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5 **WBEM Server Profile**

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156

157

Foreword

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

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

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175

176

Introduction

177 The information in this specification should be sufficient for a provider or consumer of this data to
178 unambiguously identify the classes, properties, methods, and values that shall be instantiated to manage
179 and monitor WBEM server and WBEM protocols using the DMTF Common Information Model (CIM)
180 Schema.

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

183 Document conventions

184 Typographical conventions

185 The following typographical conventions are used in this document:

- 186 • Document titles are marked in *italics*.
- 187 • Important terms that are used for the first time are marked in *italics*.
- 188 • ABNF rules are in `monospaced font`.

189 ABNF usage conventions

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

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

194 Experimental material

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

200 The following typographical convention indicates experimental material:

201 **EXPERIMENTAL**

202 Experimental material appears here.

203 **EXPERIMENTAL**

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

206

WBEM Server Profile

207 1 Scope

208 The *WBEM Server Profile* defines the CIM elements that are used to report and manage information
209 regarding the WBEM server.

210 2 Normative references

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

215 DMTF DSP0004, *CIM Infrastructure Specification 2.7*,
216 http://dmtof.org/standards/published_documents/DSP0004_2.7.pdf

217 DMTF DSP0200, *CIM Operations over HTTP 1.3*,
218 http://dmtof.org/standards/published_documents/DSP0200_1.3.pdf

219 DMTF DSP1052, *Computer System Profile 1.0*,
220 http://dmtof.org/standards/published_documents/DSP1052_1.0.pdf

221 DMTF DSP0207, *WBEM URI Mapping 1.0*,
222 http://dmtof.org/standards/published_documents/DSP0207_1.0.pdf

223 DMTF DSP0223, *Generic Operations Specification 1.0*,
224 http://dmtof.org/standards/published_documents/DSP0223_1.0.pdf

225 DMTF DSP1036, *IP Interface Profile 1.1*,
226 http://dmtof.org/standards/published_documents/DSP1036_1.1.pdf

227 DMTF DSP1054, *Indications Profile 1.2*,
228 http://dmtof.org/standards/published_documents/DSP1054_1.2.pdf

229 DMTF DSP1103, *Job Control Profile 1.0*,
230 http://dmtof.org/standards/published_documents/DSP1103_1.0.pdf

231 DMTF DSP1001, *Management Profile Specification Usage Guide 1.0*,
232 http://dmtof.org/standards/published_documents/DSP1001_1.0.pdf

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

235 DMTF DSP1034, *Simple Identity Management Profile 1.1*,
236 http://dmtof.org/standards/published_documents/DSP1034_1.1.pdf

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

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

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

243 3 Terms and definitions

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

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

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

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

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

259 3.1

260 **WBEM server**

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

262 3.2

263 **WBEM protocol**

264 A communications protocol that defines WBEM Operations (see [DSP0223](#))

265

266 4 Symbols and abbreviated terms

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

269 4.1

270 **CQL**

271 CIM Query Language

272 4.2

273 **FQL**

274 Filter Query Language

275 4.3

276 **URI**

277 Uniform Resource Identifier

278 4.4

279 **WBEM**

280 Web Based Enterprise Management

281 **5 Synopsis**

282 **Profile name:** WBEM Server

283 **Version:** 1.0.0

284 **Organization:** DMTF

285 **CIM schema version:** 2.38

286 **Central Class:** CIM_ComputerSystem

287 **Scoping Class:** CIM_ComputerSystem

288 The *WBEM Server Profile* is an autonomous profile that specializes the *Computer System Profile*
 289 ([DSP1052](#)) to provide the capability to discover, monitor and manage the WBEM server infrastructure.

290 The central instance of this profile shall be an instance of CIM_ComputerSystem. The scoping instance
 291 shall be the instance of CIM_ComputerSystem.

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

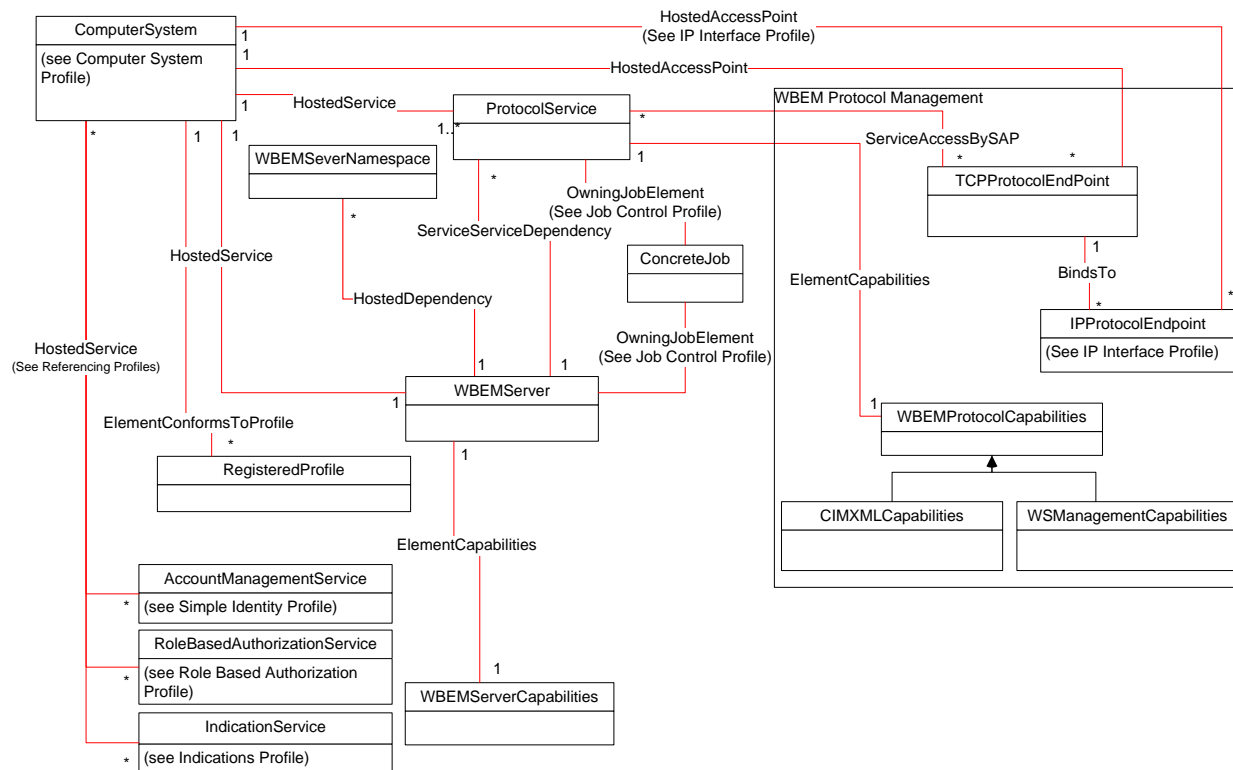
293 **Table 1 – Referenced profiles**

Profile Name	Organization	Version	Relationship	Behavior
Computer System (DSP1052)	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.
Job Control Profile (DSP1103)	DMTF	1.0	Optional	
Profile Registration Profile (DSP1033)	DMTF	1.0	Mandatory	
Role Based Authorization (DSP1039)	DMTF	1.0	Mandatory	
Simple Identity Management (DSP1034)	DMTF	1.1	Mandatory	

