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Foreword

72 The *Ethernet Port Profile* (DSP1014) was prepared by the Server Management Working Group.

73 DMTF is a not-for-profit association of industry members dedicated to promoting enterprise and systems
74 management and interoperability.

75

Introduction

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

81

Ethernet Port Profile

82 1 Scope

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

86 2 Normative References

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

90 2.1 Approved References

91 DMTF [DSP0200](#), *CIM Operations over HTTP 1.2.0*

92 DMTF [DSP0004](#), *CIM Infrastructure Specification 2.3.0*

93 DMTF [DSP1000](#), *Management Profile Specification Template*

94 DMTF [DSP1001](#), *Management Profile Specification Usage Guide*

95 DMTF [DSP1004](#), *Base Server Profile*

96 DMTF [DSP1033](#), *Profile Registration Profile*

97 DMTF [DSP1035](#), *Host LAN Network Port Profile*

98 2.2 Other References

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

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

102 3 Terms and Definitions

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

104 3.1

105 **can**

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

107 3.2

108 **cannot**

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

110 3.3

111 **conditional**

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

- 114 **3.4**
115 **mandatory**
116 indicates requirements to be followed strictly in order to conform to the document and from which no
117 deviation is permitted
- 118 **3.5**
119 **may**
120 indicates a course of action permissible within the limits of the document
- 121 **3.6**
122 **need not**
123 indicates a course of action permissible within the limits of the document
- 124 **3.7**
125 **optional**
126 indicates a course of action permissible within the limits of the document
- 127 **3.8**
128 **referencing profile**
129 indicates a profile that owns the definition of this class and can include a reference to this profile in its
130 "Referenced Profiles" table
- 131 **3.9**
132 **shall**
133 indicates requirements to be followed strictly in order to conform to the document and from which no
134 deviation is permitted
- 135 **3.10**
136 **shall not**
137 indicates requirements to be followed strictly in order to conform to the document and from which no
138 deviation is permitted
- 139 **3.11**
140 **should**
141 indicates that among several possibilities, one is recommended as particularly suitable, without
142 mentioning or excluding others, or that a certain course of action is preferred but not necessarily required
- 143 **3.12**
144 **should not**
145 indicates that a certain possibility or course of action is deprecated but not prohibited

146 **4 Symbols and Abbreviated Terms**

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

- 148 **4.1**
149 **CIM**
150 Common Information Model
- 151 **4.2**
152 **LAN**
153 Local Area Network

154 5 Synopsis

155 **Profile Name:** Ethernet Port

156 **Version:** 1.0.0

157 **Organization:** DMTF

158 **CIM Schema Version:** 2.18.0

159 **Central Class:** CIM_EthernetPort

160 **Scoping Class:** CIM_ComputerSystem

161 **Specializes:** DMTF [Host LAN Network Port Profile, 1.0.0](#)

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

164 CIM_EthernetPort shall be the Central Class of this profile. The instance of CIM_EthernetPort shall be the
165 Central Instance of this profile. CIM_ComputerSystem shall be the Scoping Class of this profile. The
166 instance of CIM_ComputerSystem with which the Central Instance is associated through an instance of
167 CIM_SystemDevice shall be the Scoping Instance of this profile.

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

169

Table 1 – Referenced Profiles

Profile Name	Organization	Version	Description
Profile Registration	DMTF	1.0.0	Mandatory
Host LAN Network Port	DMTF	1.0.0	Specializes

170 6 Description

171 The *Ethernet Port Profile* specializes the DMTF [Host LAN Network Port Profile, 1.0.0](#). The *Ethernet Port*
172 *Profile* constrains the generalized model of a network port to usage for modeling an Ethernet port. This
173 profile is limited to defining CIM elements and constraints beyond those defined in the specialized profile.
174 To implement this profile, it is necessary to understand and implement the [Host LAN Network Port Profile](#).

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

- 176 • a specification of the Ethernet port and related hardware
- 177 • network interfaces active over the network port

