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5 **WBEM Server Profile**

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168

Foreword

169 The *WBEM Server Profile* (DSP1092) was prepared by the DMTF WBEM Infrastructure Modeling
170 Working Group.

171 DMTF is a not-for-profit association of industry members dedicated to promoting enterprise and systems
172 management and interoperability. For information about the DMTF, see <http://www.dmtf.org>.

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185

186

Introduction

187 The information in this specification should be sufficient for a provider or consumer of this data to
188 unambiguously identify the classes, properties, methods, and values that shall be instantiated to manage
189 and monitor WBEM Server and WBEM Protocols using the DMTF Common Information Model (CIM)
190 Schema.

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

193 Document conventions

194 Typographical conventions

195 The following typographical conventions are used in this document:

- 196 • Document titles are marked in *italics*.
- 197 • Important terms that are used for the first time are marked in *italics*.
- 198 • ABNF rules are in `monospaced font`.

199 ABNF usage conventions

200 Format definitions in this document are specified using ABNF (see [RFC5234](#)), with the following
201 deviations:

- 202 • Literal strings are to be interpreted as case-sensitive Unicode characters, as opposed to the
203 definition in [RFC5234](#) that interprets literal strings as case-insensitive US-ASCII characters.

204 Experimental material

205 Experimental material has yet to receive sufficient review to satisfy the adoption requirements set forth by
206 the DMTF. Experimental material is included in this document as an aid to implementers who are
207 interested in likely future developments. Experimental material may change as implementation
208 experience is gained. It is likely that experimental material will be included in an upcoming revision of the
209 specification. Until that time, experimental material is purely informational.

210 The following typographical convention indicates experimental material:

211 **EXPERIMENTAL**

212 Experimental material appears here.

213 **EXPERIMENTAL**

214 In places where this typographical convention cannot be used (for example, tables or figures), the
215 "EXPERIMENTAL" label is used alone.

216

217

WBEM Server Profile

218 1 Scope

219 The *WBEM Server Profile* defines the CIM elements that are used to report and manage information
220 regarding the WBEM Server.

221 2 Normative references

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

226 DMTF DSP0004, *CIM Infrastructure Specification 2.7*,
227 http://dmtof.org/sites/default/files/standards/documents/DSP0004_2.7.pdf

228 DMTF DSP0200, *CIM Operations over HTTP 1.3*,
229 http://dmtof.org/sites/default/files/standards/documents/DSP0200_1.3.pdf

230 DMTF DSP0207, *WBEM URI Mapping 1.0*,
231 http://dmtof.org/sites/default/files/standards/documents/DSP0207_1.0.pdf

232 DMTF DSP0223, *Generic Operations Specification 1.0*,
233 http://dmtof.org/sites/default/files/standards/documents/DSP0223_1.0.0_1.pdf

234 DMTF DSP1036, *IP Interface Profile 1.1*,
235 http://dmtof.org/sites/default/files/standards/documents/DSP1036_1.1.1.pdf

236 DMTF DSP1054, *Indications Profile 1.2*,
237 http://dmtof.org/sites/default/files/standards/documents/DSP1054_1.2.0.pdf

238 DMTF DSP1001, *Management Profile Specification Usage Guide 1.0*,
239 http://dmtof.org/sites/default/files/standards/documents/DSP1001_1.0.pdf

240 DMTF DSP1033, *Profile Registration Profile 1.0*,
241 http://www.dmtf.org/sites/default/files/standards/documents/DSP1033_1.0.0.pdf

242 DMTF DSP1034, *Simple Identity Management Profile 1.1*,
243 http://dmtof.org/sites/default/files/standards/documents/DSP1034_1.1.0.pdf

244 DMTF DSP1039, *Role Based Authorization Profile 1.0*,
245 http://dmtof.org/sites/default/files/standards/documents/DSP1034_1.1.0.pdf

246 IETF RFC3986, *Uniform Resource Identifier (URI): Generic Syntax*, Jan. 2005,
247 <http://www.ietf.org/rfc/rfc3986.txt>

248 IETF RFC5234, *Augmented BNF for Syntax Specifications: ABNF*, Jan. 2008,
249 <http://www.ietf.org/rfc/rfc5234.txt>

250 ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standards*,
251 <http://isotc.iso.org>

252 3 Terms and definitions

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

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

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

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

266 The terms defined in [DSP0004](#), [DSP0200](#), and [DSP1001](#) apply to this document. The following additional
267 terms are used in this document.

268 3.1

269 **WBEM Server**

270 a CIM server (see [DSP0004](#)) that supports at least one WBEM protocol.

271 3.2

272 **WBEM Protocol**

273 A communications protocol that defines WBEM Operations (based on the Generic Operations
274 specification)

275 4 Symbols and abbreviated terms

276 The abbreviations defined in [DSP0004](#), [DSP0200](#), and [DSP1001](#) apply to this document. The following
277 additional abbreviations are used in this document.

278 4.1

279 **CQL**

280 CIM Query Language

281 4.2

282 **FQL**

283 Filter Query Language

284 4.3

285 **URI**

286 Uniform Resource Identifier

287 4.4

288 **WBEM**

289 Web Based Enterprise Management

290 **5 Synopsis**

291 **Profile name:** WBEM Server

292 **Version:** 1.0.0

293 **Organization:** DMTF

294 **CIM schema version:** 2.37

295 **Central Class:** CIM_ComputerSystem

296 **Scoping Class:** CIM_ComputerSystem

297 The *WBEM Server Profile* is an autonomous profile that specializes Base System to provide the capability
 298 to discover, monitor and manage the WBEM Server infrastructure.

299 The Central Instance of this profile shall be an instance of CIM_ComputerSystem. The Scoping Instance
 300 shall be the instance of CIM_ComputerSystem.

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

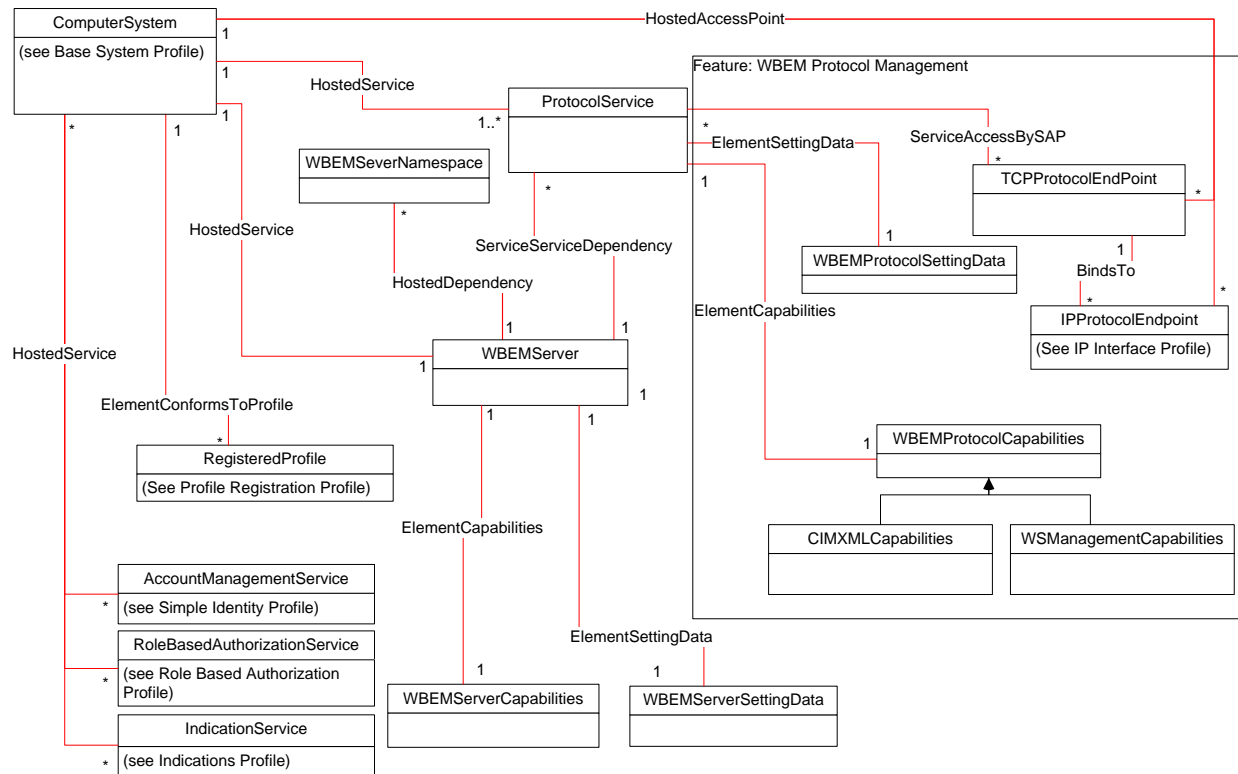
302 **Table 1 – Referenced profiles**

Profile Name	Organization	Version	Relationship	Behavior
Base System (DSP1055)	DMTF	1.0	Specializes	
Indications Profile (DSP1054)	DMTF	1.2	Optional	
IP Interface Profile (DSP1036)	DMTF	1.1	Conditional	Mandatory when WBEM Protocol Management is supported.
Profile Registration (DSP1033)	DMTF	1.0	Mandatory	
Role Based Authorization (DSP1039)	DMTF	1.0	Mandatory	
Simple Identity Management (DSP1034)	DMTF	1.1	Mandatory	

303 **6 Description (informative)**

304 The *WBEM Server Profile* describes the WBEM Server and WBEM Protocols.

305 Figure 1 represents the UML class diagram for the *WBEM Server Profile*. For simplicity, the *CIM_* prefix
 306 has been removed from the names of the classes in Figure 1.