294 **6 Description (Informative)**

295 The *WBEM Server Profile* describes the WBEM server and WBEM protocol management.

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



298

299

Figure 1 – WBEM Server Profile: Class diagram

300 The *WBEM Server Profile* represents the capabilities of the WBEM server and supported WBEM
 301 protocols. Functionality within the scope of this profile includes: namespace discovery, WBEM server
 302 settings and WBEM protocol discovery and management.

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

305 The WBEM server is modeled as an instance of CIM_WBEMServer, a subclass of CIM_Service. Aspects
 306 of the WBEM server’s configuration are modeled through the capabilities and settings associated to the
 307 instance of CIM_WBEMServer.

308 Namespaces are modeled using the class CIM_WBEMServerNamespace. Namespace instances include
 309 the information regarding the schemas contained in the namespace.

310 A WBEM protocol is modeled using a single instance of CIM_ProtocolService. A WBEM server may have
 311 support for one or more WBEM protocols.

312 A WBEM server may support the managing of WBEM protocols. If supported, the administrator can
 313 enable, disable or reset a protocol, determine the capabilities supported, change the port(s) the protocol
 314 is listening on and bind the protocol to a specific IP Address.

315 WBEM protocol session management is outside the scope of this profile.

316 7 Implementation

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

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

321 7.1 WBEM server

322 Exactly one instance of this class shall exist that represents the WBEM server.

323 7.1.1 WBEM server capabilities

324 The WBEM server capabilities are represented through an instance of CIM_WBEMServerCapabilities,
325 Exactly one instance of this class shall exist and be associated to the CIM_WBEMServer instance
326 through an instance of CIM_WBEMServerCapabilities.OperationsSupported

327 7.1.1.1 CIM_WBEMServerCapabilities.OperationsSupported

328 Support for methods for CIM_WBEMServer is optional. For each method supported, the
329 OperationsSupported property shall contain the value representing the method.

330 7.1.1.2 CIM_WBEMServerCapabilities.RequestedStatesSupported

331 If the CIM_WBEMServerCapabilities.OperationsSupported property value includes 2
332 (RequestStateChange) this property value shall include at least one of the following values: 4 (Shut
333 Down), 9 (Reboot) or 10 (Reset).

334 If the CIM_WBEMServerCapabilities.OperationsSupported property does not contain the value 2
335 (RequestedStateChange), then the RequestedStatesSupported property shall be Null.

336 7.1.2 CIM_WBEMServer.RequestedState

337 When the CIM_WBEMServer.RequestStateChange() method is successfully invoked, the value of the
338 RequestedState property shall be the value of the RequestedState parameter.

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

341 7.1.3 CIM_WBEMServer.EnabledState

342 The EnabledState property shall have the value 2 (Enabled) or 4 (Shutting Down).

343 When the RequestedState parameter has a value of 4 (Shut Down) and the
344 CIM_WBEMServer.RequestStateChange() method completes successfully, the EnabledState property
345 shall change to 4 (Shutting Down) until the WBEM server is no longer available.

346 If the method does not complete successfully, the value of the EnabledState shall be 2 (Enabled) and the
347 WBEM server shall not try to shut down.

348 7.2 WBEM server namespaces

349 A WBEM server namespace is modeled using the class CIM_WBEMServerNamespace. A WBEM server
350 may contain one or more namespaces. The following clauses describe implementation requirements for
351 CIM_WBEMServerNamespace.

352 7.2.1 CIM_WBEMServerNamespace.Name

353 The Name property is the actual name of the namespace. The namespace name shall be unique, in
354 other words you shall not have two namespace with the same name in a WBEM server.

355 7.3 WBEM protocols

356 A WBEM protocol is modeled using the CIM_ProtocolService class. For each WBEM protocol supported
357 an instance of CIM_ProtocolService shall exist. At least one instance of CIM_ProtocolService shall exist.

358 The following subclauses describe implementation requirements for CIM_ProtocolService.

359 7.3.1 CIM_ProtocolService.RequestedStateChange

360 When the CIM_ProtocolService.RequestStateChange() method is successfully invoked, the value of the
361 RequestedState property shall be the value of the RequestedState parameter.

362 The CIM_ProtocolService.RequestedState property shall have one of the values specified in the
363 CIM_WBEMProtocolServiceCapabilities.RequestedStatesSupported property or a value of 5 (No
364 Change).

365 7.3.2 CIM_ProtocolService.EnabledState

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

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

370 7.4 WBEM protocol management

371 WBEM protocol management for a WBEM protocol is conditional. A WBEM server may support one or
372 more WBEM protocols. If WBEM protocol management is supported for a specified protocol, an instance
373 of CIM_WBEMProtocolServiceCapabilities shall be associated to the instance of CIM_ProtocolService via
374 CIM_ElementCapabilities and the
375 CIM_WBEMProtocolServiceCapabilities.ListeningPortManagementSupported value shall be True.

376 7.4.1 WBEM protocol capabilities

377 WBEM protocol capabilities are modeled using CIM_WBEMProtocolServiceCapabilities. The support for
378 the CIM_WBEMProtocolServiceCapabilities is optional.

379 7.4.1.1 CIM_WBEMProtocolServiceCapabilities.ListeningPortManagementSupported

380 If the CIM_WBEMProtocolServiceCapabilities is implemented, then the
381 ListeningPortManagementSupported property shall be supported. When the
382 ListeningPortManagementSupported property has a value of True, the instance(s) of
383 CIM_ProtocolService associated via CIM_ElementCapabilities shall support the ListenOnPortIF() method.
384 When the ListeningPortManagementSupported property has a value of False, the ListenOnPortIF()
385 method shall not be supported.

