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5 **OS Status Profile**

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31 **CONTENTS**

32 Foreword 5

33 Introduction..... 6

34 1 Scope 7

35 2 Normative references 7

36 2.1 Approved references..... 7

37 2.2 Other references 7

38 3 Terms and definitions 7

39 4 Symbols and abbreviated terms..... 8

40 5 Synopsis 8

41 6 Description 8

42 7 Implementation requirements..... 9

43 7.1 General requirements 9

44 7.2 Representing installed operating systems 9

45 7.3 Representing the running operating system 9

46 7.4 Interpretation of state 10

47 8 Methods..... 11

48 8.1 Profile conventions for operations 12

49 8.2 CIM_OperatingSystem..... 12

50 8.3 CIM_OperatingSystemCapabilities 12

51 8.4 CIM_RunningOS 12

52 8.5 CIM_InstalledOS 12

53 9 Use cases..... 13

54 9.1 Object diagrams..... 13

55 9.2 Determining whether state management is supported 14

56 9.3 Determining whether the OS is in the process of starting up 14

57 9.4 Determining the version of the OS..... 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

65

66 **Figures**

67 Figure 1 – OS Status Profile: Class diagram 9

68 Figure 2 – OS Status Profile: Object diagram 13

69

70

71 **Tables**

72 Table 1 – Related profiles 8

73 Table 2 – EnabledState value descriptions..... 10

74 Table 3 – RequestedState property value descriptions 10

75 Table 4 – RequestedState parameter value descriptions 11

76 Table 5 – TransitioningToState value descriptions 11

77 Table 6 – Operations: CIM_RunningOS 12

78 Table 7 – Operations: CIM_InstalledOS 13

79	Table 8 – CIM elements: OS Status Profile	14
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		

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Foreword

87 The *OS Status Profile* (DSP1029) was prepared by the Server Desktop Mobile Platform Working Group
88 and Physical 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. For information about the DMTF, see <http://www.dmtf.org>.

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105

Introduction

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

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

114

OS Status Profile

115 1 Scope

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

118 2 Normative references

119 The following referenced documents are indispensable for the application of this document. For dated or
120 versioned references, only the edition cited (including any corrigenda or DMTF update versions) applies.
121 For references without a date or version, the latest published edition of the referenced document
122 (including any corrigenda or DMTF update versions) applies.

123 2.1 Approved references

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

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

128 DMTF DSP0223, *Generic Operations 1.0*,
129 http://www.dmtf.org/standards/published_documents/DSP0223_1.0.pdf

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

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

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

136 2.2 Other references

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

139 3 Terms and definitions

140 In this document, some terms have a specific meaning beyond the normal English meaning. Those terms
141 are defined in this clause.

142 The terms "shall" ("required"), "shall not", "should" ("recommended"), "should not" ("not recommended"),
143 "may," "need not" ("not required"), "can" and "cannot" in this document are to be interpreted as described
144 in [ISO/IEC Directives, Part 2](#), Annex H. The terms in parenthesis are alternatives for the preceding term,
145 for use in exceptional cases when the preceding term cannot be used for linguistic reasons. Note that
146 [ISO/IEC Directives, Part 2](#), Annex H specifies additional alternatives. Occurrences of such additional
147 alternatives shall be interpreted in their normal English meaning.

148 The terms "clause", "subclause", "paragraph", and "annex" in this document are to be interpreted as
149 described in [ISO/IEC Directives, Part 2](#), Clause 5.

150 The terms "normative" and "informative" in this document are to be interpreted as described in [ISO/IEC](#)
 151 [Directives, Part 2](#), Clause 3. In this document, clauses, subclauses, or annexes labeled "(informative)" do
 152 not contain normative content. Notes and examples are always informative elements.