307

308

Figure 1 – WBEM Server Profile: Class diagram

309 The *WBEM Server Profile* represents the capabilities of the WBEM Server and supported WBEM
 310 Protocols. Functionality within the scope of this profile includes: namespace discovery, WBEM Server
 311 settings and WBEM Protocol discovery and management.

312 The WBEM Server profile mandates the support of the Simple Identity Profile and Role Based
 313 Authorization profiles to provide an interoperable means for authentication and authorization.

314 The WBEM Server is modeled as an instance of CIM_WBEMServer, a subclass of CIM_Service. Aspects
 315 of the WBEM Server’s configuration are modeled through the capabilities and settings associated to the
 316 instance of CIM_WBEMServer.

317 Namespaces are modeled using the class CIM_WBEMServerNamespace. Namespace instances may
 318 include the information regarding the schemas contained in the namespace.

319 A WBEM Protocol is modeled using CIM_ProtocolService. A WBEM Server may have support for one or
 320 more WBEM Protocols.

321 A WBEM Server may support the managing of WBEM Protocols. If supported, the administrator can
 322 enable, disable or reset a protocol, determine the capabilities supported, change the port(s) the protocol
 323 is listening on and bind the protocol to a specific IP Address.

324 WBEM Protocol session management is outside the scope of this profile.

325 7 Implementation

326 This clause details the requirements related to the arrangement of instances and their properties for
327 implementations of this profile. Methods are listed in clause 8 ("Methods"), and properties are listed in
328 clause 10 ("CIM Elements").

329 The WBEM Server profile shall be implemented in the interop namespace.

330 7.1 WBEM Server

331 An instance of CIM_WBEMServer shall represent a WBEM Server. Exactly one instance of this class
332 shall exist.

333 7.1.1 WBEM Server Capabilities

334 The WBEM Server Capabilities are represented through an instance of CIM_WBEMServerCapabilities,
335 exactly one instance of this class shall exist and be associated to the CIM_WBEMServer instance
336 through an instance of CIM_ElementCapabilities.

337 7.1.1.1 CIM_WBEMServerCapabilities.MethodsSupported

338 Support for methods is optional. For each method supported the MethodsSupported property shall
339 contain the value representing the method.

340 7.1.1.2 CIM_WBEMServerCapabilities.RequestedStatesSupported

341 The RequestedStatesSupported property may contain zero or more of the following values: 4 (Shut
342 Down), 9 (Reboot) or 10 (Reset). If the CIM_WBEMServerCapabilities.MethodsSupported property value
343 includes 2 (RequestStateChange) this property value shall include at least one of the following values: 4
344 (Shut Down), 9 (Reboot) or 10 (Reset).

345 7.1.1.3 CIM_WBEMServerCapabilities.ProtocolManagementSupported

346 WBEM Protocol Management (see 7.4) is optional. If WBEM Protocol Management is supported, the
347 ProtocolManagementSupported property shall have a value of true. If WBEM Protocol Management is not
348 supported, the ProtocolManagementSupported property shall have a value of false;

349 7.1.2 CIM_WBEMServer.RequestedState

350 When the CIM_WBEMServer.RequestStateChange() method is successfully invoked, the value of the
351 RequestedState property shall be the value of the RequestedState parameter. If the method is not
352 successfully invoked, the value of the RequestedState property is indeterminate.

353 The CIM_WBEMServer.RequestedState property shall have one of the values specified in the
354 CIM_WBEMServerCapabilities.RequestedStatesSupported property or a value of 5 (No Change).

355 7.1.3 CIM_WBEMServer.EnabledState

356 When the RequestedState parameter has a value of 4 (Shut Down) and the
357 CIM_WBEMServer.RequestStateChange() method completes successfully, the value of the
358 EnabledState property shall equal the value of the CIM_WBEMServer.RequestedState property.

359 If the method does not complete successfully, the value of the EnabledState property is indeterminate.

360 The EnabledState property shall have the value 2 (Enabled), 4 (Shutting Down).

361 **7.2 WBEM Server namespaces**

362 A WBEM Server namespace is modeled using the class CIM_WBEMServerNamespace. A WBEM Server
363 may contain one or more namespaces. The interop namespace is Mandatory. The following clauses
364 describe implementation requirements for CIM_WBEMServerNamespace.

365 **7.2.1 CIM_WBEMServerNamespace.Name**

366 The Name property is the actual name of the namespace. The namespace name shall be unique, in
367 other words you cannot have two namespace with the same name in a WBEM Server.

368 **7.3 WBEM Protocols**

369 A WBEM Protocol is modeled using the CIM_ProtocolService class. For each WBEM Protocol supported
370 an instance of CIM_ProtocolService shall exist. At least one instance of CIM_ProtocolService shall exist.

371 The following subclauses describe implementation requirements for CIM_ProtocolService.

372 **7.3.1 CIM_ProtocolService.RequestedStateChange**

373 When the CIM_ProtocolService.RequestStateChange() method is successfully invoked, the value of the
374 RequestedState property shall be the value of the RequestedState parameter. If the method is not
375 successfully invoked, the value of the RequestedState property is indeterminate.

376 The CIM_ProtocolService.RequestedState property shall have one of the values specified in the
377 CIM_WBEMProtocolCapabilities.RequestedStatesSupported property or a value of 5 (No Change).

378 **7.3.2 CIM_ProtocolService.EnabledState**

379 When the RequestedState parameter has a value of 2 (Enabled) or 3 (Disabled) and the
380 CIM_ProtocolService.RequestStateChange() method completes successfully, the value of the
381 EnabledState property shall equal the value of the CIM_ProtocolService.RequestedState property.

382 If the method does not complete successfully, the value of the EnabledState property is indeterminate.

383 The EnabledState property shall have the value 2 (Enabled), 3 (Disabled), or 6 (Enabled but Offline).

384 **7.4 WBEM Protocol Management**

385 WBEM Protocol Management for a WBEM protocol is optional. A WBEM Server may support one or more
386 WBEM Protocols. If WBEM Protocol Management is supported, an instance of
387 CIM_WBEMProtocolCapabilities shall be associated to CIM_ProtocolService via
388 CIM_ElementCapabilities and the CIM_WBEMProtocolCapabilities.ListeningPortManagementSupported
389 value shall be true. The WBEMServerCapabilities.ProtocolManagementSupported property value shall
390 be true when WBEM Protocol Management is supported.

391 **7.4.1 WBEM Protocol Capabilities**

392 WBEM Protocol Capabilities are modeled using CIM_WBEMProtocolCapabilities. The support for the
393 CIM_WBEMProtocolCapabilities is optional. If the
394 CIM_WBEMServerCapabilities.ProtocolManagementSupported has the value true, then
395 CIM_WBEMProtocolCapabilities and CIM_ElementCapabilities (WBEM Protocol Capabilities) are
396 Mandatory.

397 7.4.1.1 CIM_WBEMProtocolCapabilities.ListeningPortManagementSupported

398 The ListeningPortManagementSupported property shall be supported. When the
399 ListeningPortManagementSupported property has the value of true, the instance(s) of
400 CIM_ProtocolService associated via CIM_ElementCapabilities shall support the ListenOnPortIF() method.
401 When the ListeningPortManagementSupported property has the value of false, support for the
402 ListenOnPortIF() method is optional.

403 7.4.1.2 CIM_WBEMProtocolCapabilities.RequestedStatesSupported

404 The RequestedStatesSupported property may contain zero or more of the following values: 2 (Enabled),
405 3 (Disabled), or 11 (Reset).

406 7.4.1.3 CIM_WBEMProtocolCapabilities.GenericOperationsSupported

407 The GenericOperationsSupported property value is an array of CIM_GenericOperationCapabilities
408 structures. The following subclauses describe implementation requirements for
409 CIM_GenericOperationCapabilities.