386 7.4.1.2 CIM_WBEMProtocolServiceCapabilities.RequestedStatesSupported

387 If WBEM protocol management is supported (See 7.4) then the RequestedStatesSupported property
388 value shall contain the following values: 2 (Enabled), 3 (Disabled), or 11 (Reset). If WBEM protocol
389 management (See 7.4) is not supported, then the RequestedStatesSupported property shall be Null.

390 7.4.1.3 CIM_WBEMProtocolServiceCapabilities.GenericOperationsSupported

391 The GenericOperationsSupported property is mandatory for all protocols. The property value is an array
392 of CIM_GenericOperationCapabilitiesStructure. The following subclauses describe implementation
393 requirements for CIM_GenericOperationCapabilitiesStructure.

394 7.4.1.3.1 CIM_GenericOperationCapabilitiesStructure.ContinueOnErrorSupported

395 The CIM_GenericOperationCapabilitiesStructure.ContinueOnErrorSupported property is mandatory when
396 the CIM_GenericOperationCapabilitiesStructure.OperationsSupported property includes any of the
397 following values 12(OpenEnumerateInstances), 13(OpenEnumerateInstancePaths),
398 14(OpenAssociators), 15(OpenAssociatorPaths), 16(OpenReferences), 17(OpenReferencePaths),
399 18(OpenQueryInstances), 19(PullInstancesWithPath), 20 (PullInstancePaths), 21 (PullInstances).

400 7.4.1.3.2 CIM_GenericOperationCapabilitiesStructure.MinimumOperationTimeout

401 The CIM_GenericOperationCapabilitiesStructure.MinimumOperationTimeout property is mandatory when
402 the CIM_GenericOperationCapabilitiesStructure.OperationsSupported property includes any of the
403 following values 12(OpenEnumerateInstances), 13(OpenEnumerateInstancePaths),
404 14(OpenAssociators), 15(OpenAssociatorPaths), 16(OpenReferences), 17(OpenReferencePaths),
405 18(OpenQueryInstances), 19(PullInstancesWithPath), 20 (PullInstancePaths), 21 (PullInstances).

406 7.4.1.3.3 CIM_GenericOperationCapabilitiesStructure.MaximumOperationTimeout

407 The CIM_GenericOperationCapabilitiesStructure.MaximumOperationTimeout property is mandatory when
408 the CIM_GenericOperationCapabilitiesStructure.OperationsSupported property includes any of the
409 following values 12(OpenEnumerateInstances), 13(OpenEnumerateInstancePaths),
410 14(OpenAssociators), 15(OpenAssociatorPaths), 16(OpenReferences), 17(OpenReferencePaths),
411 18(OpenQueryInstances), 19(PullInstancesWithPath), 20 (PullInstancePaths), 21 (PullInstances).

412 7.4.1.4 Protocol-specific capabilities

413 A WBEM protocol may have a subclass of CIM_WBEMProtocolServiceCapabilities to define protocol
414 specific capabilities. The following clauses describe when a subclass may be required instead.

415 7.4.1.4.1 CIM-XML capabilities

416 If the CIM_WBEMProtocolServiceCapabilities is implemented and the associated
417 CIM_ProtocolService.Protocol has the value 5 (CIM-XML), CIM_CIMXMLCapabilities (subclass of
418 CIM_WBEMProtocolServiceCapabilities) shall be supported and associated via CIM_ElementCapabilities.

419 7.4.1.4.2 WS-Management capabilities

420 If the CIM_WBEMProtocolServiceCapabilities is implemented and the associated
421 CIM_ProtocolService.Protocol has the value 6 (WS-Management), CIM_WSManagementCapabilities
422 (subclass of CIM_WBEMProtocolServiceCapabilities) shall be supported and associated via
423 CIM_ElementCapabilities.

424 7.4.2 CIM_TCPProtocolEndpoint

425 Support for CIM_TCPProtocolEndpoint is conditional. If WBEM protocol management is supported (see
426 7.4), then CIM_TCPProtocolEndpoint and its two associations CIM_HostedAccessPoint and
427 CIM_ServiceAccessBySAP are Mandatory. If WBEM protocol management is not supported (see 7.4),
428 support for CIM_TCPProtocolEndpoint, CIM_HostedAccessPoint and CIM_ServiceAccessBySAP is
429 optional.

430 7.5 Indications Profile

431 *Indications Profile* ([DSP1054](#)) support is optional. If the Indications Profile is implemented, the
432 CIM_HostedService association shall be implemented with the Antecedent property referencing the
433 central instance of this profile and the Dependent referencing the central instance of the Indications
434 Profile.

435 The WBEM server related requirements defined in the *Indications Profile* ([DSP1054](#)) shall be
436 implemented.

437 8 Methods

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

440 8.1 Profile conventions for operations

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

443 The default list of operations is as follows:

- 444 • GetInstance
- 445 • Associators
- 446 • AssociatorNames
- 447 • References
- 448 • ReferenceNames
- 449 • EnumerateInstances
- 450 • EnumerateInstanceNames

451 8.2 CIM_ComputerSystem

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

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

454 8.3 CIM_WBEMServer

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

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

457 The following additional methods shall be implemented.

458 8.3.1 RequestStateChange()

459 A WBEM server may be requested to reboot, reset or shut down. A WBEM server reboot will shut down
460 and re-enable the WBEM server. Resetting a WBEM server means that the WBEM server goes into the
461 disabled state and then back to enabled state. Shutdown means that the WBEM server stops executing,
462 usually meaning that any cleanup needed is completed as part of the shutdown process. The WBEM
463 server shall respond to the method (for example, if shut down is requested, the server will respond to the
464 method prior to shutting down, this will require the WBEM server to ensure that it can shut down before it
465 responds).

466 A WBEM server shall not return 4096 (i.e. shall not utilize jobs, See Table 2) when shut down is
 467 requested. A WBEM server may utilize a job for reset or reboot. If the method utilizes a job, it shall
 468 support the *Job Control Profile* ([DSP1103](#)).

469 A WBEM server shall be unavailable after a shutdown (until started again). A WBEM server may be
 470 unavailable during a reboot or reset. The amount of time the WBEM server is unavailable is up to the
 471 implementation.

