1

5 # Power State Management Profile

9

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73 # Tables

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91   Foreword

92   The *Power State Management Profile* (DSP1027) was prepared by the Server Management Working
93   Group of the DMTF.

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

96

97 # Introduction

98 The information in this specification should be sufficient for a provider or consumer of this data to identify
99 unambiguously the classes, properties, methods, and values that must be instantiated and manipulated to
100 describe and control the power state and hardware management for a computer system using the DMTF
101 Common Information Model (CIM) core and extended model definitions. The target audience for this
102 specification is implementers who are writing CIM-based providers or consumers of management
103 interfaces that represent the component described in this document.

104   # Power State Management Profile

1   Scope

106   The *Power State Management Profile* describes the classes, associations, properties, and methods used
107   to manage the power of a computer system.

2   Normative References

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

2.1   Approved References

113   *Advanced Configuration and Power Interface Specification*, 3.0, September 2, 2004

114   DMTF DSP0200, *CIM Operations over HTTP 1.2.0*

115   DMTF DSP0004, *CIM Infrastructure Specification 2.3.0*

116   DMTF DSP1000, *Management Profile Specification Template*

117   DMTF DSP1001, *Management Profile Specification Usage Guide*

118   DMTF DSP1033, *Profile Registration Profile*

2.2   Other References

120   ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standard*

121   OMG, Unified Modeling Language (UML) from the Open Management Group (OMG)

122   DMTF DSP0215, *Server Management Managed Element Addressing Specification (SM ME Addressing)*

3   Terms and Definitions

124   For the purposes of this document, the terms and definitions in DSP1033 and DSP1001 and the following
125   terms and definitions apply.

126   **3.1**
127   **can**
128   used for statements of possibility and capability, whether material, physical, or causal

129   **3.2**
130   **cannot**
131   used for statements of possibility and capability, whether material, physical, or causal

132 **3.3**
133 **conditional**
134 indicates requirements to be followed strictly in order to conform to the document when the specified
135 conditions are met

136 **3.4**
137 **mandatory**
138 indicates requirements to be followed strictly in order to conform to the document and from which no
139 deviation is permitted

140 **3.5**
141 **may**
142 indicates a course of action permissible within the limits of the document

143 **3.6**
144 **need not**
145 indicates a course of action permissible within the limits of the document

146 **3.7**
147 **optional**
148 indicates a course of action permissible within the limits of the document

149 **3.8**
150 **referencing profile**
151 indicates a profile that owns the definition of this class and can include a reference to this profile in its
152 "Referenced Profiles" table

153 **3.9**
154 **shall**
155 indicates requirements to be followed strictly in order to conform to the document and from which no
156 deviation is permitted

157 **3.10**
158 **shall not**
159 indicates requirements to be followed strictly in order to conform to the document and from which no
160 deviation is permitted

161 **3.11**
162 **should**
163 indicates that among several possibilities, one is recommended as particularly suitable, without
164 mentioning or excluding others, or that a certain course of action is preferred but not necessarily required

165 **3.12**
166 **should not**
167 indicates that a certain possibility or course of action is deprecated but not prohibited

168 **3.13**
169 **unspecified**
170 indicates that this profile does not define any constraints for the referenced CIM element or operation

171 **3.14**
172 **Immediate Power State Change**
173 indicates the power state transition that will be initiated immediately

174 **3.15**

175 **Pending Power State Change**

176 indicates the power state transition that will be initiated sometime in the future

4 Symbols and Abbreviated Terms

178 The following abbreviations are used in this document.

179 **4.1**

180 **ACPI**

181 Advanced Configuration and Power Interface

182 **4.2**

183 **CIM**

184 Common Information Model

5 Synopsis

186 **Profile Name:** Power State Management

187 **Version:** 1.0.1

188 **Organization:** DMTF

189 **CIM Schema Version:** 2.19.1

190 **Central Class:** CIM_PowerManagementService

191 **Scoping Class:** CIM_ComputerSystem

192 The *Power State Management Profile* extends the management capability of the referencing
193 profiles by adding the capability to describe and manage the power state of computer
194 systems.