410 7.4.1.3.1 CIM_GenericOperationCapabilities.ContinueOnErrorSupported

411 The CIM_GenericOperationCapabilities.ContinueOnErrorSupported property is mandatory when the
412 CIM_GenericOperationCapabilities.OperationsSupported property includes any of the following values
413 12(OpenClassInstancesWithPath), 13(OpenClassInstancePaths),
414 14(OpenAssociatedInstancesWithPath), 15(OpenAssociatedInstancePaths),
415 16(OpenReferencingInstancesWithPath), 17(OpenReferencingInstancePaths), 18(OpenQueryInstances),
416 19(PullInstancesWithPath), 20 (PullInstancePaths), 21 (PullInstances).

417 7.4.1.3.2 CIM_GenericOperationCapabilities.MinimumOperationTimeout

418 The CIM_GenericOperationCapabilities. MinimumOperationTimeout property is mandatory when the
419 CIM_GenericOperationCapabilities.OperationsSupported property includes any of the following values
420 12(OpenClassInstancesWithPath), 13(OpenClassInstancePaths),
421 14(OpenAssociatedInstancesWithPath), 15(OpenAssociatedInstancePaths),
422 16(OpenReferencingInstancesWithPath), 17(OpenReferencingInstancePaths), 18(OpenQueryInstances),
423 19(PullInstancesWithPath), 20 (PullInstancePaths), 21 (PullInstances).

424 7.4.1.3.3 CIM_GenericOperationCapabilities.MaximumOperationTimeout

425 The CIM_GenericOperationCapabilities. MaximumOperationTimeout property is mandatory when the
426 CIM_GenericOperationCapabilities.OperationsSupported property includes any of the following values
427 12(OpenClassInstancesWithPath), 13(OpenClassInstancePaths),
428 14(OpenAssociatedInstancesWithPath), 15(OpenAssociatedInstancePaths),
429 16(OpenReferencingInstancesWithPath), 17(OpenReferencingInstancePaths), 18(OpenQueryInstances),
430 19(PullInstancesWithPath), 20 (PullInstancePaths), 21 (PullInstances).

431 7.4.1.4 Protocol Specific Capabilities

432 A WBEM Protocol may have a subclass of CIM_WBEMProtocolCapabilities to define protocol specific
433 capabilities. The following clauses describe when a subclass may be required instead.

434 7.4.1.4.1 CIM-XML Capabilities

435 When CIM_ProtocolService.Protocol has the value 5 (CIM-XML) and the
436 CIM_WBEMServerCapabilities.ProtocolManagementSupported has the value true,
437 CIM_CIMXMLCapabilities (subclass of CIM_WBEMProtocolCapabilities) shall be supported and
438 associated via CIM_ElementCapabilities.

439 7.4.1.4.2 WS-Management Capabilities

440 When CIM_ProtocolService.Protocol has the value 6 (WS-Management),
441 CIM_WSMangementCapabilities (subclass of CIM_WBEMProtocolCapabilities) shall be supported and
442 associated via CIM_ElementCapabilities.

443 7.4.2 CIM_TCPProtocolEndpoint

444 Support for CIM_TCPProtocolEndpoint is conditional. If the
445 CIM_WBEMServerCapabilities.ProtocolManagementSupported property has the value true, then
446 CIM_TCPProtocolEndpoint and its two associations CIM_HostedAccessPoint and
447 CIM_ServiceAccessBySAP are Mandatory. If the
448 CIM_WBEMServerCapabilities.ProtocolManagementSupported property has the value false, support for
449 CIM_TCPProtocolEndpoint, CIM_HostedAccessPoint and CIM_ServiceAccessBySAP is optional.

450 7.5 Indication Profile

451 Indication Profile support is optional. If the Indication Profile is implemented, the CIM_HostedService
452 association shall be implemented with the Antecedent property referencing the central instance of this
453 profile and the Dependent referencing the central instance of the Indication Profile.

454 8 Methods

455 This clause details the requirements for supporting intrinsic CIM operations and extrinsic methods for the
456 CIM elements defined by this profile.

457 8.1 Profile conventions for operations

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

460 The default list of operations is as follows:

- 461 • GetInstance
- 462 • Associators
- 463 • AssociatorNames
- 464 • References
- 465 • ReferenceNames
- 466 • EnumerateInstances
- 467 • EnumerateInstanceNames

468 8.2 CIM_ComputerSystem

469 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

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

471 8.3 CIM_WBEMServer

472 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

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

474 The following additional methods shall be implemented.

475 **8.3.1 RequestStateChange()**

476 A WBEM Server may be reboot, reset or shut down. A WBEM Server reboot will shut down and re-enable
 477 the WBEM Server. Resetting a WBEM Server means to request that the WBEM Server go into the
 478 disabled state and then back to enabled state. Shutdown means to request that the WBEM Server stop
 479 executing, usually meaning that any cleanup needed is completed as part of the shutdown process.

480 The RequestStateChange() method may be supported. The RequestStateChange() method may
 481 support the RequestedState parameter with a value of 4 (Shut Down), 9 (Reboot) or 10 (Reset). If the
 482 CIM_WBEMServerCapabilities .MethodsSupported property value includes the value 2
 483 (RequestStateChange) then this method shall be supported. The method shall support the values in
 484 CIM_WBEMServerCapabilities .RequestedStatesSupported property value for the RequestedState
 485 parameter.

486 The return code values and parameters for the RequestStateChange() method are specified in Table 2
 487 and Table 3, respectively.

488 **Table 2 – RequestStateChange() method: Return code values**

Value	Description
0 (Completed with No Error)	The method executed successfully.
2 (Unknown/Unspecified Error)	A failure occurred for some vendor-specific reason.
3 (Cannot complete within Timeout Period)	The requested amount of time is less than the time the requested state transition takes.
4 (Failed)	The method failed.
5 (Invalid Parameters)	One or more parameters are invalid.
6 (In Use)	Another client has requested a state change that has not completed.
4096 (Method Parameters Checked – Job Started)	The method parameters were validated and a job has been started.
4097 (Invalid State Transition)	The state change requested is invalid for the current state.
4098 (Use of Timeout Parameter Not Supported)	This implementation does not support the TimeoutPeriod parameter. A client may pass a NULL value for the TimeoutPeriod and try again.
4099 (Busy)	A state change is underway in the job; as such, the state cannot be changed. An implementation may use this return code to indicate the job cannot be suspended, killed, or terminated at all or in the current phase of execution.

489

Table 3 – RequestStateChange() method: Parameters

Qualifiers	Name	Type	Description
IN	RequestedState	uint16	For the purposes of this profile, the valid states that can be requested are 9 (Reboot), 10 (Reset), and 4 (Shut Down). Support is optional.
IN	TimeoutPeriod	datetime	A timeout period that specifies the maximum amount of time that the client expects the transition to the new state to take. The interval format must be used to specify the TimeoutPeriod. A value of 0 or a null parameter indicates that the client has no time requirements for the transition. If this property does not contain 0 or null and the implementation does not support this parameter, a return code of 4098 (Use of Timeout Parameter Not Supported) shall be returned.

490 **8.3.2 CreateWBEMServerNamespace()**

491 CreateWBEMServerNamespace creates a Namespace. Upon successful completion of the method, there
 492 shall be a newly created instance of CIM_WBEMServerNamespace associated through the
 493 CIM_HostedDependency association with this instance of CIM_WBEMServer.

494 A WBEM Server may support the creation of namespaces. If the
 495 CIM_WBEMServerCapabilities.MethodsSupported property value includes the value 3
 496 (CreateWBEMServerNamespace), this method shall be supported.

497

498

Table 4 – CreateWBEMServerNamespace () method: Return code values

Value	Description
0 (Completed with No Error)	The method executed successfully.
1 (Unknown/Unspecified Error)	A failure occurred for some vendor-specific reason.
2 (Failed)	The method failed.
3 (Invalid Parameters)	One or more parameters are invalid.

499

Table 5 – CreateWBEMServerNamespace() method: Parameters

Qualifiers	Name	Type	Description
IN	NamespaceTemplate	String	NamespaceTemplate is a template for the desired Namespace to be created.
OUT	Namespace	REF	Reference to the instance of CIM_WBEMServerNamespace created when the method returns a value of 0.

500

501 **8.4 CIM_WBEMServerNamespace**

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

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

506

Table 6 – Operations: CIM_HostedDependency

Operation	Requirement	Messages
ModifyInstance	Optional	None
DeleteInstance	Optional	None

507 **8.4.1 ModifyInstance**

508 If the CIM_WBEMServerCapabilities .MethodsSupported property value includes the value 3
 509 (CreateWBEMServerNamespace) then ModifyInstance shall be supported.