472 Support for the RequestStateChange() method is conditional; if the
 473 CIM_WBEMServerCapabilities.OperationsSupported property value includes the value 2
 474 (RequestStateChange) then the RequestStateChange() method shall be supported. The
 475 RequestStateChange() method may support the RequestedState parameter with a value of 4 (Shut
 476 Down), 9 (Reboot) or 10 (Reset). The method shall support the values in
 477 CIM_WBEMServerCapabilities.RequestedStatesSupported property value for the RequestedState
 478 parameter.

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

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

Value	Description
0 (Completed with No Error)	The method executed successfully.
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 Null 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.

482 **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). Each value is optional to be supported.

Qualifiers	Name	Type	Description
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.

483 **8.3.2 CreateWBEMServerNamespace()**

484 Support for CreateWBEMServerNamespace() is conditional, if the
 485 CIM_WBEMServerCapabilities .OperationsSupported property value includes the value 3
 486 (CreateNamespace) then this method shall be supported.

487 CreateWBEMServerNamespace() creates a namespace. Upon successful completion of the method
 488 (return value 0 (Completed with No Error)), there shall be a newly created instance of
 489 CIM_WBEMServerNamespace associated through the CIM_HostedDependency association with this
 490 instance of CIM_WBEMServer and a new namespace shall be created. The method shall return 2
 491 (Failed) if a known error occurred (e.g. namespace already exists).

492 **Table 4 – CreateWBEMServerNamespace() method: Return code values**

Value	Description
0 (Completed with No Error)	The method executed successfully.
1 (Failed)	The method failed.

493 **Table 5 – CreateWBEMServerNamespace() method: Parameters**

Qualifiers	Name	Type	Description
IN	NamespaceTemplate	String	NamespaceTemplate is an instance of CIM_WBEMServerNamespace with the desired property values for the namespace to be created.
OUT	Namespace	REF	Reference to the instance of CIM_WBEMServerNamespace created when the method returns a value of 0.
OUT	Errors[]	String	An array of CIM_Error instances. If the error fails, at least one CIM_Error instance shall exist

494
 495 **8.4 CIM_WBEMServerNamespace**

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

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

500 **Table 6 – Operations: CIM_HostedDependency**

Operation	Requirement	Messages
ModifyInstance	Conditional	None

Operation	Requirement	Messages
DeleteInstance	Conditional	None

501 8.4.1 ModifyInstance

502 Support for the ModifyInstance operation is conditional, if the
 503 CIM_WBEMServerCapabilities.OperationsSupported property value includes the value 5
 504 (ModifyNamespace) then the ModifyInstance operation shall be supported.

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

507 8.4.2 DeleteInstance

508 Support for the DeleteInstance operation is conditional, if the
 509 CIM_WBEMServerCapabilities.OperationsSupported property value includes the value 4
 510 (DeleteNamespace) then the DeleteInstance operation shall be supported.

511 The namespace being deleted may include qualifier types, classes and instances. All of the information
 512 shall be deleted when this operation is executed. The managed environment that is represented in the
 513 namespace shall not be affected.

514 8.5 CIM_ProtocolService

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

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

517 The following additional methods shall be implemented.

518 8.5.1 RequestStateChange()

519 A WBEM protocol may be “enabled”, “disabled” or “reset”.

520 The RequestStateChange() method is conditional. If WBEMServerCapabilities.OperationsSupported has
 521 a value of 2 (RequestStateChange), then the RequestStateChange() method is mandatory. The
 522 RequestStateChange() method shall support the RequestedState parameter with a value of 2 (Enabled),
 523 3 (Disabled) or 11 (Reset). 4 (Shut Down) and 10 (Reboot) are optional.

524 The permissible return code values and parameters for the RequestStateChange() method are specified
 525 in Table 7 and Table 8, respectively.

526 **Table 7 – RequestStateChange() method: Return code values**

Value	Description
0 (Completed with No Error)	The method executed successfully.
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.

Value	Description
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 Null 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.

527

Table 8 – RequestStateChange() method: Parameters

Qualifiers	Name	Type	Description
IN	RequestedState	uint16	For the purposes of this profile, the valid states can be requested as defined in this subclause.
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.

528

529 **8.5.2 ListenOnPortIF()**

530 The ListenOnPortIF() method shall be supported when the
 531 CIM_WBEMProtocolServiceCapabilities.ListeningPortManagementSupported property has a value of
 532 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 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_WBEMServerCapabilities**

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

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

567 **8.11 CIM_ElementCapabilities (WBEMServerCapabilities)**

568 Table 16 lists implementation requirements for operations. If implemented, these operations shall be
 569 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 15, all operations
 570 in the default list in 8.1 shall be implemented as defined in [DSP0200](#)

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

572 **Table 15 – Operations: CIM_ElementCapabilities (WBEMServerCapabilities)**

Operation	Requirement	Messages
Associators	Unspecified	None
AssociatorNames	Unspecified	None

Operation	Requirement	Messages
References	Unspecified	None
ReferenceNames	Unspecified	None

573 **8.12 CIM_WBEMProtocolServiceCapabilities**

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

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

576 **8.13 CIM_ElementCapabilities (WBEMProtocolServiceCapabilities)**

577 Table 16 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 16, 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 16 – Operations: CIM_ElementCapabilities (WBEMProtocolServiceCapabilities)**

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

582 **8.14 CIM_TCPProtocolEndpoint**

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 **8.15 CIM_ServiceAccessBySAP**

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

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

590 **Table 17 – Operations: CIM_ServiceAccessBySAP**

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

591 **8.16 CIM_HostedAccessPoint (TCPProtocolEndpoint)**

592 Table 18 lists implementation requirements for operations. If implemented, these operations shall be
 593 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 18, all operations
 594 in the default list in 8.1 shall be implemented as defined in [DSP0200](#)

