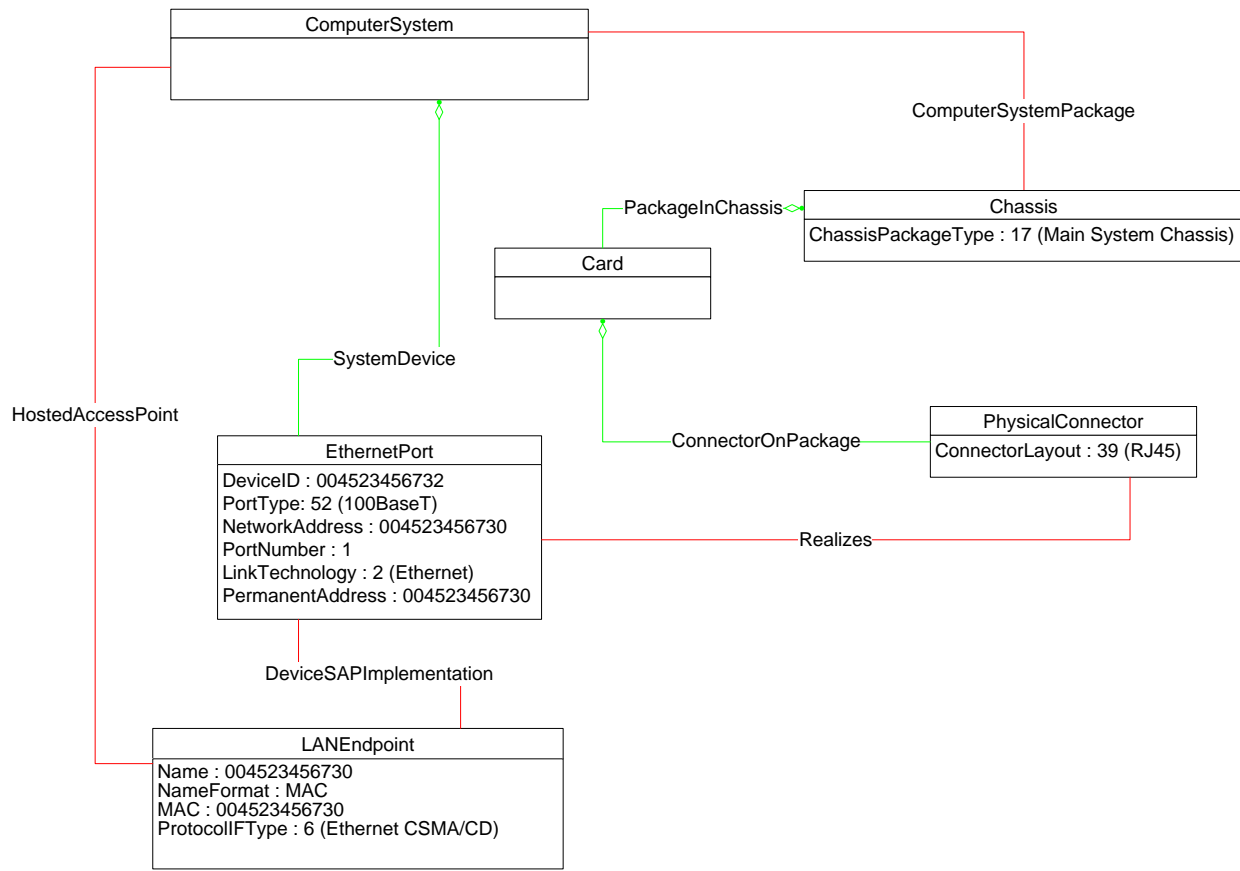
235

236   **Figure 2 – Registered Profile**

237   Figure 3 is a simple object diagram for a single Ethernet port that provides a single Ethernet interface.
238   The Ethernet port is represented by an instance of CIM_EthernetPort. The Ethernet interface is
239   represented by an instance of CIM_LANEndpoint.

240

241

Figure 3 – Single Interface

9.2 Query MAC Address for an Interface

243 A client can determine the MAC addresses in use for an Ethernet port as follows:

244   a. Find all instances of CIM_LANEndpoint that are associated with the CIM_EthernetPort through
245   an instance of CIM_DeviceSAPImplementation.

246   b. Query the MACAddress property of each instance of CIM_LANEndpoint.

9.3 Determine Physical Connector for an Ethernet Address

248 One or more MAC addresses may be associated with a given physical Ethernet interface. It is useful for a
249 client to be able to determine which CIM_PhysicalConnector is associated with a given Ethernet address.

250   1) Find the instance of CIM_EthernetPort that is associated with the CIM_LANEndpoint instance
251   through an instance of CIM_DeviceSAPImplementation.

252   c. Find the instance of CIM_PhysicalConnector that is associated with the CIM_EthernetPort
253   instance through an instance of CIM_Realizes.

254 # 10 CIM Elements

255 Table 2 shows the instances of CIM Elements for this profile. Instances of the CIM Elements shall be
256 implemented as described in Table 2. Clause 7 may impose additional requirements on these elements.

257 **Table 2 – CIM Elements: Ethernet Port Profile**

Element Name	Requirement	Notes
Classes		
CIM_EthernetPort	Mandatory	See 10.1.
CIM_PortController	Optional	See 10.2.
CIM_RegisteredProfile	Mandatory	See 10.3.
Indications		
None defined in this profile		

258 ## 10.1 CIM_EthernetPort

259 CIM_EthernetPort represents the hardware and device aspects of an Ethernet interface. The constraints
260 defined in Table 3 are in addition to those placed on the base CIM_NetworkPort class in the base *Host*
261 *LAN Network Port Profile*.

262 **Table 3 – Class: CIM_EthernetPort**

Properties	Requirement	Description
PortType	Mandatory	None
NetworkAddresses	Mandatory	Shall be formatted as 12 unseparated case-insensitive hex digits (pattern "^[0123456789ABCDEFabcdef]{12}$")
Capabilities	Mandatory	None
EnabledCapabilities	Mandatory	None
LinkTechnology	Mandatory	Match 2 ("Ethernet")
PermanentAddress	Mandatory	See 7.1.

263 ## 10.2 CIM_PortController

264 CIM_PortController represents a network controller. All properties listed in Table 4 override the
265 requirements of the *Host LAN Network Port Profile*.

266 **Table 4 – Class: CIM_PortController**

Properties	Requirement	Notes
ControllerType	Mandatory	Matches 2 (Ethernet)

267 ## 10.3 CIM_RegisteredProfile

268 CIM_RegisteredProfile identifies the *Ethernet Port Profile* in order for a client to determine whether an
269 instance of CIM_LogicalModule is conformant with this profile. The CIM_RegisteredProfile class is
270 defined by the *Profile Registration Profile*. With the exception of the mandatory values specified for the
271 properties in Table 5, the behavior of the CIM_RegisteredProfile instance is defined by the *Profile*
272 *Registration Profile*.

273 **Table 5 – Class: CIM_RegisteredProfile**

Properties	Requirement	Notes
RegisteredName	Mandatory	This property shall have a value of "Ethernet Port".
RegisteredVersion	Mandatory	This property shall have a value of "1.0.1".
RegisteredOrganization	Mandatory	This property shall have a value of 2 (DMTF).

274

275 <div align="center">**ANNEX A**</div>
276 <div align="center">(informative)</div>

277

278 <div align="center">**Change Log**</div>

Version	Date	Description
1.0.0	2008-10-08	Final Standard
1.0.1	2010-09-15	Final Standard formatted for DMTF Standard Release

279