510 The Name and InstanceID properties shall not be modified, only the SchemaInformation property value
 511 shall support modification.

512 **8.4.2 DeleteInstance**

513 If the CIM_WBEMServerCapabilities .MethodsSupported property value includes the value 3
 514 (CreateWBEMServerNamespace) then DeleteInstance shall be supported.

515 **8.5 CIM_ProtocolService**

516 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

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

518 The following additional methods shall be implemented.

519 **8.5.1 RequestStateChange()**

520 A WBEM Protocol may be enabled, disabled, reboot, reset or shut down.

521 The RequestStateChange() method is conditional. If WBEMServerCapabilities.ProtocolManagement has
 522 a value of true, then the RequestStateChange method is mandatory. The RequestStateChange() method
 523 shall support the RequestedState parameter with a value of 2 (Enabled), 3 (Disabled), 4 (Shut Down), 9
 524 (Reboot) or 10 (Reset).

525 The return code values and parameters for the RequestStateChange() method are specified in Table 2
 526 and Table 3, respectively.

527

Table 7 – RequestStateChange() method: Return code values

Value	Description
0 (Completed with No Error)	The method executed successfully.
2 (Unknown/Unspecified Error)	A failure occurred for some vendor-specific reason.
3 (Cannot complete within Timeout Period)	The requested amount of time is less than the time the requested state transition takes.
4 (Failed)	The method failed.
5 (Invalid Parameters)	One or more parameters are invalid.
6 (In Use)	Another client has requested a state change that has not completed.
4096 (Method Parameters Checked – Job Started)	The method parameters were validated and a job has been started.

Value	Description
4097 (Invalid State Transition)	The state change requested is invalid for the current state.
4098 (Use of Timeout Parameter Not Supported)	This implementation does not support the TimeoutPeriod parameter. A client may pass a NULL value for the TimeoutPeriod and try again. There is no mechanism to determine what state changes are supported by a particular implementation
4099 (Busy)	A state change is underway in the job; as such, the state cannot be changed. An implementation may use this return code to indicate the job cannot be suspended, killed, or terminated at all or in the current phase of execution.

528

Table 8 – RequestStateChange() method: Parameters

Qualifiers	Name	Type	Description
IN	RequestedState	uint16	For the purposes of this profile, the valid states that can be requested are Enabled, Disabled, Reboot, Reset, and Shut Down.
IN	TimeoutPeriod	datetime	A timeout period that specifies the maximum amount of time that the client expects the transition to the new state to take. The interval format must be used to specify the TimeoutPeriod. A value of 0 or a null parameter indicates that the client has no time requirements for the transition. If this property does not contain 0 or null and the implementation does not support this parameter, a return code of 4098 (Use of Timeout Parameter Not Supported) shall be returned.

529

530 **8.5.2 ListenOnPortIF()**

531 The ListenOnPortIF() method shall be supported when the
 532 CIM_WBEMProtocolCapabilities.ListeningPortManagementSupported property has the value true.

533 The ListenOnPortIF() method is used to configure ports on which the protocol represented by the
 534 CIM_ProtocolService instance will listen. Detailed requirements of the ListenOnPortIF() method are
 535 specified in Table 9 and Table 10.

536

Table 9 – ListenOnPortIF() method: Return code values

Return Code Values	Description
0	Request was successfully executed.
1	Method is unsupported in the implementation.
2	Error occurred
0x1000	Job started: REF returned to started CIM_ConcreteJob

537

538

Table 10 – ListenOnPortIF() method: Parameters

Qualifiers	Name	Type	Description/Values
IN	IPEndpoint	CIM_IPProtocolEndpoint REF	Optional reference to the specific CIM_IPProtocolEndpoint instance to which the created CIM_TCPProtocolEndpoint

Qualifiers	Name	Type	Description/Values
			instance will be bound
OUT	TCPEndpoint	CIM_TCPProtocolEndpoint REF	CIM_TCPProtocolEndpoint instance that is created if the method is successful
IN, REQ	PortNumber	uint16	Desired port number for the service to listen on
IN, REQ	ProtocolIFType	uint32	Desired IF Type(e.g. HTTPS, HTTP ...) to listen for

539

540 8.6 CIM_HostedDependency

541 Table 11 lists implementation requirements for operations. If implemented, these operations shall be
 542 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 11, all operations
 543 in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

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

545 **Table 11 – Operations: CIM_HostedDependency**

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

546 8.7 CIM_ServiceServiceDependency

547 Table 12 lists implementation requirements for operations. If implemented, these operations shall be
 548 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 12, all operations
 549 in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

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

551 **Table 12 – Operations: CIM_ServiceServiceDependency**

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

552 8.8 CIM_HostedService (WBEMServer)

553 Table 13 lists implementation requirements for operations. If implemented, these operations shall be
 554 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 13, all operations
 555 in the default list in 8.1 shall be implemented as defined in [DSP0200](#)

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

557

Table 13 – Operations: CIM_HostedService (WBEMServer)

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

558 **8.9 CIM_HostedService (ProtocolService)**

559 Table 14 lists implementation requirements for operations. If implemented, these operations shall be
 560 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 14, all operations
 561 in the default list in 8.1 shall be implemented as defined in [DSP0200](#)

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

563

Table 14 – Operations: CIM_HostedService (ProtocolService)

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

564 **8.10 CIM_HostedService (AccountManagementService)**

565 Table 15 lists implementation requirements for operations. If implemented, these operations shall be
 566 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 15, all operations
 567 in the default list in 8.1 shall be implemented as defined in [DSP0200](#)

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

569

Table 15 – Operations: CIM_HostedService (AccountManagementService)

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

570 **8.11 CIM_HostedService (RoleBasedAuthorizationService)**

571 Table 16 lists implementation requirements for operations. If implemented, these operations shall be
 572 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 16, all operations
 573 in the default list in 8.1 shall be implemented as defined in [DSP0200](#)

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

575 **Table 16 – Operations: CIM_HostedService (RoleBasedAuthorizationService)**

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

576 **8.12 CIM_HostedService (IndicationService)**

577 Table 17 lists implementation requirements for operations. If implemented, these operations shall be
 578 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 17, all operations
 579 in the default list in 8.1 shall be implemented as defined in [DSP0200](#)

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

581 **Table 17 – Operations: CIM_HostedService (IndicationService)**

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

582 **8.13 CIM_RegisteredProfile**

583 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

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

585 **8.14 CIM_WBEMServerCapabilities**

586 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

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

588 **8.15 CIM_ElementCapabilities (WBEMServerCapabilities)**

589 Table 19 lists implementation requirements for operations. If implemented, these operations shall be
 590 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 19, all operations
 591 in the default list in 8.1 shall be implemented as defined in [DSP0200](#)

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

593 **Table 18 – Operations: CIM_ElementCapabilities (WBEMServerCapabilities)**

Operation	Requirement	Messages
Associators	Unspecified	None
AssociatorNames	Unspecified	None

Operation	Requirement	Messages
References	Unspecified	None
ReferenceNames	Unspecified	None

594 **8.16 CIM_WBEMProtocolCapabilities**

595 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

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

597 **8.17 CIM_ElementCapabilities (WBEMProtocolCapabilities)**

598 Table 19 lists implementation requirements for operations. If implemented, these operations shall be
 599 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 19, all operations
 600 in the default list in 8.1 shall be implemented as defined in [DSP0200](#)

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

602 **Table 19 – Operations: CIM_ElementCapabilities (WBEMProtocolCapabilities)**

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

603 **8.18 CIM_TCPProtocolEndpoint**

604 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

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

606 **8.19 CIM_ServiceAccessBySAP**

607 Table 20 lists implementation requirements for operations. If implemented, these operations shall be
 608 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 20, all operations
 609 in the default list in 8.1 shall be implemented as defined in [DSP0200](#)

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

611 **Table 20 – Operations: CIM_ServiceAccessBySAP**

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

612 **8.20 CIM_HostedAccessPoint**

613 Table 21 lists implementation requirements for operations. If implemented, these operations shall be
 614 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 21, all operations
 615 in the default list in 8.1 shall be implemented as defined in [DSP0200](#)

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

617 **Table 21 – Operations: CIM_HostedAccessPoint**

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

618 **8.21 CIM_BindsTo**

619 Table 22 lists implementation requirements for operations. If implemented, these operations shall be
 620 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 22, all operations
 621 in the default list in 8.1 shall be implemented as defined in [DSP0200](#)