153 The terms defined in [DSP0004](#), [DSP0223](#), and [DSP1001](#) apply to this document.

154 4 Symbols and abbreviated terms

155 The abbreviations defined in [DSP0004](#), [DSP0223](#), and [DSP1001](#) apply to this document. The following
 156 additional abbreviations are used in this document

157 **4.1**

158 **OS**

159 operating system

160 5 Synopsis

161 **Profile name:** OS Status

162 **Version:** 1.1.0

163 **Organization:** DMTF

164 **CIM Schema version:** 2.35.0

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

166 **Central class:** CIM_OperatingSystem

167 **Scoping class:** CIM_ComputerSystem

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

172 Table 1 identifies profiles related to this profile.

173

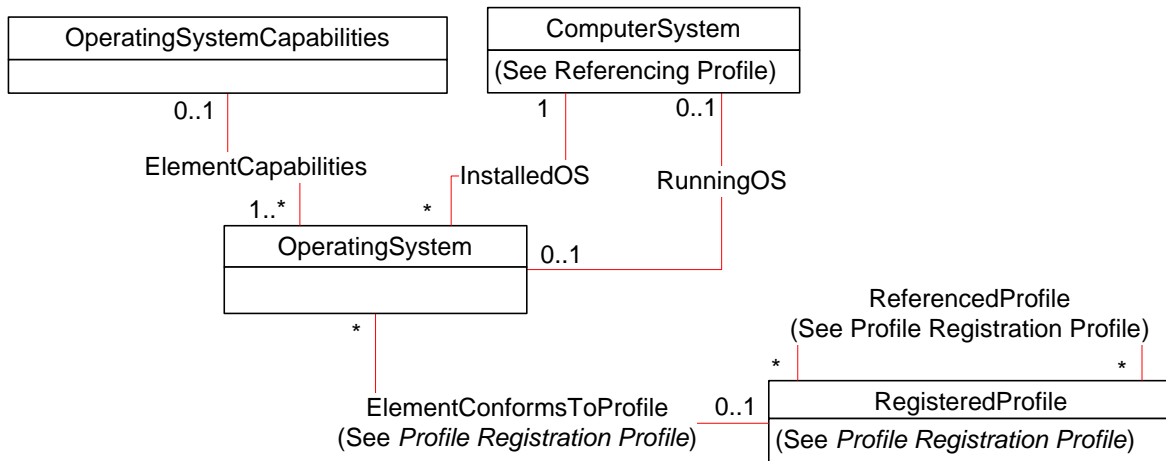
Table 1 – Related profiles

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

174 6 Description

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

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



179

180

Figure 1 – OS Status Profile: Class diagram

181 **7 Implementation requirements**

182 This clause details the requirements related to the instantiation of instances and their properties for
 183 implementations of this profile. The requirements for the implementation of the methods are listed in
 184 7.4.4.

185 **7.1 General requirements**

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

188 **7.2 Representing installed operating systems**

189 An instance of *CIM_OperatingSystem* shall represent each installed operating system. Each instance of
 190 *CIM_OperatingSystem* shall be associated with exactly one instance of *CIM_ComputerSystem* through
 191 the *CIM_InstalledOS* association.

192 **7.3 Representing the running operating system**

193 The instance of *CIM_OperatingSystem* that represents the operating system running on the managed
 194 system may be associated to the instance of *CIM_ComputerSystem* through the *CIM_RunningOS*
 195 association. If the *CIM_OperatingSystem.EnabledState* property has the value 2 (Enabled) or 9
 196 (Quiesce), the *CIM_OperatingSystem* instance shall be associated through the *CIM_RunningOS*
 197 association to the same instance of *CIM_ComputerSystem* with which it is associated through
 198 *CIM_InstalledOS*.

199 An instance of *CIM_OperatingSystem* shall be associated with at most one instance of
 200 *CIM_ComputerSystem* through the *CIM_RunningOS* association. An instance of *CIM_ComputerSystem*
 201 shall be associated with at most one instance of *CIM_OperatingSystem* through the *CIM_RunningOS*
 202 association.

203 7.4 Interpretation of state

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

206 7.4.1 Enabled state

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

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

212 **Table 2 – EnabledState property 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.

213 The CIM_OperatingSystem.EnabledState property shall not have the value 2 (Enabled) or 9 (Quiesce),
214 unless the instance of CIM_OperatingSystem is associated with the Scoping Instance through the
215 CIM_RunningOS association. A CIM_OperatingSystem instance shall not be associated with the
216 CIM_ComputerSystem instance through the CIM_RunningOS association if the
217 CIM_OperatingSystem.EnabledState property has the value 3 (Disabled).

