



1
2
3
4
5

Document Number: DSP1029

Date: 2009-06-16

Version: 1.0.0

6 **OS Status Profile**

- 7 **Document Type: Specification**
- 8 **Document Status: DMTF Standard**
- 9 **Document Language: E**

10 Copyright Notice

11 Copyright © 2009 Distributed Management Task Force, Inc. (DMTF). All rights reserved.

12 DMTF is a not-for-profit association of industry members dedicated to promoting enterprise and systems
13 management and interoperability. Members and non-members may reproduce DMTF specifications and
14 documents, provided that correct attribution is given. As DMTF specifications may be revised from time to
15 time, the particular version and release date should always be noted.

16 Implementation of certain elements of this standard or proposed standard may be subject to third party
17 patent rights, including provisional patent rights (herein "patent rights"). DMTF makes no representations
18 to users of the standard as to the existence of such rights, and is not responsible to recognize, disclose,
19 or identify any or all such third party patent right, owners or claimants, nor for any incomplete or
20 inaccurate identification or disclosure of such rights, owners or claimants. DMTF shall have no liability to
21 any party, in any manner or circumstance, under any legal theory whatsoever, for failure to recognize,
22 disclose, or identify any such third party patent rights, or for such party's reliance on the standard or
23 incorporation thereof in its product, protocols or testing procedures. DMTF shall have no liability to any
24 party implementing such standard, whether such implementation is foreseeable or not, nor to any patent
25 owner or claimant, and shall have no liability or responsibility for costs or losses incurred if a standard is
26 withdrawn or modified after publication, and shall be indemnified and held harmless by any party
27 implementing the standard from any and all claims of infringement by a patent owner for such
28 implementations.

29 For information about patents held by third-parties which have notified the DMTF that, in their opinion,
30 such patent may relate to or impact implementations of DMTF standards, visit
31 <http://www.dmtf.org/about/policies/disclosures.php>.

CONTENTS

33	Foreword	5
34	Introduction	6
35	1 Scope	7
36	2 Normative References.....	7
37	2.1 Approved References	7
38	2.2 Other References.....	7
39	3 Terms and Definitions	7
40	4 Symbols and Abbreviated Terms.....	8
41	5 Synopsis.....	9
42	6 Description	9
43	7 Implementation Requirements	10
44	7.1 General Requirements.....	10
45	7.2 Representing Installed Operating Systems	10
46	7.3 Representing the Running Operating System	10
47	7.4 Interpretation of State	10
48	8 Methods.....	12
49	8.1 Profile Conventions for Operations.....	12
50	8.2 CIM_OperatingSystem.....	12
51	8.3 CIM_OperatingSystemCapabilities.....	12
52	8.4 CIM_RunningOS.....	12
53	8.5 CIM_InstalledOS.....	13
54	9 Use Cases.....	13
55	9.1 Object Diagrams	13
56	9.2 Determining If State Management Is Supported	14
57	9.3 Determining If the OS Is in the Process of Starting Up	14
58	10 CIM Elements.....	14
59	10.1 CIM_OperatingSystem.....	15
60	10.2 CIM_OperatingSystemCapabilities.....	15
61	10.3 CIM_RunningOS.....	16
62	10.4 CIM_InstalledOS.....	16
63	10.5 CIM_RegisteredProfile.....	16
64	ANNEX A (Informative) Change Log	17

Figures

67	Figure 1 – OS Status Profile: Class Diagram.....	9
68	Figure 2 – OS Status Profile: Object Diagram	14

Tables

72	Table 1 – Related Profiles.....	9
73	Table 2 – EnabledState Value Descriptions	10
74	Table 3 – RequestedState Property Value Descriptions	11
75	Table 4 – RequestedState Parameter Value Descriptions	11
76	Table 5 – TransitioningToState Value Descriptions.....	11
77	Table 6 – Operations: CIM_RunningOS	13
78	Table 7 – Operations: CIM_InstalledOS	13
79	Table 8 – CIM Elements: OS Status Profile.....	15

80 Table 9 – Class: CIM_OperatingSystem..... 15
81 Table 10 – CIM_OperatingSystemCapabilities..... 15
82 Table 11 – Class: CIM_RunningOS..... 16
83 Table 12 – Class: CIM_InstalledOS..... 16
84 Table 13 – Class: CIM_RegisteredProfile..... 16
85

86

Foreword

87 The *OS Status Profile* (DSP1029) was prepared by the Server Management Working Group and Physical
88 Platform Profiles Working Group of the DMTF.