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

623 **Table 22 – Operations: CIM_BindsTo**

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

624 **8.22 CIM_IPProtocolEndpoint**

625 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

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

627 **8.23 CIM_CIMXMLCapabilities**

628 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

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

630 **8.24 CIM_WSMManagementCapabilities**

631 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

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

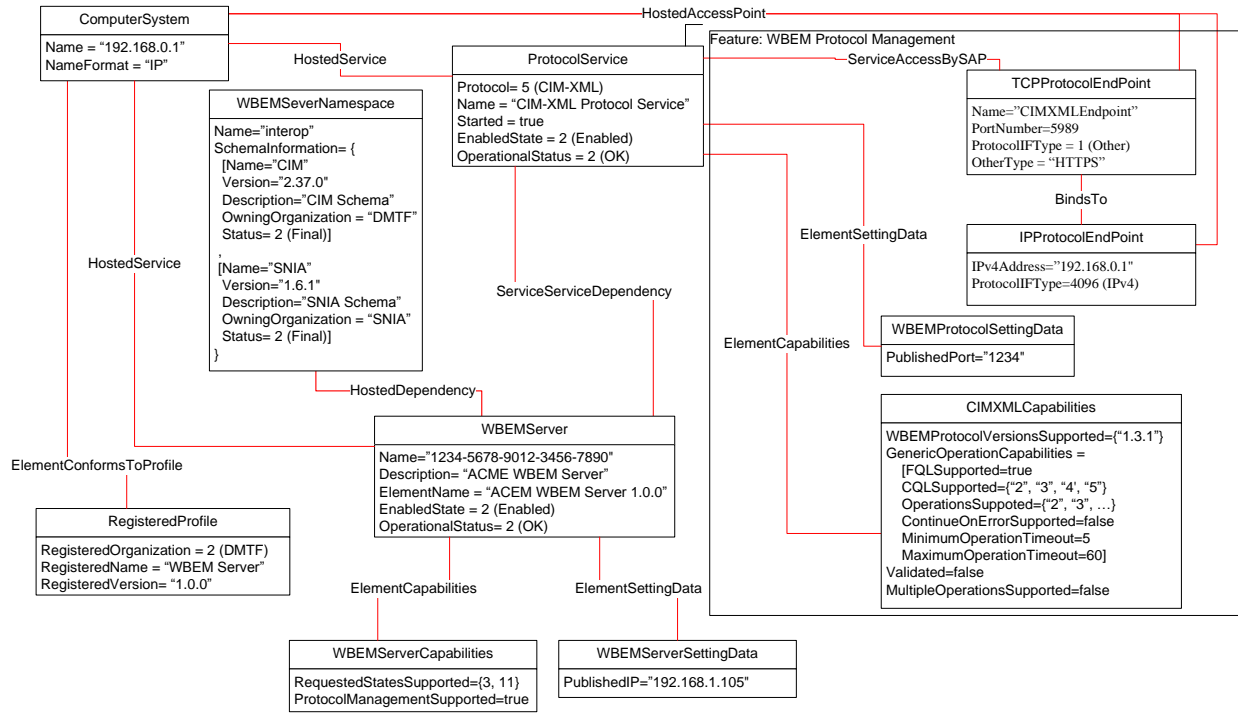
633

634 **9 Use cases (informative)**

635 This clause provides informative use cases and object diagrams.

636 The following diagrams will be used to illustrate some of the use cases.

637 Figure 2 represents a WBEM Server that supports a single namespace (interop) and a single WBEM
 638 protocol (CIM-XML).

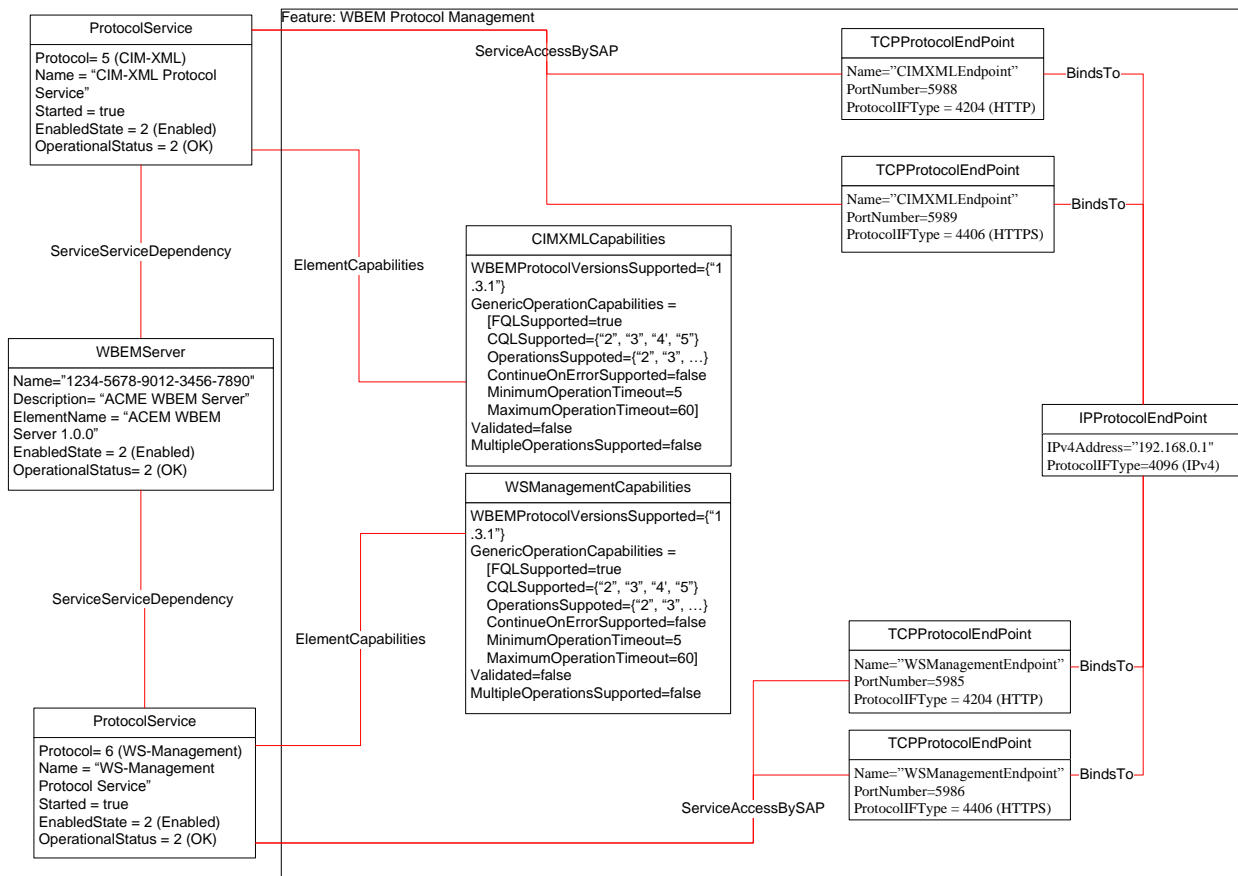


639

640 **Figure 2 – WBEM Server Profile: Instance diagram**

641

642 Figure 3 represents an instance diagram of a WBEM Server that supports two WBEM protocols (CIM-
 643 XML and WS-Management), each listening on two ports; one for HTTP and one for HTTPS. All the
 644 protocols are bound to the same IP Address.



645

646

Figure 3 – WBEM Server Profile: Instance diagram with multiple WBEM protocols

647

648 **9.1 Determine the namespaces of a WBEM Server**

649 A WBEM Server may contain one or more namespaces. The interop namespace is mandatory. A client
 650 may retrieve all namespaces supported and optionally information about each namespace.

- 651 1) Starting from the central instance of the profile, traverse the HostedService association (with a
 652 result class of CIM_WBEMServer) to get the instance that represents the WBEM Server.
- 653 2) From the WBEM Server instance, traverse the HostedDependency association to get the
 654 instance(s) of CIM_WBEMServerNamespace. Each instance represents a namespace that
 655 exists. The value of the name property is the name of the namespace.

656 **9.2 Determine the contents of a namespace**

657 A namespace may contain multiple schemas. The following steps will describe how a client determines
 658 the contents of a namespace.

- 659 1) Use 9.1 to retrieve the namespace instance(s).
- 660 2) The CIM_WBEMServerNamespace.SchemaInformation property contains an array of structures
 661 that represent the information in the namespace. A namespace may contain multiple schemas
 662 (e.g. CIM, SNIA, ACME). An example of what an entry may look like for the DMTF CIM

663 Schema 2.37.0 is below.
664

Property Name	Value
Name	CIM
Version	2.37.0
Description	CIM 2.37.0 Schema
URI	http://schemas.dmtf.org/wbem/cim-schemas
OwningOrganization	DMTF
Status	2 (Final)

665

666 9.3 Modify WBEMServerNamespace to update what is represented

667 The schema contained in a namespace may change over time. For example, the schema may be
668 upgraded to a newer version or a new extension schema is added. An installation program that installs
669 new extension schema in a namespace should update the WBEMServerNamespace instance that
670 represents the namespace to include the information for this new extension schema. The following steps
671 describe one way to accomplish this task.