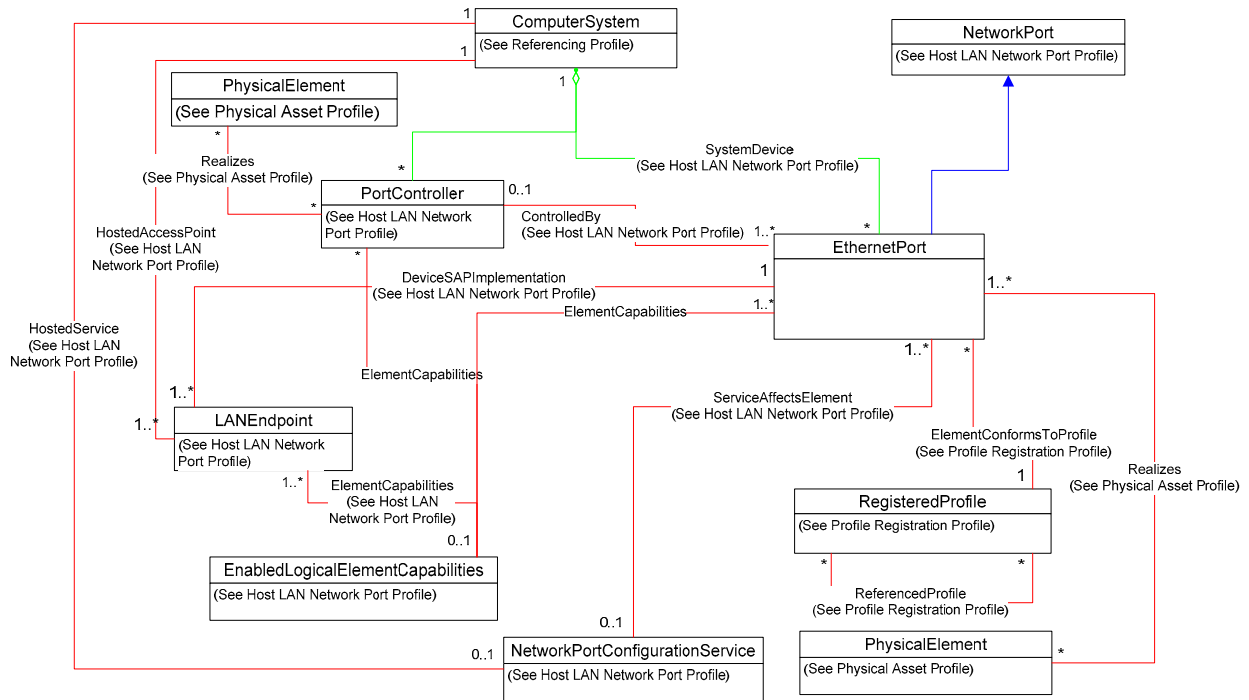
178 The following functionality is optional within the scope of this profile:

- 179 • modeling of the controller and its relationship with the Ethernet port

180 The following functionality is not covered in this profile:

- 181 • modeling of the networks in which the Ethernet interface participates

182 Figure 1 represents the class schema of the *Ethernet Port Profile*. The CIM_EthernetPort class is a
183 subclass (specialization) of the CIM_NetworkPort class. It replaces the CIM_NetworkPort class as the
184 subject for constraints defined in the [Host LAN Network Port Profile](#). The CIM_EthernetPort class
185 represents the Ethernet port. The CIM_LANEndpoint class represents an access point at the data-link
186 layer, which in this case is identified by a MAC address to which the Ethernet port will respond on the
187 network.



188

189

Figure 1 – Ethernet Port Profile: Class Diagram

190 **7 Implementation Requirements**

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

193 **7.1 CIM_EthernetPort.PermanentAddress**

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

198 **8 Methods**

199 This profile does not define any extrinsic methods beyond those defined in the [Host LAN Network Port Profile](#).
 200