195 CIM_PowerManagementService shall be the Central Class of this profile. The instance of
196 CIM_PowerManagementService shall be the Central Instance of this profile. CIM_ComputerSystem shall
197 be the Scoping Class of this profile. The instance of CIM_ComputerSystem with which the Central
198 Instance is associated through an instance of CIM_HostedService shall be the Scoping Instance of this
199 profile.

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

201 **Table 1 – Related Profiles**

Profile Name	Organization	Version	Requirement	Description
Profile Registration	DMTF	1.0.0	Mandatory	

6 Description

203 The *Power State Management Profile* defines the behavior of the power management service and related
204 classes used to describe and control power state and hardware reset management for a computer
205 system. The profile describes the classes, property values, and methods that constitute a Pending Power
206 State Change and an Immediate Power State Change.

207　The CIM_ComputerSystem class is not part of this profile but is shown for clarification in all the class and
208　instance diagrams.

209　Figure 1 represents the class schema of the *Power State Management Profile* and shows the elements of
210　the *Power State Management Profile*, as well as the dependent relationships between the elements of
211　*Power State Management Profile* and the referencing profiles. For simplicity, the prefix CIM_ has been
212　removed from the names of the classes.
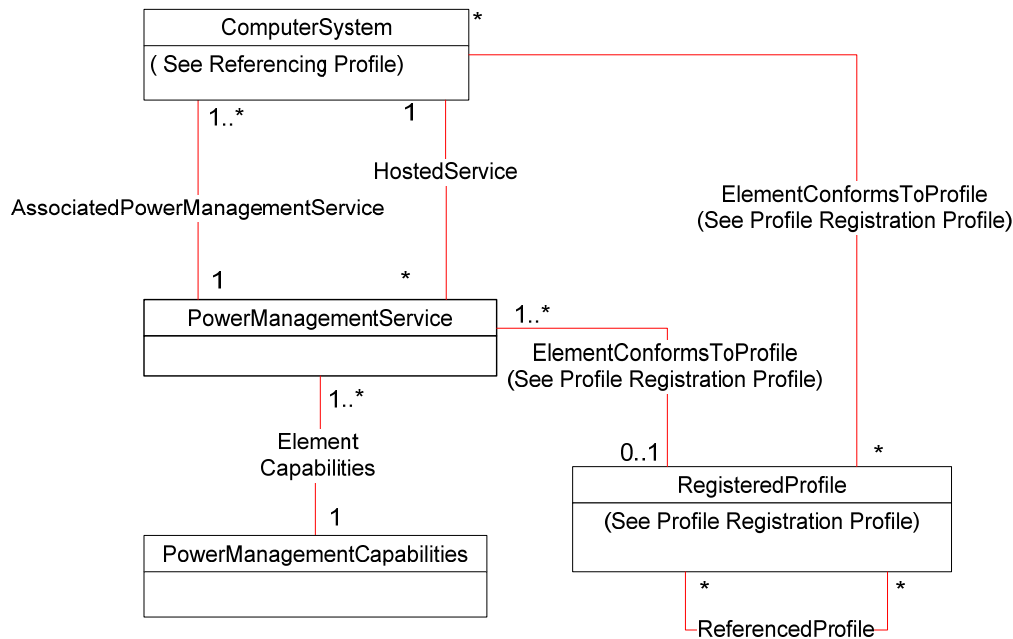
213

214　**Figure 1 – Power State Management Profile: Class Diagram**

7　Implementation

215

216　This section details the requirements related to the arrangement of instances and their properties for
217　implementations of this profile. Methods are listed in section 8 ("Methods"), and properties are listed in
218　section 10 ("CIM Elements").