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

91 **Acknowledgments**

92 The authors wish to acknowledge the following people.

93 **Editors:**

- 94 • Hemal Shah – Broadcom Corporation
- 95 • Jon Hass – Dell Inc.
- 96 • Chandra S. Mugunda – Dell Inc.
- 97 • Deb McDonald – IBM
- 98 • Aaron Merkin – IBM

99 **Contributors:**

- 100 • Khachatur Papanyan – Dell Inc.
- 101 • Jeff Hilland – HP
- 102 • Stephen Hurd – Broadcom Corporation

103

104

Introduction

105 This document defines the classes used to describe an operating system, its status, relationship to a
106 managed system, as well as configuration and control. The information in this specification is intended to
107 be sufficient for a provider or consumer of this data to identify unambiguously the classes, properties,
108 methods, and values that are mandatory to be instantiated and manipulated to represent and manage
109 operating systems of managed systems and subsystems that are modeled using the DMTF CIM core and
110 extended model definitions.

111 The target audience for this specification is implementers who are writing CIM-based providers or
112 consumers of management interfaces that represent the components described in this document.

113

OS Status Profile

114 1 Scope

115 The *OS Status Profile* extends the management capabilities of referencing profiles by adding the
116 capability to perform basic management of operating systems installed on a system.

117 2 Normative References

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

121 2.1 Approved References

122 DMTF DSP0004, *CIM Infrastructure Specification 2.5*,
123 http://www.dmtf.org/standards/published_documents/DSP0004_2.5.pdf

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

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

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

130 DMTF DSP1080, *Enabled Logical Element Profile 1.0*,
131 http://www.dmtf.org/standards/published_documents/DSP1080_1.0.pdf

132 2.2 Other References

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

135 3 Terms and Definitions

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

137 3.1

138 **can**

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

140 3.2

141 **cannot**

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

143 3.3

144 **conditional**

145 indicates requirements to be followed strictly to conform to the document when the specified conditions
146 are met

- 147 **3.4**
148 **mandatory**
149 indicates requirements to be followed strictly to conform to the document and from which no deviation is
150 permitted
- 151 **3.5**
152 **may**
153 indicates a course of action permissible within the limits of the document
- 154 **3.6**
155 **need not**
156 indicates a course of action permissible within the limits of the document
- 157 **3.7**
158 **optional**
159 indicates a course of action permissible within the limits of the document
- 160 **3.8**
161 **referencing profile**
162 indicates a profile that owns the definition of this class and can include a reference to this profile in its
163 "Related Profiles" table
- 164 **3.9**
165 **shall**
166 indicates requirements to be followed strictly to conform to the document and from which no deviation is
167 permitted
- 168 **3.10**
169 **shall not**
170 indicates requirements to be followed strictly to conform to the document and from which no deviation is
171 permitted
- 172 **3.11**
173 **should**
174 indicates that among several possibilities, one is recommended as particularly suitable, without
175 mentioning or excluding others, or that a certain course of action is preferred but not necessarily required
- 176 **3.12**
177 **should not**
178 indicates that a certain possibility or course of action is deprecated but not prohibited
- 179 **3.13**
180 **unspecified**
181 indicates that this profile does not define any constraints for the referenced CIM element or operation
- 182 **4 Symbols and Abbreviated Terms**
- 183 **4.1**
184 **OS**
185 operating system

186 5 Synopsis

187 **Profile Name:** OS Status

188 **Version:** 1.0.0

189 **Organization:** DMTF

190 **CIM Schema Version:** 2.22

191 **Specializes:** DMTF *Enabled Logical Element Profile 1.0*

192 **Central Class:** CIM_OperatingSystem

193 **Scoping Class:** CIM_ComputerSystem

194 The *OS Status Profile* provides the ability to perform basic management of operating systems installed on
 195 a managed system. CIM_OperatingSystem shall be the Central Class. CIM_ComputerSystem shall be
 196 the Scoping Class. The instance of CIM_ComputerSystem with which the Central Instance is associated
 197 through the CIM_InstalledOS association shall be the Scoping Instance.