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

596 **Table 18 – Operations: CIM_HostedAccessPoint (TCPProtocolEndpoint)**

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

597 **8.17 CIM_BindsTo**

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_BindsTo**

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

603 **8.18 CIM_CIMXMLCapabilities**

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_WSMangementCapabilities**

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

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

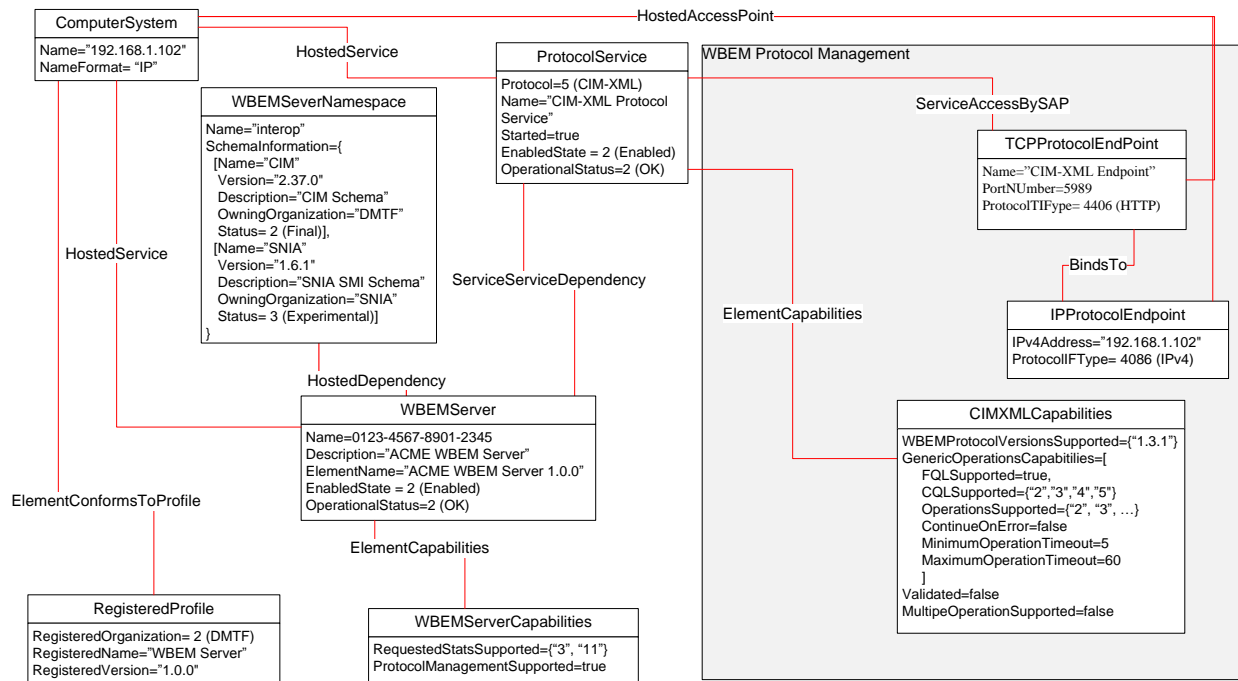
609

610 **9 Use cases (Informative)**

611 This clause provides informative use cases and object diagrams.

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

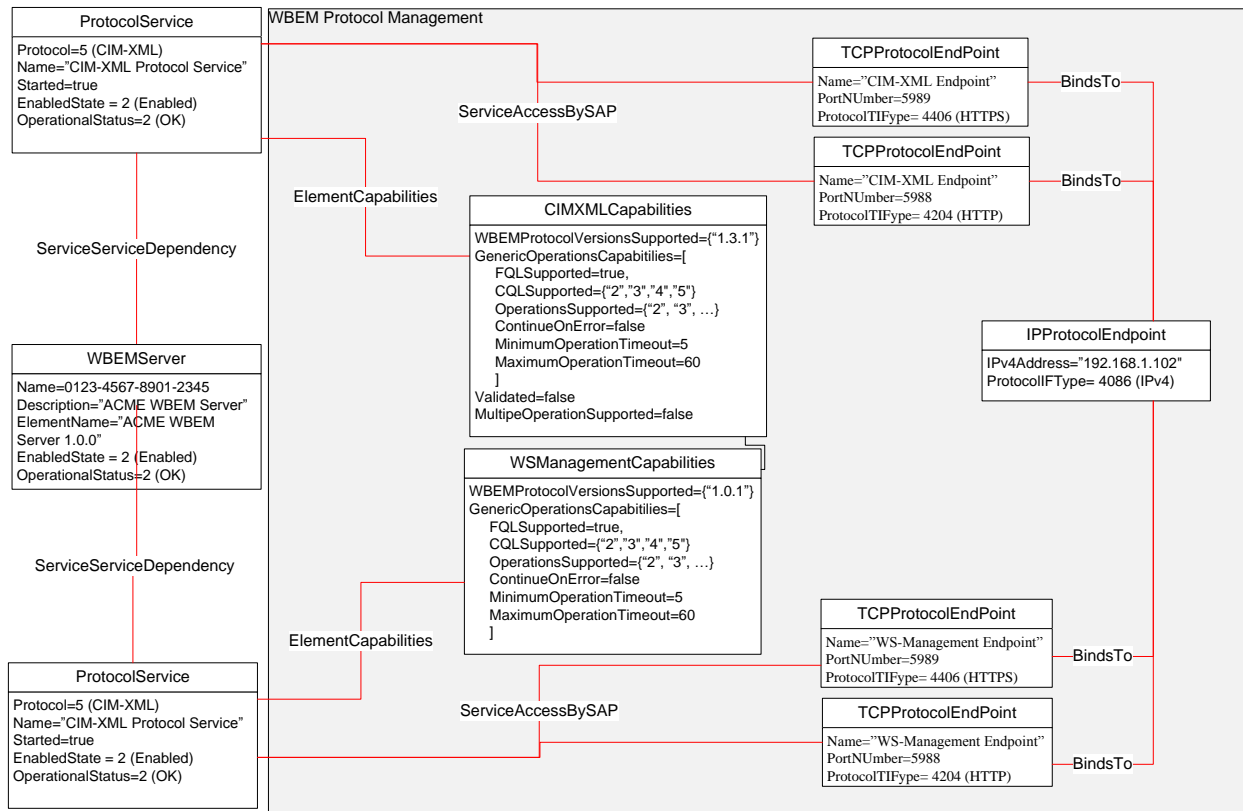
613 Figure 2 represents a WBEM server that supports a single namespace (interop) and a single WBEM
 614 protocol (CIM-XML). Only the relevant instances for the use case are shown, many of the mandatory
 615 instances are not in the diagram for readability.



616

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

618 Figure 3 represents an instance diagram of a WBEM server that supports two WBEM protocols (CIM-XML
 619 and WS-Management), each listening on two ports; one for HTTP and one for HTTPS. All the protocols
 620 are bound to the same IP Address. Only the relevant instances for the use case are shown, many of the
 621 mandatory instances are not in the diagram for readability.



622

623

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

624

625 9.1 Determine the namespaces of a WBEM server

626 A WBEM server may contain one or more namespaces. The interop namespace is mandatory. A client
627 may retrieve all namespaces supported and optionally information about each namespace.