- 672 1) Use 9.1 to retrieve the namespace instance(s).
- 673 2) Find the instance that has the Name property value that matches the namespace.
- 674 3) Using the instances from step 2, and a structure instance that represents the information for the
675 extension schema added and use the ModifyInstance operation to apply the changes.

676 9.4 Determine the WBEM Protocols supported and state

- 677 1) Starting from the central instance of the profile, traverse the CIM_HostedService association,
678 with a result class of CIM_WBEMServer, to retrieve the instance that represents the WBEM
679 Server
- 680 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
681 instance with a result class of CIM_ProtocolService.
 - 682 a. For each instance returned, view the Protocol property value to for the id that represents
683 the name of the protocol supported.
 - 684 b. To determine the state of the protocol, view the EnabledState property value. For
685 example, if the value is 2 (Enabled), the protocol is available to accept requests and
686 issue responses.

687 9.5 Determine the port used for a WBEM Protocol

688 Support for WBEM Protocol Management is optional.

- 689 1) Starting from the central instance of the profile, traverse the CIM_HostedService association
690 (with a result class of CIM_WBEMServer) to retrieve the instance that represents the WBEM
691 Server.
- 692 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
693 instance with a result class of CIM_ProtocolService to retrieve the instance(s) that represent the
694 WBEM Protocol(s) supported.

- 695 3) Traverse the CIM_ServiceAccessBySAP association with a result class of
696 CIM_TCPProtocolEndpoint to retrieve the instance(s) that represent the endpoint and port. View
697 the CIM_TCPProtocolEndpoint.PortNumber property to see the port that this endpoint is
698 listening on.

699 9.6 Determine the IP address for a WBEM Protocol

700 Support for WBEM Protocol Management is optional.

- 701 1) Starting from the central instance of the profile, traverse the CIM_HostedService association
702 (with a result class of CIM_WBEMServer) to retrieve the instance that represents the WBEM
703 Server.
- 704 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
705 instance with a result class of CIM_ProtocolService to retrieve the instance(s) that represent the
706 WBEM Protocol(s) supported.
- 707 3) Traverse the CIM_ServiceAccessBySAP association with a result class of
708 CIM_TCPProtocolEndpoint to retrieve the instance(s) that represent the endpoint and port. View
709 the CIM_TCPProtocolEndpoint.PortNumber property to see the port that this endpoint is
710 listening on.
- 711 4) Traverse the CIM_BindTo association with a result class of CIM_IPProtocolEndpoint. The
712 instance(s) of CIM_IPProtocolEndpoint returned will have a value for either the IPv4Address
713 and/or IPv6Address properties.

714 9.7 Determine the capabilities of a WBEM Protocol

- 715 1) Starting from the central instance of the profile, traverse the CIM_HostedService association
716 (with a result class of CIM_WBEMServer) to retrieve the instance that represents the WBEM
717 Server.
- 718 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
719 instance with a result class of CIM_ProtocolService to retrieve the instance(s) that represent the
720 WBEM Protocol(s) supported. If a specific protocol is desired, filter on the
721 CIM_ProtocolService.Protocol property value.
- 722 3) Using the instance(s) from the previous step, traverse the CIM_ElementCapabilities association
723 with a result class of CIM_WBEMProtocolCapabilities. The capabilities include the version(s) of
724 the protocol supported as well as the list of operations supported. Some protocols may have
725 subclasses of CIM_WBEMProtocolCapabilities to provide profile specific capabilities, for
726 example CIM_CIMXMLCapabilities and CIM_WSMManagementCapabilities.

727 9.8 Determine the Setting Data of a WBEM Protocol

- 728 1) Starting from the central instance of the profile, traverse the CIM_HostedService association
729 (with a result class of CIM_WBEMServer) to retrieve the instance that represents the WBEM
730 Server.
- 731 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
732 instance with a result class of CIM_ProtocolService to retrieve the instance(s) that represent the
733 WBEM Protocol(s) supported. If a specific protocol is desired, filter on the
734 CIM_ProtocolService.Protocol property value.
- 735 3) Using the instance(s) from the previous step, traverse the CIM_ElementSettingData association
736 with a result class of CIM_WBEMProtocolSettingData. Some protocols may have subclasses of
737 CIM_WBEMProtocolSettingData to provide profile specific capabilities.

738 9.9 Modify the port for a WBEM Protocol

- 739 1) Starting from the central instance of the profile, traverse the CIM_HostedService association
740 (with a result class of CIM_WBEMServer) to retrieve the instance that represents the WBEM
741 Server.
- 742 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
743 instance with a result class of CIM_ProtocolService to retrieve the instance(s) that represent the
744 WBEM Protocol(s) supported. . If a specific protocol is desired, filter on the
745 CIM_ProtocolService.Protocol property value.
- 746 3) Using the instance(s) from the previous step, traverse the CIM_ElementCapabilities association
747 with a result class of CIM_WBEMProtocolCapabilities. Support for WBEM Protocol
748 Management is optional. If the value of the
749 CIM_WBEMProtocolCapabilities.ListeningPortManagementSupported is true, port modification
750 is supported.
- 751 4) Using the instance(s) from step 4, invoke the ListenOnPortIF() method with the desired port. An
752 implementation may allow listening on multiple ports or only a single port per protocol interface
753 (e.g. HTTP, HTTPS, ...). In other words, if you invoke this method, it may remove the old port
754 and replace it with the new port or may add the new port as an additional port. To determine
755 this, a client can follow the steps in 9.5.

756 9.10 Disable/Enable a WBEM Protocol

757 A WBEM Server may support one or more protocols. One of the protocols may not be enabled or an
758 administrator may decide to disable a protocol. The following describe the steps to enable a WBEM
759 protocol. To disable a protocol, follow the same steps changing the RequestedState parameter to 3
760 (Disable).

- 761 1) Starting from the central instance of the profile, traverse the CIM_HostedService association
762 (with a result class of CIM_WBEMServer) to retrieve the instance that represents the WBEM
763 Server.
- 764 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
765 instance with a result class of CIM_ProtocolService to retrieve the instance(s) that represent the
766 WBEM Protocol(s) supported. . If a specific protocol is desired, filter on the
767 CIM_ProtocolService.Protocol property value.
- 768 3) Support for the RequestStateChange() method is optional. A client can determine if the
769 RequestStateChange() method is supported by using the instance(s) from the previous step,
770 traverse the CIM_ElementCapabilities association with a result class of
771 CIM_WBEMProtocolCapabilities and determine if the value of the
772 CIM_WBEMProtocolCapabilities.RequestedStatesSupported property has the value of the
773 desired RequestedState.
- 774 4) Using the instance(s) from Step 2, invoke the CIM_ProtocolService.RequestStateChange()
775 method with the RequestedState parameter value set to 2 (Enable).
- 776 5) If the return value of the method is 0 (Completed with No Error), then the protocol was enabled.

777 9.11 Reset the WBEM Server

778 The WBEM Server may be reset using the following steps.

- 779 1) Starting from the central instance of the profile, traverse the CIM_HostedService association
780 (with a result class of CIM_WBEMServer) to get the instance that represents the WBEM Server.
- 781 2) Using the instance of CIM_WBEMServer traverse the CIM_ElementCapabilities association with
782 a result class of CIM_WBEMServerCapabilities.

- 783 3) This behavior is optional. If the CIM_WBEMServerCapabilities.RequestedStatesSupported
784 includes the value 11 (Reset), the server supports being reset.
- 785 4) Invoke the CIM_WBEMServer.RequestStateChange() method with the RequestedState
786 parameter value set to 11 (Reset).
- 787 5) If the return value of the method is 0 (Completed with No Error), then the WBEM Server will
788 shut down (it may take some amount of time for the WBEM Server to shut down all services)
789 and restart.

790 **9.12 Shut down the WBEM Server**

791 The WBEM Server may be shut down using the following steps.

- 792 1) Starting from the central instance of the profile, traverse the CIM_HostedService association
793 (with a result class of CIM_WBEMServer) to get the instance that represents the WBEM Server.
- 794 2) Using the instance of CIM_WBEMServer traverse the CIM_ElementCapabilities association with
795 a result class of CIM_WBEMServerCapabilities.
- 796 3) This behavior is optional. If the CIM_WBEMServerCapabilities.RequestedStatesSupported
797 includes the value 4 (Shut Down), the server supports being shut down.
- 798 4) Invoke the RequestStateChange() method with the RequestedState parameter value set to 4
799 (Shut Down).
- 800 5) If the return value of the method is 0 (Completed with No Error), then the WBEM Server will
801 shut down (it may take some amount of time for the WBEM Server to shut down all services).