198 Table 1 identifies profiles related to this profile.

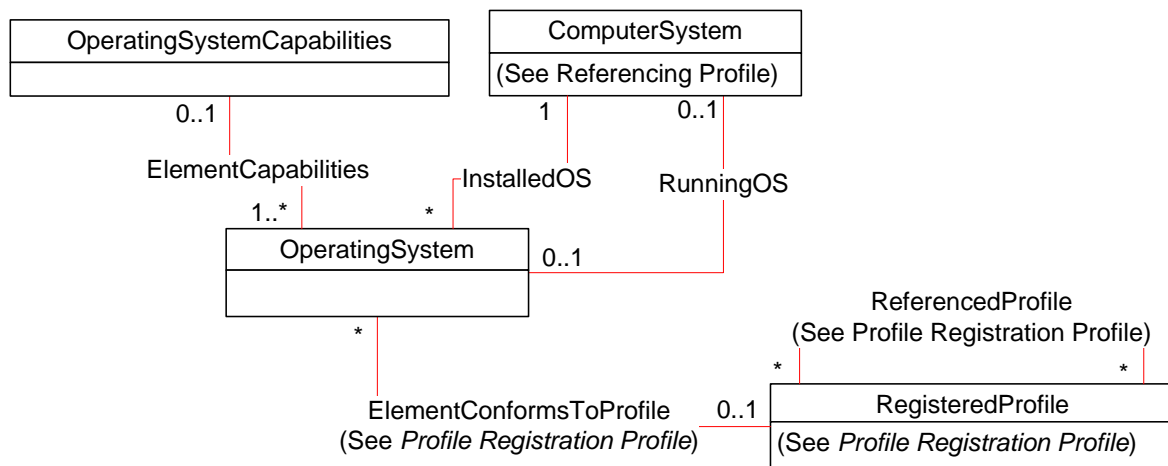
199 **Table 1 – Related Profiles**

Profile Name	Organization	Version	Relationship	Behavior
Profile Registration	DMTF	1.0	Mandatory	None
Enabled Logical Element	DMTF	1.0	Specializes	

200 6 Description

201 The *OS Status Profile* describes the properties and methods of the operating system that is installed
 202 and/or currently running on a managed system.

203 Figure 1 represents the class schema for the *OS Status Profile*. For simplicity, the prefix CIM_ has been
 204 removed from the names of the classes.



205

206 **Figure 1 – OS Status Profile: Class Diagram**

207 7 Implementation Requirements

208 This section details the requirements related to the instantiation of instances and their properties for
 209 implementations of this profile. The requirements for the implementation of the methods are listed in
 210 7.4.4.

211 7.1 General Requirements

212 The Central Instance of the *OS Status Profile* shall replace the Central Instance of the *Enabled Logical*
 213 *Element Profile* ([DSP1080](#)) and shall be subject to the constraints specified in [DSP1080](#).

214 7.2 Representing Installed Operating Systems

215 An instance of CIM_OperatingSystem shall represent each installed operating system. Each instance of
 216 CIM_OperatingSystem shall be associated with exactly one instance of CIM_ComputerSystem through
 217 the CIM_InstalledOS association.

218 7.3 Representing the Running Operating System

219 The instance of CIM_OperatingSystem that represents the operating system running on the managed
 220 system may be associated to the instance of CIM_ComputerSystem through the CIM_RunningOS
 221 association. If the CIM_OperatingSystem.EnabledState property has the value 2 (Enabled) or 9
 222 (Quiesce), the CIM_OperatingSystem instance shall be associated through the CIM_RunningOS
 223 association to the same instance of CIM_ComputerSystem with which it is associated through
 224 CIM_InstalledOS.

225 An instance of CIM_OperatingSystem shall be associated with at most one instance of
 226 CIM_ComputerSystem through the CIM_RunningOS association. An instance of CIM_ComputerSystem
 227 shall be associated with at most one instance of CIM_OperatingSystem through the CIM_RunningOS
 228 association.

229 7.4 Interpretation of State

230 This clause describes constraints related to the interpretation of states specific to modeling operating
 231 systems. These constraints are in addition to those specified for state management in [DSP1080](#).

232 7.4.1 Enabled State

233 The CIM_OperatingSystem.EnabledState property shall have one of the following values: 0 (Unknown), 2
 234 (Enabled), 3 (Disabled), 5 (Not Applicable), or 9 (Quiesce).

235 Table 2 describes the mapping between values of the EnabledState property and the corresponding
 236 description of the state of the operating system. Additional values have the semantics defined in
 237 [DSP1080](#).

238

Table 2 – EnabledState Value Descriptions

ValueMap	Value	Extended Description
2	Enabled	Operating System shall be the running OS. The operating system shall not be in the process of starting up or shutting down.
3	Disabled	Operating System shall not be the running OS.
9	Quiesce	Operating System shall be in standby or hibernate mode.