7.1　CIM_PowerManagementService

219

220　At least one instance of CIM_PowerManagementService shall be associated with one or more instances
221　of CIM_ComputerSystem through an instance of CIM_AssociatedPowerManagementService. The
222　managed system that is hosting the power management service, represented by an instance of
223　CIM_ComputerSystem, shall be associated with CIM_PowerManagementService through the
224　CIM_HostedService association.

7.1.1　CIM_PowerManagementService.ElementName

225

226　The ElementName property shall be formatted as a free-form string of variable length (pattern ".*").

7.2　CIM_PowerManagementCapabilities

227

228　One CIM_PowerManagementCapabilities instance shall be associated with one or more instances of
229　CIM_PowerManagementService through the CIM_ElementCapabilities association.

230   **7.2.1 CIM_PowerManagementCapabilities.PowerChangeCapabilities**

231   The PowerChangeCapabilities property array is used to represent the power state related capabilities of
232   the instances of CIM_ComputerSystem associated with the CIM_PowerManagementService instances
233   with which the CIM_PowerManagementCapabilities instance is associated. This property is also used to
234   indicate support for client management of the power state through the
235   CIM_PowerManagementService.RequestPowerStateChange( ) method. When the
236   RequestPowerStateChange( ) method is supported, the PowerChangeCapabilities property array shall
237   contain the value 3 (Power State Settable).

238   When the PowerStatesSupported property contains the value in the "PowerStatesSupported Value"
239   column, the PowerChangeCapabilities property shall contain the value specified in the
240   "PowerChangeCapabilities Value" column.

241   **Table 2 – PowerStatesSupported and PowerChangeCapabilities Values**

PowerStatesSupported Value	PowerChangeCapabilities Value
5 (Power Cycle (Off–Soft))	4 (Power Cycling Supported)
9 (Power Cycle (Off–Hard))	6 (Off Hard Power Cycling Supported)
10 (Master Bus Reset)	7 (HW Reset Supported)
11 (Diagnostic Interrupt (NMI))	7 (HW Reset Supported)
12 (Off-Soft Graceful)	8 (Graceful Shutdown Supported)
13 (Off-Hard Graceful)	8 (Graceful Shutdown Supported)
14 (Master Bus Reset Graceful)	7 (HW Reset Supported) and 8 (Graceful Shutdown Supported)
15 (Power Cycle Off-Soft Graceful)	4 (Power Cycling Supported) and 8 (Graceful Shutdown Supported)
16 (Power Cycle Off Hard Graceful	6 (Off Hard Power Cycling Supported) and 8 (Graceful Shutdown Supported)

242   **7.2.2 CIM_PowerManagementCapabilities.ElementName**

243   The ElementName property shall be formatted as a free-form string of variable length (pattern ".*").

244   **7.2.3 CIM_PowerManagementCapabilities.PowerStatesSupported**

245   The PowerStatesSupported property array is used to represent the power states that are supported by
246   the associated computer system.

247   **7.3   CIM_AssociatedPowerManagementService.PowerState**

248   The PowerState property indicates the current power state of the associated computer system
249   represented by an instance of CIM_ComputerSystem. The PowerState property shall have one of the
250   values specified in the PowerStatesSupported property of the instance of
251   CIM_PowerManagementCapabilities that is associated with the instance of
252   CIM_PowerManagmentService that is referenced by the CIM_AssociatedPowerManagementService
253   association.

254   The RequestPowerStateChange( ) method of the CIM_PowerManagementService shall be used to
255   change the value of the PowerState property.

256 **7.3.1   Power States Values**

257 The correspondence between the CIM_AssociatedPowerManagementService.PowerState property,
258 CIM_PowerManagementService.RequestPowerStateChange( ) method PowerState parameter values,
259 and standard ACPI power state descriptions are specified in Table 3. The value of the PowerState
260 property shall have the meaning specified in Table 3. Note that it is not necessary for the managed
261 system to actually support the ACPI specification.