802 **10 CIM Elements**

803 Table 23 shows the instances of CIM Elements for this profile. Instances of the CIM Elements shall be
804 implemented as described in Table 23. Clauses 7 (“Implementation”) and 8 (“Methods”) may impose
805 additional requirements on these elements.

806 **Table 23 – CIM Elements: WBEM Server Profile**

Element name	Requirement	Description
Classes		
CIM_ComputerSystem	Mandatory	See 10.1
CIM_WBEMServer	Mandatory	See 10.2.
CIM_WBEMServerNamespace	Mandatory	See 10.3.
CIM_ProtocolService	Mandatory	See 10.4.
CIM_HostedDependency (Namespace)	Mandatory	See 10.5.
CIM_ServiceServiceDependency	Mandatory	See 10.6
CIM_HostedService (WBEMServer)	Mandatory	See 10.7.
CIM_HostedService (ProtocolService)	Mandatory	See 10.8.
CIM_HostedService (AccountManagementService)	Mandatory	See 10.9.
CIM_HostedService (RoleBasedAuthorizationService)	Mandatory	See 10.10.
CIM_HostedService (IndicationService)	Conditional	See 10.11 and 7.5.
CIM_RegisteredProfile	Mandatory	See 10.12.

Element name	Requirement	Description
CIM_WBEMServerCapabilities	Mandatory	See 10.13.
CIM_ElementCapabilities (WBEMServerCapabilities)	Mandatory	See 10.14.
CIM_WBEMProtocolCapabilities	Conditional	See 10.15 and 7.4.1.
CIM_ElementCapabilities (WBEMProtocolCapabilities)	Conditional	See 10.16 and 7.4.1.
CIM_TCPProtocolEndpoint	Conditional	See 10.17 and 7.4.2.
CIM_ServiceAccessBySAP	Conditional	See 10.18 and 7.4.2.
CIM_HostedAccessPoint	Conditional	See 10.19 and 7.4.2.
CIM_BindsTo	Optional	See 10.20.
CIM_IPProtocolEndPoint	Optional	See 10.21.
CIM_CIMXMLCapabilities	Conditional	See 10.22 and 7.4.1.4.1.
CIM_WSMManagementCapabilities	Conditional	See 10.23 and 7.4.1.4.2.
CIM_GenericOperationCapabilitiesStructure	Mandatory	See 10.24.
CIM_SchemaInformationStructure	Mandatory	See 10.25
Indications		
None		

807 **10.1 CIM_ComputerSystem**

808 The requirements denoted in Table 24 are in addition to those mandated by the *Base System Profile*
 809 (DSP1055).

810 **Table 24 – Class: CIM_ComputerSystem**

Elements	Requirement	Notes
CreationClassName	Mandatory	Key
Name	Mandatory	Key
NameFormat	Mandatory	None

811 **10.2 CIM_WBEMServer**

812 CIM_WBEMServer represents the WBEM Server as a service running on a system. Table 25 contains the
 813 requirements for elements of this class.

814 **Table 25 – Class: CIM_WBEMServer**

Elements	Requirement	Notes
SystemCreationClassName	Mandatory	Key
SystemName	Mandatory	Key
CreationClassName	Mandatory	Key
Name	Mandatory	Key
RequestedState	Mandatory	See 7.1.2

Elements	Requirement	Notes
EnabledState	Mandatory	See 7.1.3
HealthState	Mandatory	None
OperationalStatus	Mandatory	None
ElementName	Mandatory	None
RequestStateChange()	Conditional	See 8.3.1
CreateWBEMServerNameSpace()	Conditional	See 8.3.2

815 **10.3 CIM_WBEMServerNamespace**

816 CIM_WBEMServerNamespace represents the namespaces of the WBEMServer. Table 26 contains the
817 requirements for elements of this class.

818 **Table 26 – Class: CIM_WBEMServerNamespace**

Elements	Requirement	Notes
InstanceID	Mandatory	Key
Name	Mandatory	See 7.2.1
SchemaInformation	Mandatory	See 10.25
ElementName	Mandatory	None

819 **10.4 CIM_ProtocolService**

820 CIM_ProtocolService represents a WBEM Protocol. Table 27 contains the requirements for elements of
821 this class.

822 **Table 27 – Class: CIM_ProtocolService**

Elements	Requirement	Notes
SystemCreationClassName	Mandatory	Key
SystemName	Mandatory	Key
CreationClassName	Mandatory	Key
Name	Mandatory	Key
Protocol	Mandatory	None
MaxConnections	Mandatory	A value of 0 (zero) shall indicate unknown
RequestedState	Mandatory	See 7.3.1
EnabledState	Mandatory	See 7.3.2
HealthState	Mandatory	None
OperationalStatus	Mandatory	None
ElementName	Mandatory	None
RequestStateChange()	Conditional	See 8.5.1
ListenOnPortIF()	Conditional	See 8.5.2

823 **10.5 CIM_HostedDependency (Namespace)**

824 CIM_HostedDependency associates the CIM_WBEMServerNamespace instances with the
825 CIM_WBEMServer. Table 28 contains the requirements for elements of this class.

826 **Table 28 – Class: CIM_HostedDependency**

Elements	Requirement	Notes
Antecedent	Mandatory	Key: Shall reference the instance of CIM_WBEMServer
Dependent	Mandatory	Key: Shall reference the instance of CIM_WBEMServerNamespace.

827 **10.6 CIM_ServiceServiceDependency**

828 CIM_ServiceServiceDependency associates the CIM_WBEMServer instance with the
829 CIM_ProtocolService instances. Table 29 contains the requirements for the elements of this class.

830 **Table 29 – Class: CIM_ServiceServiceDependency**

Elements	Requirement	Notes
Antecedent	Mandatory	Key: Shall reference the instance of CIM_WBEMServer.
Dependent	Mandatory	Key: Shall reference an instance of CIM_ProtocolService.
TypeOfDependency	Mandatory	Value shall be 3
RestartService	Mandatory	Value shall be false

831 **10.7 CIM_HostedService (WBEMServer)**

832 CIM_HostedService (WBEMServer) associates the CIM_ComputerSystem and CIM_WBEMServer.
833 Table 30 contains the requirements for elements of this class.

834 **Table 30 – Class: CIM_HostedService (WBEMServer)**

Elements	Requirement	Notes
Antecedent	Mandatory	Key: Shall reference the instance of CIM_ComputerSystem (the central instance of this profile).
Dependent	Mandatory	Key: Shall reference the instance of CIM_WBEMServer.

835 **10.8 CIM_HostedService (ProtocolService)**

836 CIM_HostedService (ProtocolService) associates the CIM_ComputerSystem and CIM_ProtocolService.
 837 Table 31 contains the requirements for elements of this class.

838 **Table 31 – Class: CIM_HostedService (ProtocolService)**

Elements	Requirement	Notes
Antecedent	Mandatory	Key: Shall reference the instance of CIM_ComputerSystem (the central instance of this profile).
Dependent	Mandatory	Key: Shall reference the instance of CIM_ProtocolService.

839 **10.9 CIM_HostedService (AccountManagementService)**

840 CIM_HostedService (AccountManagementService) associates the CIM_ComputerSystem and
 841 CIM_AcccountManagementService. Table 32 contains the requirements for elements of this class.

842 **Table 32 – Class: CIM_HostedService (AccountManagementService)**

Elements	Requirement	Notes
Antecedent	Mandatory	Key: Shall reference the instance of CIM_ComputerSystem (the central instance of this profile).
Dependent	Mandatory	Key: Shall reference the instance of CIM_AcccountManagementService.

843 **10.10 CIM_HostedService (RoleBasedAuthorizationService)**

844 CIM_HostedService (RoleBasedAuthorizationService) associates the CIM_ComputerSystem and
 845 CIM_RoleBasedAuthorizationService. Table 33 contains the requirements for elements of this class.

846 **Table 33 – Class: CIM_HostedService (RoleBasedAuthorizationService)**

Elements	Requirement	Notes
Antecedent	Mandatory	Key: Shall reference the instance of CIM_ComputerSystem (the central instance of this profile).
Dependent	Mandatory	Key: Shall reference the instance of CIM_RoleBasedAuthorization.

847 **10.11 CIM_HostedService (IndicationService)**

848 CIM_HostedService (IndicationService) associates the CIM_ComputerSystem and
849 CIM_IndicationService. Table 34 contains the requirements for elements of this class.