239 The CIM_OperatingSystem.EnabledState property shall not have the value 2 (Enabled) or 9 (Quiesce),
 240 unless the instance of CIM_OperatingSystem is associated with the Scoping Instance through the
 241 CIM_RunningOS association. A CIM_OperatingSystem instance shall not be associated with the
 242 CIM_ComputerSystem instance through the CIM_RunningOS association if the
 243 CIM_OperatingSystem.EnabledState property has the value 3 (Disabled).

244 **7.4.2 Requested State Transitions**

245 The CIM_OperatingSystem.RequestedState property shall have one the following values: 0 (Unknown), 2
 246 (Enabled), 3 (Disabled), 5 (No Change), 9 (Quiesce), 11 (Reset), or 12 (Not Applicable).

247 Table 3 describes the mapping between values of the RequestedState property and the corresponding
 248 state transition initiated for the operating system.

249 **Table 3 – RequestedState Property Value Descriptions**

ValueMap	Value	Extended Description
3	Disabled	A request to shut down the operating system was received.
9	Quiesce	A request to standby or hibernate the operating system was received.
11	Reset	A request to reboot the operating system was received.

250 Table 4 describes the mapping between values of the RequestedState parameter of
 251 RequestStateChange() method and the corresponding state transition initiated for the operating system.

252 **Table 4 – RequestedState Parameter Value Descriptions**

ValueMap	Value	Extended Description
3	Disabled	Initiate a shutdown of the operating system.
9	Quiesce	Standby or hibernate the operating system.
11	Reset	Initiate a reboot of the operating system.

253 **7.4.3 Representing In-Progress Transitions**

254 If In-Progress transitions are modeled, then the CIM_OperatingSystem.TransitioningToState property
 255 shall have one the following values: 2 (Enabled), 3 (Disabled), 5 (No Change), or 9 (Quiesce).

256 Table 5 describes the mapping between values of the TransitioningToState property and the
 257 corresponding description of the state of the operating system.

258 **Table 5 – TransitioningToState Value Descriptions**

ValueMap	Value	Extended Description
2	Enabled	The operating system shall be starting up.
3	Disabled	The operating system shall be shutting down.
5	No Change	The operating system is currently not transitioning to any state.
9	Quiesce	The operating system shall be transitioning to standby or hibernate mode.

259 **7.4.4 Representing Requested States Supported**

260 The CIM_OperatingSystemCapabilities.RequestedStatesSupported property may contain zero or more of
261 the following values: 3 (Disabled), 9 (Quiesce), or 11 (Reset).

262 **7.4.5 Representing Available Requested States**

263 The CIM_OperatingSystem.AvailableRequestedStates property may contain zero or more of the following
264 values: 3 (Disabled), 9 (Quiesce), or 11 (Reset).

265 **8 Methods**

266 This section details the requirements for supporting intrinsic operations for the CIM elements defined by
267 this profile.

268 No additional constraints on extrinsic methods are defined beyond those specified in [DSP1080](#).

269 **8.1 Profile Conventions for Operations**

270 For each profile class (including associations), the implementation requirements for operations, including
271 those in the following default list, are specified in class-specific subclauses of this clause.

272 The default list of operations is as follows:

- 273 • GetInstance
- 274 • Associators
- 275 • AssociatorNames
- 276 • References
- 277 • ReferenceNames
- 278 • EnumerateInstances
- 279 • EnumerateInstanceNames

280 **8.2 CIM_OperatingSystem**

281 All operations are supported as for CIM_EnabledLogicalElement in the [Enabled Logical Element Profile](#).

282 **8.3 CIM_OperatingSystemCapabilities**

283 All operations are supported as for CIM_EnabledLogicalElementCapabilities in the [Enabled Logical](#)
284 [Element Profile](#).

285 **8.4 CIM_RunningOS**

286 Table 6 lists implementation requirements for operations. If implemented, these operations shall be
287 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 6, all operations in
288 the default list in 8.1 shall be implemented as defined in [DSP0200](#).

289 NOTE: Related profiles may define additional requirements on operations for the profile class.

290

Table 6 – Operations: CIM_RunningOS

Operation	Requirement	Messages
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

291 **8.5 CIM_InstalledOS**

292 Table 7 lists implementation requirements for operations. If implemented, these operations shall be
 293 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 7, all operations in
 294 the default list in 8.1 shall be implemented as defined in [DSP0200](#).