- 628 1) Starting from the central instance of the profile, traverse the HostedService association (with a
629 result class of CIM_WBEMServer) to get the instance that represents the WBEM server
630 2) From the CIM_WBEMServer instance, traverse the HostedDependency association to get the
631 instance(s) of CIM_WBEMServerNamespace. Each instance represents a namespace that
632 exists. The value of the name property is the name of the namespace.

633 9.2 Determine the contents of a namespace

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

- 636 1) Use 9.1 to retrieve the namespace instance(s)
637 2) The CIM_WBEMServerNamespace.SchemaInformation property contains an array of structures
638 that represent the information in the namespace. A namespace may contain multiple schemas
639 (e.g. CIM, SNIA, ACME). An example of what an entry may look like for the DMTF CIM Schema
640 2.37.0 is below.
641

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)

642

643 9.3 Modify WBEMServerNamespace to update what is represented

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

- 649 1) Use 9.1 to retrieve the namespace instance(s)
- 650 2) Find the instance that has the Name property value that matches the namespace
- 651 3) Using the instance from step 2, and a CIM_SchemaInformationStructure structure instance that
 652 represents the information for the extension schema added and use the ModifyInstance operation
 653 to apply the changes.

654 9.4 Determine the WBEM protocols supported and state

- 655 1) Starting from the central instance of the profile, traverse the CIM_HostedService association, with
 656 a result class of CIM_WBEMServer, to retrieve the instance that represents the WBEM server
- 657 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
 658 instance with a result class of CIM_ProtocolService.
 - 659 a. For each instance returned, view the Protocol property value for the id that represents the
 660 name of the protocol supported.
 - 661 b. To determine the state of the protocol, view the EnabledState property value. For
 662 example, if the value is 2 (Enabled), the protocol is available to accept requests and
 663 issue responses.

664 9.5 Determine the port used for a WBEM protocol

665 Support for WBEM protocol management is optional.

- 666 1) Starting from the central instance of the profile, traverse the CIM_HostedService association (with
 667 a result class of CIM_WBEMServer) to retrieve the instance that represents the WBEM server
- 668 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
 669 instance with a result class of CIM_ProtocolService to retrieve the instance(s) that represent the
 670 WBEM protocol(s) supported.
- 671 3) Traverse the CIM_ServiceAccessBySAP association with a result class of
 672 CIM_TCPProtocolEndpoint to retrieve the instance(s) that represent the endpoint and port.

673 9.6 Determine the IP address for a WBEM protocol

674 Support for WBEM protocol management is optional.

- 675 1) Starting from the central instance of the profile, traverse the CIM_HostedService association (with
676 a result class of CIM_WBEMServer) to retrieve the instance that represents the WBEM server
- 677 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
678 instance with a result class of CIM_ProtocolService to retrieve the instance(s) that represent the
679 WBEM protocol(s) supported.
- 680 3) Traverse the CIM_ServiceAccessBySAP association with a result class of
681 CIM_TCIPProtocolEndpoint to retrieve the instance(s) that represent the endpoint and port. View
682 the CIM_TCIPProtocolEndpoint.PortNumber property to see the port that this endpoint is listening
683 on.
- 684 4) Traverse the CIM_BindTo association with a result class of CIM_IPProtocolEndpoint. The
685 instance(s) of CIM_IPProtocolEndpoint returned will have a value for either the IPv4Address
686 and/or IPv6Address properties.

687 9.7 Determine the capabilities of a WBEM protocol

- 688 1) Starting from the central instance of the profile, traverse the CIM_HostedService association (with
689 a result class of CIM_WBEMServer) to retrieve the instance that represents the WBEM server
- 690 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
691 instance with a result class of CIM_ProtocolService to retrieve the instance(s) that represent the
692 WBEM protocol(s) supported. If a specific protocol is desired, filter on the
693 CIM_ProtocolService.Protocol property value.
- 694 3) Using the instance(s) from the previous step, traverse the CIM_ElementCapabilities association
695 with a result class of CIM_WBEMProtocolServiceCapabilities. The capabilities include the
696 version(s) of the protocol supported as well as the list of operations supported. Some protocols
697 may have subclasses of CIM_WBEMProtocolServiceCapabilities to provide profile specific
698 capabilities, for example CIM_CIMXMLCapabilities and CIM_WSMManagementCapabilities.

699 9.8 Modify the port for a WBEM protocol

- 700 1) Starting from the central instance of the profile, traverse the CIM_HostedService association (with
701 a result class of CIM_WBEMServer) to retrieve the instance that represents the WBEM server
- 702 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
703 instance with a result class of CIM_ProtocolService to retrieve the instance(s) that represent the
704 WBEM protocol(s) supported. . If a specific protocol is desired, filter on the
705 CIM_ProtocolService.Protocol property value.
- 706 3) Using the instance(s) from the previous step, traverse the CIM_ElementCapabilities association
707 with a result class of CIM_WBEMProtocolServiceCapabilities. Support for WBEM protocol
708 management is optional. If the value of the
709 CIM_WBEMProtocolServiceCapabilities.ListeningPortManagementSupported is True, port
710 modification is supported.
- 711 4) Using the CIM_ProtocolService instance(s) from step 2, invoke the ListenOnPortIF() method with
712 the desired port. An implementation may allow listening on multiple ports or only a single port per
713 protocol interface (e.g. HTTP, HTTPS, ...). In other words, if you invoke this method, it may
714 remove the old port and replace it with the new port or may add the new port as an additional
715 port. To determine this, a client can follow the steps in 9.5.

716 9.9 Disable/Enable a WBEM protocol

717 A WBEM server may support one or more protocols. An administrator may enable or disable a WBEM
718 protocol. The following describe the steps to enable a WBEM protocol. To disable a protocol, follow the
719 same steps changing the RequestedState parameter to 3 (Disable).