262   **Table 3 – PowerState Values and ACPI States**

PowerState enum Value (interpreted as a verb in the RequestPowerStateChange( ) method)	Description	Corresponding ACPI State
2 (On)	Bring system to full On from any state (Sleep, Hibernate, Off)	G0 or S0 Working
3 (Sleep–Light)	Standby	S1 or S2
4 (Sleep–Deep)	Suspend	S3
5 (Power Cycle (Off–Soft))	Reset system without removing power	S0 with context fully lost: • Requires master bus reset of entire system • Requires full boot from POST and BIOS
6 (Off–Hard)	Power Off performed through mechanical means like unplugging power cable or UPS On	G3
7 (Hibernate (Off–Soft))	System context and OS image written to non-volatile storage; system and devices powered off	S4
8 (Off–Soft)	System power off but auxiliary or flea power may be available	G2 or S5
9 (Power Cycle (Off–Hard))	Equivalent to Off–Hard followed by On	G0 to G3, then return to S0
10 (Master Bus Reset)	Hardware reset	S5
11 (Diagnostic Interrupt (NMI))	Hardware reset	S5
12 (Off-Soft Graceful)	System power off but auxiliary or flea power may be available but preceded by a request to the managed element to perform an orderly shutdown.	G2 or S5
13 (Off-Hard Graceful)	Power Off performed through mechanical means like unplugging power cable or UPS On but preceded by a request to the managed element to perform an orderly shutdown.	G3
14 (Master Bus Reset Graceful)	Hardware reset but preceded by a request to the managed element to perform an orderly shutdown.	S5
15 (Power Cycle Off-Soft Graceful)	Reset system without removing power but preceded by a request to the managed element to perform an orderly shutdown.	S0 with context fully lost: • Requires master bus reset of entire system • Requires full boot from POST and BIOS
16 (Power Cycle Off Hard Graceful	Equivalent to Off–Hard followed by On but preceded by a request to the managed element to perform an orderly shutdown.	G3

263 **7.4   Representing Power State Changes**

264 The CIM_AssociatedPowerManagementService.RequestedPowerState property indicates the requested
265 power state of the associated computer system.

266 The CIM_AssociatedPowerManagementService.PowerOnTime property indicates the date-time that the
267 power state change indicated by the RequestedPowerState property was or will be initiated. When the
268 PowerOnTime property is non-Null, the value shall be a date-time and shall not specify a time interval. A
269 value of Null for the PowerOnTime property shall indicate that the last power state change was initiated
270 immediately or shall indicate that the last requested time to initiate the power state change is unknown.

271 When the Pending Power State Change exists for the instance of CIM_ComputerSystem that is
272 referenced by the CIM_AssociatedPowerManagementService association, the RequestedPowerState
273 property shall have the value of 2 (On), 5 (Power Cycle (Off–Soft)), 6 (Power Cycle (Off–Hard)), 15
274 (Power Cycle (Off-Soft Graceful)), or 16 (Power Cycle (Off-Hard Graceful)) and the value of the
275 PowerOnTime property shall identify a date-time in the future.

276 The RequestedPowerState and PowerOnTime properties are affected by the invocation of the
277 CIM_PowerManagementService.RequestPowerStateChange( ) method; see section 8.1.

278 **8   Methods**

279 This section details the requirements for supporting intrinsic operations and extrinsic methods for the CIM
280 elements defined by this profile.

281 **8.1   CIM_PowerManagementService.RequestPowerStateChange( )**

282 The RequestPowerStateChange( ) method is used to set the power state that the user wants for the
283 target computer system and when that system should be put into the new state. The
284 PowerChangeCapabilities property array of the associated instance of
285 CIM_PowerManagementCapabilities is used to represent the capabilities of the
286 RequestPowerStateChange( ) method. When this method is supported, the PowerChangeCapabilities
287 property shall contain the value 3 (Power State Settable).

288 RequestPowerStateChange( ) method return code values shall be as specified in Table 4.
289 RequestPowerStateChange( ) method parameters are specified in Table 5.

290 Invoking the RequestPowerStateChange( ) method multiple times could result in earlier requests being
291 overwritten or lost.