295 NOTE: Related profiles may define additional requirements on operations for the profile class.

296

Table 7 – Operations: CIM_InstalledOS

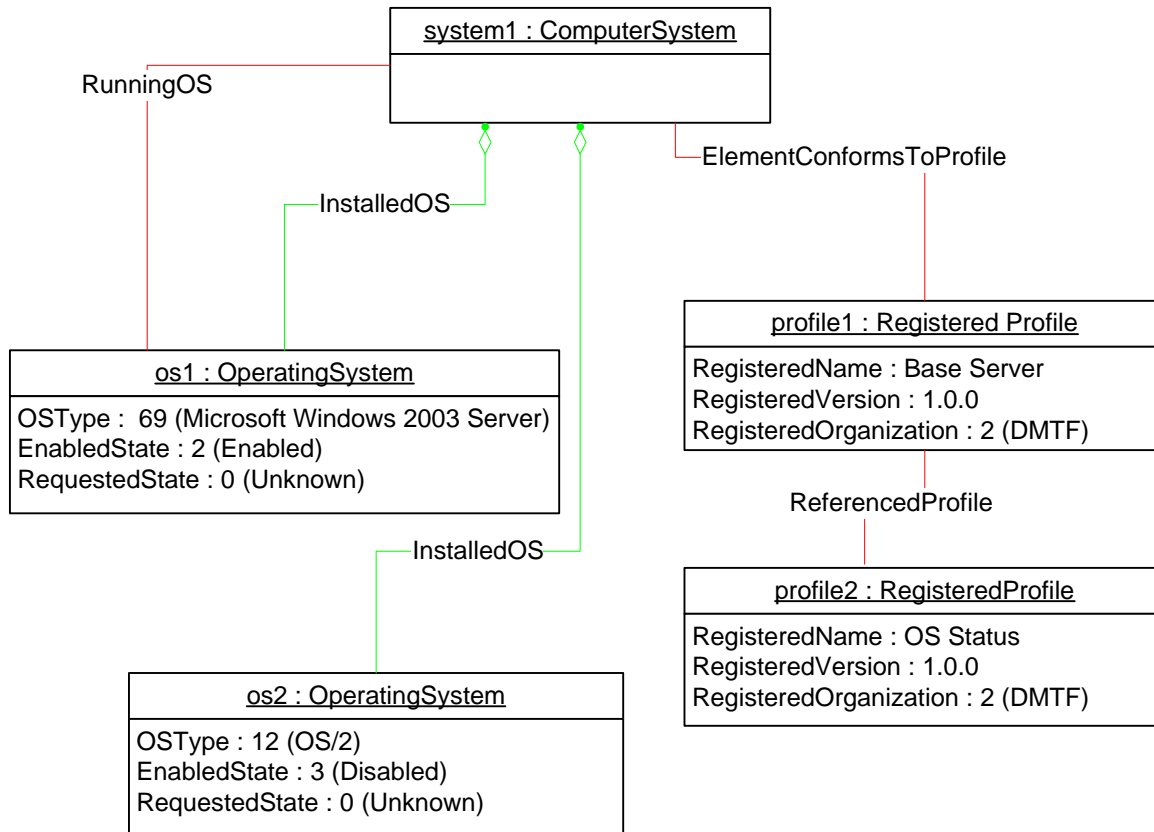
Operation	Requirement	Messages
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

297 **9 Use Cases**

298 All use cases are based on the implementation conformance to the DMTF *OS Status Profile*.

299 **9.1 Object Diagrams**

300 Figure 2 represents a possible instantiation of the *OS Status Profile* classes. In the diagram, the instance
 301 of CIM_OperatingSystem is associated with an instance of CIM_ComputerSystem through an instance of
 302 CIM_RunningOS and CIM_InstalledOS.



303

304

Figure 2 – OS Status Profile: Object Diagram

305 9.2 Determining If State Management Is Supported

306 For a given instance of CIM_OperatingSystem, a client can determine whether state management is
 307 supported as follows:

- 308 1) Find the CIM_EnabledLogicalElementCapabilities instance that is associated with the instance.
- 309 2) Query the value of the RequestedStatesSupported property. If at least one value is specified,
 310 state management is supported.

311 9.3 Determining If the OS Is in the Process of Starting Up

312 For a given instance of CIM_OperatingSystem, a client can determine if the represented operating
 313 system is in the process of starting up as follows:

- 314 1) Query the value of the CIM_OperatingSystem.TransitionToState property. If it has the value 2
 315 (Enabled), the operating system is in the process of starting up. Otherwise it is not.