- 720 1) Starting from the central instance of the profile, traverse the CIM_HostedService association (with
721 a result class of CIM_WBEMServer) to retrieve the instance that represents the WBEM server

- 722 2) Traverse the CIM_ServiceServiceDependency association starting from the CIM_WBEMServer
723 instance with a result class of CIM_ProtocolService to retrieve the instance(s) that represent the
724 WBEM protocol(s) supported. . If a specific protocol is desired, filter on the
725 CIM_ProtocolService.Protocol property value.
- 726 3) Support for the RequestStateChange() method is conditional. A client can determine if the
727 RequestStateChange() method is supported by using the instance(s) from the previous step,
728 traverse the CIM_ElementCapabilities association with a result class of
729 CIM_WBEMProtocolServiceCapabilities and determine if the value of the
730 CIM_WBEMProtocolServiceCapabilities.RequestedStatesSupported property has the value of the
731 desired RequestedState.
- 732 4) Using the instance(s) from Step 2, invoke the CIM_ProtocolService.RequestStateChange()
733 method with the RequestedState parameter value set to 2 (Enable).
- 734 5) If the return value of the method is 0 (Completed with No Error), then the protocol was enabled. If
735 the return value of the method is 4096, a job was started – see the *Job Control Profile* ([DSP1103](#))
736 for information on jobs.

737 9.10 Reset the WBEM server

738 The WBEM server may be reset using the following steps.

- 739 1) Starting from the central instance of the profile, traverse the CIM_HostedService association (with
740 a result class of CIM_WBEMServer) to get the instance that represents the WBEM server
- 741 2) Using the instance of CIM_WBEMServer traverse the CIM_ElementCapabilities association with
742 a result class of CIM_WBEMServerCapabilities
- 743 3) This behavior is optional. If the CIM_WBEMServerCapabilities.RequestedStatesSupported
744 includes the value 11 (Reset), the server supports being reset.
- 745 4) Invoke the CIM_WBEMServer.RequestStateChange() method with the RequestedState
746 parameter value set to 11 (Reset).
- 747 6) If the return value of the method is 0 (Completed with No Error), then the WBEM server will shut
748 down (it may take some amount of time for the WBEM server to shut down all services) and
749 restart. If the return value of the method is 4096, a job was started – see the *Job Control Profile*
750 ([DSP1103](#)) for information on jobs.

751 9.11 Shut down the WBEM server

752 The WBEM server may be shut down using the following steps.

- 753 1) Starting from the central instance of the profile, traverse the CIM_HostedService association (with
754 a result class of CIM_WBEMServer) to get the instance that represents the WBEM server
- 755 2) Using the instance of CIM_WBEMServer traverse the CIM_ElementCapabilities association with
756 a result class of CIM_WBEMServerCapabilities
- 757 3) This behavior is optional. If the CIM_WBEMServerCapabilities.RequestedStatesSupported
758 includes the value 4 (Shut Down), the server supports being shut down.
- 759 4) Invoke the RequestStateChange() method with the RequestedState parameter value set to 4
760 (Shut Down).
- 761 5) If the return value of the method is 0 (Completed with No Error), then the WBEM server will shut
762 down (it may take some amount of time for the WBEM server to shut down all services). If the
763 return value of the method is 4096, a job was started – see the *Job Control Profile* ([DSP1103](#)) for
764 information on jobs.

765 **10 CIM elements**

766 Table 20 shows the instances of CIM elements for this profile. Instances of the CIM elements shall be
 767 implemented as described in Table 20. Clauses 7 (“Implementation”) and 8 (“Methods”) may impose
 768 additional requirements on these elements.

769 **Table 20 – CIM Elements: WBEM Server Profile**

Element name	Requirement	Description
Classes		
CIM_BindsTo	Optional	See 10.1.
CIM_CIMXMLCapabilities	Conditional	See 10.2 and 7.4.1.4.1.
CIM_ComputerSystem	Mandatory	See 10.3.
CIM_ConcreteJob	Optional	See 10.4.
CIM_ElementCapabilities (WBEMServerCapabilities)	Mandatory	See 10.5.
CIM_ElementCapabilities (WBEMProtocolServiceCapabilities)	Conditional	See 10.6 and 7.4.1.
CIM_ElementConformsToProfile	Mandatory	See 10.7.
CIM_GenericOperationCapabilitiesStructure	See embedding element.	See 10.8.
CIM_HostedAccessPoint	Conditional	See 10.9 and 7.4.2.
CIM_HostedAccessPoint (TCPProtocolEndpoint)	Conditional	See 10.10.
CIM_HostedDependency	Mandatory	See 10.11.
CIM_HostedService (WBEMServer)	Mandatory	See 10.12.
CIM_HostedService (ProtocolService)	Mandatory	See 10.13.
CIM_IPProtocolEndPoint	Optional	See 10.14.
CIM_ProtocolService	Mandatory	See 10.15.
CIM_RegisteredProfile	Mandatory	See 10.16.
CIM_SchemaInformationStructure	See embedding element.	See 10.17.
CIM_ServiceAccessBySAP	Conditional	See 10.18 and 7.4.2.
CIM_ServiceServiceDependency	Mandatory	See 10.19.
CIM_TCPProtocolEndpoint	Conditional	See 10.20 and 7.4.2.
CIM_WBEMProtocolServiceCapabilities	Conditional	See 10.21 and 7.4.1.
CIM_WBEMServer	Mandatory	See 10.22.
CIM_WBEMServerCapabilities	Mandatory	See 10.23.
CIM_WBEMServerNamespace	Mandatory	See 10.24.
CIM_WSMManagementCapabilities	Conditional	See 10.25 and 7.4.1.4.2.
Indications		
None		

770 **10.1 CIM_BindsTo**

771 CIM_BindsTo represents an association between a ProtocolEndPoint and a ServiceAccessPoint. Table
 772 21 contains the requirements for elements of this class.

773 **Table 21 – 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.

774 **10.2 CIM_CIMXMLCapabilities**

775 CIM_BindsTo represents an association between a ProtocolEndPoint and a ServiceAccessPoint. Table
 776 21 contains the requirements for elements of this class.

777 **Table 22 – 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 10.8
AuthenticationMechansimsSupported	Mandatory	None
MultipleOperationsSupported	Mandatory	None
Validated	Mandatory	None

778

779 **10.3 CIM_ComputerSystem**

780 The requirements denoted in Table 23 are in addition to those mandated by the *Computer System Profile*
 781 ([DSP1052](#)).

782 **Table 23 – Class: CIM_ComputerSystem**

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

783 **10.4 CIM_ConcreteJob**

784 There are no additional requirements than to those mandated by the *Job Control Profile* ([DSP1103](#)).

785 **10.5 CIM_ElementCapabilities (WBEMServerCapabilities)**

786 CIM_ElementCapabilities represents an association between a CIM_WBEMServer and its capabilities.
787 Table 24 contains the requirements for elements of this class.