201 **8.1 CIM_EthernetPort**

202 All operations are supported as for CIM_NetworkPort in the [Host LAN Network Port Profile, 1.0.0](#).

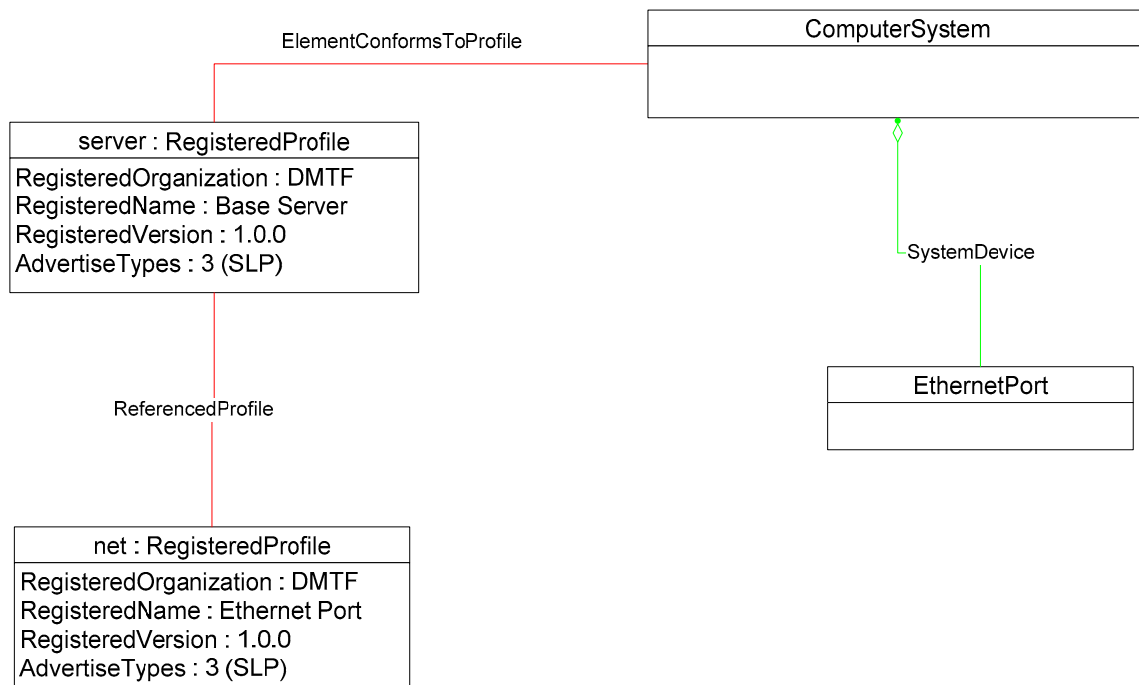
203 **9 Use Cases**

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

205 **9.1 Object Diagrams**

206 The object diagram in Figure 2 shows how instances of CIM_RegisteredProfile are used to identify the
 207 version of the *Ethernet Port Profile* with which an instance of CIM_EthernetPort and its associated
 208 instances are conformant. An instance of CIM_RegisteredProfile exists for each profile that is
 209 instrumented in the system. One instance of CIM_RegisteredProfile identifies the DMTF [Base Server](#)
 210 [Profile](#), version 1.0. The other instance identifies the *Ethernet Port Profile*, version 1.0.

211 The CIM_EthernetPort instance is scoped to an instance of CIM_ComputerSystem. This instance of
 212 CIM_ComputerSystem is conformant with the DMTF [Base Server Profile](#), version 1.0 as indicated by the
 213 CIM_ElementConformsToProfile association to the CIM_RegisteredProfile instance. The Scoping
 214 Instance in Figure 2 is the CIM_ComputerSystem instance. The Central Instance is the
 215 CIM_EthernetPort. The CIM_ReferencedProfile relationship between *BaseSystem* and *net* places the
 216 CIM_EthernetPort instance within the scope of *net*. Thus, the CIM_EthernetPort instance is conformant
 217 with the *Ethernet Port Profile* version 1.0.