316 10 CIM Elements

317 Table 8 shows the list of CIM elements for this profile and details their requirements. The implementation
 318 requirements for the classes and properties described in this section are defined in section 7
 319 (“Implementation Requirements”).

320

Table 8 – CIM Elements: OS Status Profile

Element Name	Requirement	Description
Classes		
CIM_OperatingSystem	Mandatory	See 7.2 and 10.1.
CIM_OperatingSystemCapabilities	Optional	See 7.4.4 and 10.2.
CIM_RunningOS	Conditional	See 7.3 and 10.3.
CIM_InstalledOS	Mandatory	See 7.2 and 10.4.
CIM_RegisteredProfile	Mandatory	See 10.5.
Indications		
None defined in this profile		

321 **10.1 CIM_OperatingSystem**

322 The CIM_OperatingSystem class is used to represent an operating system. Table 9 provides information
 323 about the properties of the CIM_OperatingSystem class. The constraints specified for
 324 CIM_OperatingSystem are in addition to those specified for CIM_EnabledLogicalElement in the [Enabled
 325 Logical Element Profile](#).

326

Table 9 – Class: CIM_OperatingSystem

Properties	Requirement	Notes
CSCreationClassName	Mandatory	Key
CSName	Mandatory	Key
CreationClassName	Mandatory	Key
Name	Mandatory	Key
OSType	Mandatory	None
OtherTypeDescription	Conditional	This property shall be formatted as a free-form string of variable length (pattern “.*”) if OSType has the value 1 (Other) or 59 (Dedicated).
EnabledState	Mandatory	See 7.4.1.
RequestedState	Mandatory	See 7.4.2.
AvailableRequestedStates	Optional	See 7.4.4.
TransitioningToState	Optional	See 7.4.3.

327 **10.2 CIM_OperatingSystemCapabilities**

328 CIM_OperatingSystemCapabilities represents the capabilities of the operating system. The constraints
 329 specified for CIM_OperatingSystemCapabilities are in addition to those specified for
 330 CIM_EnabledLogicalElementCapabilities in the [Enabled Logical Element Profile](#).

331

Table 10 – CIM_OperatingSystemCapabilities

Properties	Requirement	Notes
InstanceID	Mandatory	Key
RequestedStatesSupported	Optional	None
ElementNameEditSupported	Mandatory	None
MaxElementNameLen	Conditional	None

Properties	Requirement	Notes
ElementNameMask	Conditional	None
HostShutdownBehavior	Mandatory	None

332 10.3 CIM_RunningOS

333 The CIM_RunningOS class is used to associate the instance of CIM_OperatingSystem with the instance
 334 of CIM_ComputerSystem. Table 11 provides information about the properties of the CIM_RunningOS
 335 class. CIM_RunningOS is conditional on the CIM_OperatingSystem.EnabledState property having the
 336 value 2 (Enabled).

337 **Table 11 – Class: CIM_RunningOS**

Properties	Requirement	Notes
Antecedent	Mandatory	Key: This property shall be a reference to an instance of CIM_OperatingSystem. Cardinality 0..1
Dependent	Mandatory	Key: This property shall be a reference to an instance of CIM_ComputerSystem. Cardinality 0..1

338 10.4 CIM_InstalledOS

339 The CIM_InstalledOS class is used to associate the instance of CIM_OperatingSystem with the instance
 340 of CIM_ComputerSystem. Table 12 provides information about the properties of the CIM_InstalledOS
 341 class.

342 **Table 12 – Class: CIM_InstalledOS**

Properties	Requirement	Notes
GroupComponent	Mandatory	Key: This property shall be a reference to the CIM_ComputerSystem instance. Cardinality 1..*
PartComponent	Mandatory	Key: This property shall be a reference to the CIM_OperatingSystem that is associated to the installed operating system. Cardinality *

343 10.5 CIM_RegisteredProfile

344 CIM_RegisteredProfile is defined by the [Profile Registration Profile](#). The requirements denoted in
 345 Table 13 are in addition to those mandated by the [Profile Registration Profile](#).

346 **Table 13 – Class: CIM_RegisteredProfile**

Properties	Requirement	Description
RegisteredName	Mandatory	This property shall have a value of "OS Status".
RegisteredVersion	Mandatory	This property shall have a value of "1.0.0".
RegisteredOrganization	Mandatory	This property shall have a value of 2 (DMTF).

347

348
349
350
351

**ANNEX A
(Informative)

Change Log**

Version	Date	Description
1.0.0	2009-06-16`	DMTF Standard Release

352
353