218 7.4.2 Requested state transitions

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

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

223 **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.

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

226 **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.

227 **7.4.3 Representing In-Progress transitions**

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

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

232 **Table 5 – TransitioningToState property 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.

233 **7.4.4 Representing requested states supported**

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

236 **7.4.5 Representing available requested states**

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

239 **7.4.6 Representing version information**

240 The CIM_OperatingSystem.Version property's string value shall uniquely identify the version of operating
 241 system that is represented by the instance of CIM_OperatingSystem.

242 **8 Methods**

243 This clause details the requirements for supporting intrinsic operations for the CIM elements defined by
 244 this profile.

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

246 8.1 Profile conventions for operations

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

249 The default list of operations is as follows:

- 250 • GetInstance
- 251 • Associators
- 252 • AssociatorNames
- 253 • References
- 254 • ReferenceNames
- 255 • EnumerateInstances
- 256 • EnumerateInstanceNames

257 8.2 CIM_OperatingSystem

258 All operations are supported as for CIM_EnabledLogicalElement in [DSP1080](#).

259 8.3 CIM_OperatingSystemCapabilities

260 All operations are supported as for CIM_EnabledLogicalElementCapabilities in [DSP1080](#).

261 8.4 CIM_RunningOS

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

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

266 **Table 6 – Operations: CIM_RunningOS**

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

267 8.5 CIM_InstalledOS

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

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

272

Table 7 – Operations: CIM_InstalledOS

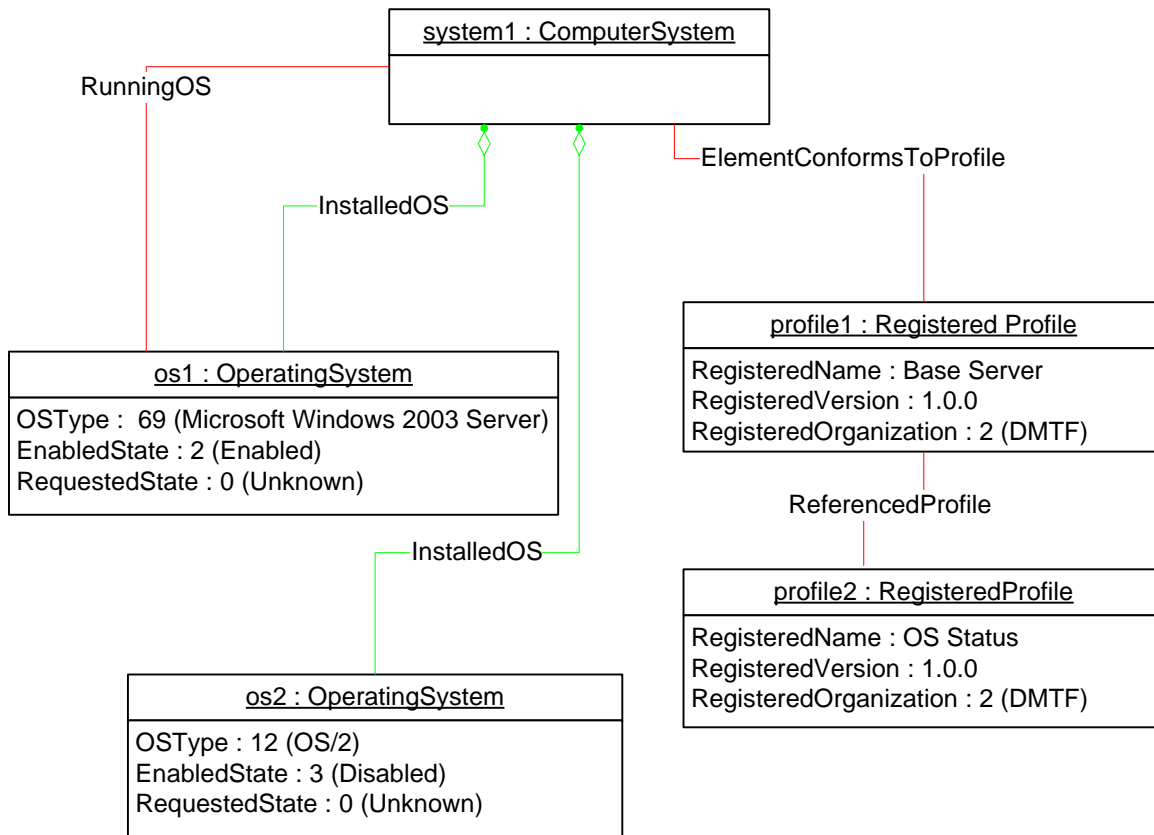
Operation	Requirement	Messages
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