788 **Table 24 – 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.
Characteristics	Mandatory	Matches 3

789 **10.6 CIM_ElementCapabilities (WBEMProtocolServiceCapabilities)**

790 CIM_ElementCapabilities represents an association between a CIM_ProtocolService and its capabilities.
791 Table 25 contains the requirements for elements of this class.

792 **Table 25 – Class: CIM_ElementCapabilities (WBEMProtocolServiceCapabilities)**

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

793 **10.7 CIM_ElementConformsToProfile**

794 The requirements denoted in Table 26 are in addition to those mandated by the *Profile Registration Profile* ([DSP1033](#)).

796 **Table 26 – Class: CIM_ElementConformsToProfile**

Elements	Requirement	Notes
ManagedElement	Mandatory	Key: Shall reference the instance of CIM_ComputerSystem.
ConformantStandard	Mandatory	Key: Shall reference the instance of CIM_RegisteredProfile.

797

798 **10.8 CIM_GenericOperationCapabilitiesStructure**

799 The CIM_GenericOperationCapabilitiesStructure is a structure that describes the capabilities for Generic
800 Operations based on the *Generic Operations* ([DSP0223](#)) specification.

801 **Table 27 – Class: CIM_GenericOperationCapabilitiesStructure**

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

802 **10.9 CIM_HostedAccessPoint**

803 There are no additional requirements than to those mandated by the *IP Interface Profile* ([DSP1036](#)).

804 **10.10 CIM_HostedAccessPoint (TCPProtocolEndpoint)**

805 CIM_HostedAccessPoint represents an association between the computer system and the TP protocol
806 endpoints. Table 28 contains the requirements for elements of this class.

807 **Table 28 – Class: CIM_HostedAccessPoint (TCPProtocolEndpoint)**

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_TCPProtocolEndpoint.

808

809 **10.11 CIM_HostedDependency**

810 CIM_HostedDependency associates the CIM_WBEMServerNamespace instances with the
811 CIM_WBEMServer. Table 2929 contains the requirements for elements of this class.

812 **Table 29 – 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.

813 **10.12 CIM_HostedService (WBEMServer)**

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

816 **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.

817 **10.13 CIM_HostedService (ProtocolService)**

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

820 **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.

821 **10.14 CIM_IPProtocolEndpoint**

822 There are no additional requirements than to those mandated by the *IP Interface Profile* ([DSP1036](#)).

823 **10.15 CIM_ProtocolService**

824 CIM_ProtocolService represents a WBEM protocol. Table 32 contains the requirements for elements of
 825 this class.

826 **Table 32 – 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

Elements	Requirement	Notes
HealthState	Mandatory	None
OperationalStatus	Mandatory	None
ElementName	Mandatory	None
RequestStateChange()	Conditional	See 8.5.1
ListenOnPortIF()	Conditional	See 8.5.2

827 **10.16 CIM_RegisteredProfile**

828 The requirements denoted in Table 33 are in addition to those mandated by the *Profile Registration*
 829 *Profile* ([DSP1033](#)).

830 **Table 33 – 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 "1.0.0i".
RegisteredOrganization	Mandatory	This property shall have a value of 2 (DMTF).

831 **10.17 CIM_SchemaInformationStructure**

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

834 **Table 34 – Class: CIM_SchemaInformationStructure**

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

835 **10.18 CIM_ServiceAccessBySAP**

836 CIM_ServiceAccessBySAP represents an association between a CIM_ProtocolService and the
 837 CIM_ServiceAccessPoint(s). Table 35 contains the requirements for elements of this class.

838 **Table 35 – Class: CIM_ServiceAccessBySAP**

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

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

839 **10.19 CIM_ServiceServiceDependency**

840 CIM_ServiceServiceDependency associates the CIM_WBEMServer instance with the
 841 CIM_ProtocolService instances. Table 36 contains the requirements for the elements of this class.

842 **Table 36 – 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

843 **10.20 CIM_TCPProtocolEndpoint**

844 CIM_TCPProtocolEndpoint represents a protocol endpoint used for communications. Table 37 contains
 845 the requirements for elements of this class.

846 **Table 37 – Class: CIM_TCPProtocolEndpoint**

Elements	Requirement	Notes
Name	Mandatory	Key
CreationClassName	Mandatory	Key
SystemName	Mandatory	Key
SystemCreationClassName	Mandatory	Key
PortNumber	Mandatory	None
ProtocolIFType	Mandatory	None
NameFormat	Mandatory	Pattern “.*”
ElementName	Mandatory	Pattern “.*”

847 **10.21 CIM_WBEMProtocolServiceCapabilities**

848 CIM_WBEMProtocolServiceCapabilities represents the capabilities for a CIM_ProtocolService. Table 38
 849 contains the requirements for elements of this class.

850 **Table 38 – Class: CIM_WBEMProtocolServiceCapabilities**

Elements	Requirement	Notes
InstanceID	Mandatory	Key
ElementName	Mandatory	None

Elements	Requirement	Notes
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 10.7
AuthenticationMechanismsSupported	Mandatory	None
AuthenticationMechanismsDescriptions	Conditional	Mandatory when AuthenticationMechanismsSupports has the value 1

851 **10.22 CIM_WBEMServer**

852 CIM_WBEMServer represents the WBEM server as a service running on a system. Table 39 contains the
853 requirements for elements of this class.

854 **Table 39 – Class: CIM_WBEMServer**

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

855 **10.23 CIM_WBEMServerCapabilities**

856 CIM_WBEMServerCapabilities represents the capabilities for a WBEM server. Table 40 contains the
857 requirements for elements of this class.

858 **Table 40 – Class: CIM_WBEMServerCapabilities**

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

859 **10.24 CIM_WBEMServerNamespace**

860 CIM_WBEMServerNamespace represents the namespaces of the WBEM server. Table 41 contains the
 861 requirements for elements of this class.

862 **Table 41 – Class: CIM_WBEMServerNamespace**

Elements	Requirement	Notes
InstanceID	Mandatory	Key
Name	Mandatory	See 7.2.1
SchemaInformation	Mandatory	See 10.17
ElementName	Mandatory	None

863 **10.25 CIM_WSMangementCapabilities**

864 CIM_BindsTo represents an association between a ProtocolEndPoint and a ServiceAccessPoint. Table
 865 42 contains the requirements for elements of this class.

866 **Table 42 – 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 10.7
AuthenticationMechansimsSupported	Mandatory	None
XPathFeatures	Mandatory	None

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ANNEX A (Informative)

Change log

Version	Date	Description
1.0.0	2013-10-21	

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