850 **Table 34 – Class: CIM_HostedService (IndicationService)**

Elements	Requirement	Notes
Antecedent	Mandatory	Key: Shall reference the central instance of this profile (CIM_ComputerSystem).
Dependent	Mandatory	Key: Shall reference the instance of CIM_IndicationService

851 **10.12 CIM_RegisteredProfile**

852 The requirements denoted in Table 30 are in addition to those mandated by the [Profile Registration Profile \(DSP1033\)](#).
853

854 **Table 35 – Class: CIM_RegisteredProfile**

Properties	Requirement	Notes
RegisteredName	Mandatory	This property shall have a value of "WBEM Server".
RegisteredVersion	Mandatory	This property shall have a value of "1.0.0a".
RegisteredOrganization	Mandatory	This property shall have a value of 2 (DMTF).

855 **10.13 CIM_WBEMServerCapabilities**

856 CIM_WBEMServerCapabilities represents the capabilities for a WBEM Server. Table 36 contains the
857 requirements for elements of this class.

858 **Table 36 – Class: CIM_WBEMServerCapabilities**

Elements	Requirement	Notes
InstanceID	Mandatory	Key
MethodsSupported	Optional	See 7.1.1.1
RequestedStatesSupported	Optional	See 7.1.1.2

859 **10.14 CIM_ElementCapabilities (WBEMServerCapabilities)**

860 CIM_ElementCapabilities represents an association between a CIM_WBEMServer and its capabilities.
861 Table 37 contains the requirements for elements of this class.

862 **Table 37 – Class: CIM_ElementCapabilities (WBEMServerCapabilities)**

Elements	Requirement	Notes
ManagedElement	Mandatory	Key: Shall reference the instance of CIM_WBEMServer.
Capabilities	Mandatory	Key: Shall reference the instance of CIM_WBEMServerCapabilities.

Elements	Requirement	Notes
Characteristics	Mandatory	Matches 3

863 **10.15 CIM_WBEMProtocolCapabilities**

864 CIM_WBEMProtocolCapabilities represents the capabilities for a CIM_ProtocolService. Table 38 contains
865 the requirements for elements of this class.

866 **Table 38 – Class: CIM_WBEMProtocolCapabilities**

Elements	Requirement	Notes
InstanceID	Mandatory	Key
ElementName	Mandatory	None
ListeningPortManagementSupported	Mandatory	See 7.4.1.1
RequestedStatesSupported	Mandatory	See 7.4.1.2
MaxConnections	Mandatory	A value of 0 (zero) shall indicate unknown
ProtocolVersionSupported	Mandatory	None
GenericOperationCapabilities	Mandatory	See 10.24
AuthenticationMechanismsSupported	Mandatory	None
AuthenticationMechanismsDescriptions	Conditional	Mandatory when AuthenticationMechanismsSupports has the value 1

867 **10.16 CIM_ElementCapabilities (WBEMProtocolCapabilities)**

868 CIM_ElementCapabilities represents an association between a CIM_ProtocolService and its capabilities.
869 Table 39 contains the requirements for elements of this class.

870 **Table 39 – Class: CIM_ElementCapabilities (WBEMProtocolCapabilities)**

Elements	Requirement	Notes
ManagedElement	Mandatory	Key: Shall reference the instance of CIM_ProtocolService.
Capabilities	Mandatory	Key: Shall reference the instance of CIM_WBEMProtocolCapabilities.
Characteristics	Mandatory	Matches 3

871 **10.17 CIM_TCPProtocolEndpoint**

872 CIM_TCPProtocolEndpoint represents a Protocol Endpoint used for communications. Table 40 contains
873 the requirements for elements of this class.

874 **Table 40 – Class: CIM_TCPProtocolEndpoint**

Elements	Requirement	Notes
Name	Mandatory	Key
CreationClassName	Mandatory	Key
SystemName	Mandatory	Key
SystemCreationClassName	Mandatory	Key
PortNumber	Mandatory	None

Elements	Requirement	Notes
ProtocolIFType	Mandatory	None
NameFormat	Mandatory	Pattern “.*”
ElementName	Mandatory	Pattern “.*”

875 **10.18 CIM_ServiceAccessBySAP**

876 CIM_ServiceAccessBySAP represents an association between a CIM_ProtocolService and the
 877 CIM_ServiceAccessPoint(s). Table 41 contains the requirements for elements of this class.

878 **Table 41 – Class: CIM_ServiceAccessBySAP**

Elements	Requirement	Notes
Antecedent	Mandatory	Key: Shall reference the instance of CIM_ProtocolService that has this CIM_ServiceAccessPoint.
Dependent	Mandatory	Key: Shall reference the instance of CIM_ServiceAccessPoint.

879 **10.19 CIM_HostedAccessPoint**

880 CIM_HostedAccessPoint represents an association between the computer system and the Service
 881 Access Points. Table 42 contains the requirements for elements of this class.

882 **Table 42 – Class: CIM_HostedAccessPoint**

Elements	Requirement	Notes
Antecedent	Mandatory	Key: Shall reference the instance of CIM_ComputerSystem (the central instance of this profile).
Dependent	Mandatory	Key: Shall reference the instance of CIM_ServiceAccessPoint.

883 **10.20 CIM_BindsTo**

884 CIM_BindsTo represents an association between a ProtocolEndPoint and a ServiceAccessPoint. Table
 885 43 contains the requirements for elements of this class.

886 **Table 43 – Class: CIM_BindsTo**

Elements	Requirement	Notes
Antecedent	Mandatory	Key: Shall reference the instance of CIM_ProtocolEndpoint.
Dependent	Mandatory	Key: Shall reference the instance of CIM_ServiceAccessPoint.

887 **10.21 CIM_IPProtocolEndpoint**888 There are no additional requirements than to those mandated by the *IP Interface Profile* (DSP1036).889 **10.22 CIM_CIMXMLCapabilities**890 CIM_BindsTo represents an association between a ProtocolEndPoint and a ServiceAccessPoint. Table
891 43Table 44 contains the requirements for elements of this class.892 **Table 44 – Class: CIM_CIMXMLCapabilities**

Elements	Requirement	Notes
InstanceID	Mandatory	Key
ElementName	Mandatory	None
RequestedStatesSupported	Mandatory	See 7.4.1.2
MaxConnections	Mandatory	A value of 0 (zero) shall indicate unknown
ProtocolVersionSupported	Mandatory	None
GenericOperationCapabilities	Mandatory	See 10.24
AuthenticationMechansimsSupported	Mandatory	None
MultipleOperationsSupported	Mandatory	None
Validated	Mandatory	None

893

894 **10.23 CIM_WSMangementCapabilities**895 CIM_BindsTo represents an association between a ProtocolEndPoint and a ServiceAccessPoint. Table
896 45 contains the requirements for elements of this class.897 **Table 45 – Class: CIM_WSMangementCapabilities**

Elements	Requirement	Notes
InstanceID	Mandatory	Key
ElementName	Mandatory	None
RequestedStatesSupported	Mandatory	See 7.4.1.2
MaxConnections	Mandatory	A value of 0 (zero) shall indicate unknown
ProtocolVersionSupported	Mandatory	None
GenericOperationCapabilities	Mandatory	See 10.24
AuthenticationMechansimsSupported	Mandatory	None
XPathFeatures	Mandatory	None

898

899 **10.24 CIM_GenericOperationsCapabilitiesStructure**900 The CIM_GenericOperationsCapabilitiesStructure is a structure that describes the capabilities for Generic
901 Operations based on the Generic Operations Specification ([DSP0223](#)).

902

Table 46 – Class: CIM_GenericOperationsCapabilitiesStructure

Elements	Requirement	Notes
FQLSupported	Mandatory	None
CQLSupport	Mandatory	None
OperationsSupported	Mandatory	None
OperationsSupportedDescriptions	Conditional	Mandatory when OperationsSupported has 1 (Other)
ContinueOnErrorSupported	Conditional	See 7.4.1.3.1
MinimumOperationTimeout	Conditional	See 7.4.1.3.2
MaximumOperationTimeeout	Conditional	See 7.4.1.3.3

903 **10.25 CIM_SchemaInformationStructure**

904 The CIM_SchemaInformationStructure is a structure that describes the schema information that may be
 905 contained in a namespace.

906

Table 47 – Class: CIM_SchemaInformationStructure

Elements	Requirement	Notes
Name	Mandatory	None
Version	Mandatory	None
Description	Mandatory	None
URI	Optional	None
OwningOrganization	Optional	None
Status	Optional	None

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ANNEX A (informative)

Change log

Version	Date	Author	Description
1.0.0a	2013-06-18	Jim Davis	Work in Progress

913