273 **9 Use cases**

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

275 **9.1 Object diagrams**

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



279

280

Figure 2 – OS Status Profile: Object diagram

281 9.2 Determining whether state management is supported

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

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

287 9.3 Determining whether the OS is in the process of starting up

288 For a given instance of CIM_OperatingSystem, a client can determine whether the represented operating
289 system is in the process of starting up as follows:

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

293 9.4 Determining the version of the OS

294 For a given instance of CIM_OperatingSystem, a client can determine the version of the operating system
295 as follows:

- 296 1) Query the value of the CIM_OperatingSystem.Version property

297 10 CIM elements

298 Table 8 shows the list of CIM elements for this profile and details their requirements. The implementation
299 requirements for the classes and properties described in this clause are defined in clause 7
300 (“Implementation requirements”).

301

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		

302 **10.1 CIM_OperatingSystem**

303 The CIM_OperatingSystem class is used to represent an operating system. Table 9 provides information
 304 about the properties of the CIM_OperatingSystem class. The constraints specified for
 305 CIM_OperatingSystem are in addition to those specified for CIM_EnabledLogicalElement in [DSP1080](#).

306 **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).
Version	Optional	See 7.4.6.
EnabledState	Mandatory	See 7.4.1.
RequestedState	Mandatory	See 7.4.2.
AvailableRequestedStates	Optional	See 7.4.5.
TransitioningToState	Optional	See 7.4.3.

307 **10.2 CIM_OperatingSystemCapabilities**

308 CIM_OperatingSystemCapabilities represents the capabilities of the operating system. The constraints
 309 specified for CIM_OperatingSystemCapabilities are in addition to those specified for
 310 CIM_EnabledLogicalElementCapabilities in [DSP1080](#).

311 **Table 10 – CIM_OperatingSystemCapabilities**

Properties	Requirement	Notes
InstanceID	Mandatory	Key
RequestedStatesSupported	Optional	See 7.4.4.
ElementNameEditSupported	Mandatory	None
MaxElementNameLen	Conditional	None
ElementNameMask	Conditional	None
HostShutdownBehavior	Mandatory	None

312 10.3 CIM_RunningOS

313 The CIM_RunningOS class is used to associate the instance of CIM_OperatingSystem with the instance
 314 of CIM_ComputerSystem. Table 11 provides information about the properties of the CIM_RunningOS
 315 class. CIM_RunningOS is conditional on the CIM_OperatingSystem.EnabledState property having the
 316 value 2 (Enabled).

317 **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

318 10.4 CIM_InstalledOS

319 The CIM_InstalledOS class is used to associate the instance of CIM_OperatingSystem with the instance
 320 of CIM_ComputerSystem. Table 12 provides information about the properties of the CIM_InstalledOS
 321 class.

322 **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 *

323 10.5 CIM_RegisteredProfile

324 CIM_RegisteredProfile is defined by [DSP1033](#). The requirements denoted in
 325 Table 13 are in addition to those mandated by [DSP1033](#).

326 **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 "1.1.0".
RegisteredOrganization	Mandatory	This property shall have a value of 2 (DMTF).

327

328
329
330
331

ANNEX A (Informative)

Change log

Version	Date	Description
1.0.0	2009-06-16	
1.1.0	2013-07-25	Updated to include Version property

332
333