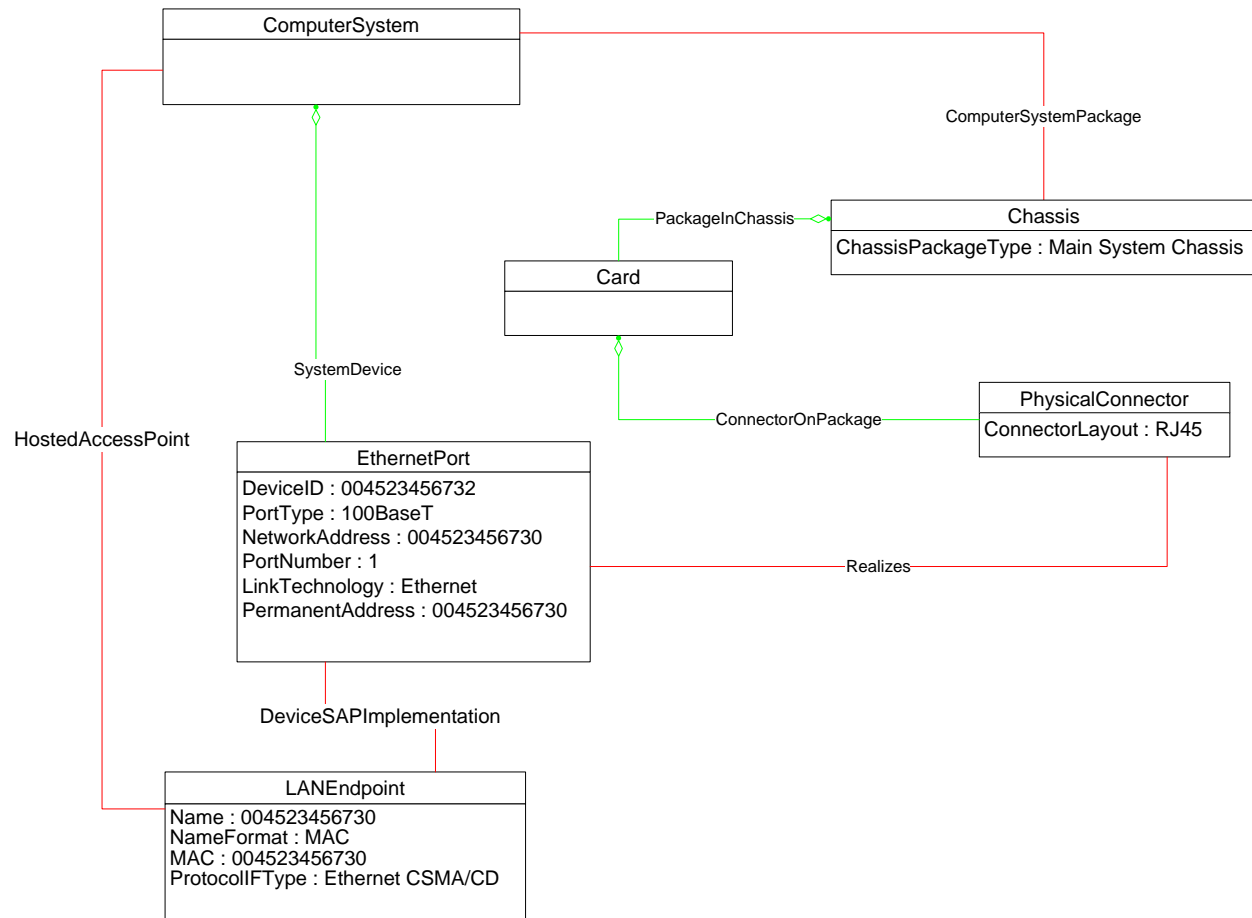


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Figure 2 – Registered Profile

220 Figure 3 is a simple object diagram for a single Ethernet port that provides a single Ethernet interface.
 221 The Ethernet port is represented by an instance of CIM_EthernetPort. The Ethernet interface is
 222 represented by an instance of CIM_LANEndpoint.



223

224

Figure 3 – Single Interface

225 9.2 Query MAC Address for an Interface

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

- 227 1) Find all instances of CIM_LANEndpoint that are associated with the CIM_EthernetPort through
- 228 an instance of CIM_DeviceSAPImplementation.
- 229 2) Query the MACAddress property of each instance of CIM_LANEndpoint.

230 9.3 Determine Physical Connector for an Ethernet Address

231 One or more MAC addresses may be associated with a given physical Ethernet interface. It is useful for a

232 client to be able to determine which CIM_PhysicalConnector is associated with a given Ethernet address.

- 233 1) Find the instance of CIM_EthernetPort that is associated with the CIM_LANEndpoint instance
- 234 through an instance of CIM_DeviceSAPImplementation.
- 235 2) Find the instance of CIM_PhysicalConnector that is associated with the CIM_EthernetPort
- 236 instance through an instance of CIM_Realizes.

237 **10 CIM Elements**

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

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

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

241 **10.1 CIM_EthernetPort**

242 CIM_EthernetPort represents the hardware and device aspects of an Ethernet interface. The constraints
 243 defined in Table 3 are in addition to those placed on the base CIM_NetworkPort class in the base [Host](#)
 244 [LAN Network Port Profile](#).

245 **Table 3 – Class: CIM_EthernetPort**

Properties	Requirement	Notes
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 section 7.1.

246 **10.2 CIM_PortController**

247 CIM_PortController represents a network controller. All properties listed below override the requirements
 248 of the [Host LAN Network Port Profile](#).

249 **Table 4 – Class: CIM_PortController**

Properties	Requirement	Notes
ControllerType	Mandatory	Matches 2 (Ethernet)

250 10.3 CIM_RegisteredProfile

251 CIM_RegisteredProfile identifies the *Ethernet Port Profile* in order for a client to determine whether an
 252 instance of CIM_LogicalModule is conformant with this profile. The CIM_RegisteredProfile class is
 253 defined by the [Profile Registration Profile](#). With the exception of the mandatory values specified for the
 254 properties in Table 5, the behavior of the CIM_RegisteredProfile instance is defined by the [Profile](#)
 255 [Registration Profile](#).

256 **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 "1.0.0".
RegisteredOrganization	Mandatory	This property shall have a value of 2 (DMTF).

257 NOTE: Previous versions of this document included the suffix 'Profile' for the RegisteredName value. If
 258 implementations querying for the RegisteredName value find the suffix 'Profile', they should ignore the suffix, with any
 259 surrounding white spaces, before any comparison is done with the value as specified in this document.

260

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ANNEX A (informative)

Change Log

Version	Date	Description
1.0.0b	04/10/2006	Company Review edit
1.0.0	10/08/2008	Final Standard

265
266
267
268

ANNEX B (informative)

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