292 No standard messages are defined for this method.

293 **Table 4 – CIM_PowerManagementService.RequestPowerStateChange( ) Method: Return Code**
294 **Values**

Value	Description
0	The initiation of Pending/Immediate Power State Change was successful.
1	Method is not supported in the implementation.
2	Error occurred
4096	Job started: REF returned to started CIM_ConcreteJob

295 **Table 5 – CIM_PowerManagementService.RequestPowerStateChange( ) Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN	PowerState	uint16	See section 8.1.3.
IN	ManagedElement	CIM_ComputerSystem REF	See section 8.1.4.
IN	Time	Datetime	See section 8.1.5.
OUT	Job	CIM_ConcreteJob REF	See section 8.1.6.
IN	TimeoutPeriod	Datetime	See section 8.1.7.

296 8.1.1 Establishing a Pending Power State Change

297 The RequestPowerStateChange( ) method can be invoked with the Time parameter specified, which will
298 result in establishing the Pending Power State Change. The Pending Power State Change will be
299 reflected in the PowerOnTime and RequestedPowerState properties of the instance of
300 CIM_AssociatedPowerManagementService that references the CIM_PowerManagementService and the
301 instance of CIM_ComputerSystem that is represented by the ManagedElement parameter.

302 The TimeoutPeriod and Time parameters shall not be supported for the same invocation of the
303 RequestPowerStateChange( ) method. When the TimeoutPeriod and Time parameters are specified for
304 the same method invocation, the method shall return a value of 2.

305 When the method invocation is to establish the Pending Power State Change, the method may return the
306 Job output parameter and return a value of 4096. When the method invocation returns the Job output
307 parameter, the status of the referenced CIM_Job instance shall reflect the status of the attempt to
308 establish the Pending Power State Change. When the method invocation does not return the Job output
309 parameter, the method completion shall be synchronous with the establishment of the Pending Power
310 State Change.

311 8.1.2 Initiating an Immediate Power State Change

312 The RequestPowerStateChange( ) method may be invoked without the Time parameter, which will result
313 in the immediate initiation of a power state change. This section describes requirements for when the
314 Time parameter is not specified.

315 When the method invocation is to initiate the Immediate Power State Change, the method may return the
316 Job output parameter and a return code value of 4096. When the method invocation returns the Job
317 output parameter, the status of the referenced CIM_Job instance shall reflect the status of the initiated
318 power state change request. When the method invocation does not return the Job output parameter, the
319 method completion shall be synchronous with the initiation of the Immediate Power State Change.

320 8.1.3 PowerState

321 The PowerState parameter indicates the desired power state of the computer system. When the value
322 used for the PowerState parameter is not equal to one of the values in the PowerStatesSupported
323 property array of the associated instance of CIM_PowerManagementCapabilities, the method shall return
324 2.

325 When the value 5 (Power Cycle (Off–Soft)) or the value 15 (Power Cycle (Off-Soft Graceful)) is supported
326 for the PowerState parameter, the PowerChangeCapabilities property array of the associated instance of
327 CIM_PowerManagementCapabilities shall contain the value 4 (Power Cycling Supported).

328 When the value 6 (Power Cycle (Off–Hard)) or the value 16 (Power Cycle (Off-Hard Graceful)) is
329 supported for the PowerState parameter, the PowerChangeCapabilities property array of the associated

330   instance of CIM_PowerManagementCapabilities shall contain the value 6 (Off Hard Power Cycling
331   Supported).

332   When the values 10 (Master Bus Reset) and 11 (Diagnostic Interrupt) are supported for the PowerState
333   parameter, the PowerChangeCapabilities property array of the associated instance of
334   CIM_PowerManagementCapabilities shall contain the value 7 (HW Reset Supported).

335   When the value is 12 (Off-Soft Graceful), 13 (Off-Hard Graceful), 14 (Master Bus Reset Graceful), 15
336   (PowerCycle (Off-Soft Graceful), or 16 (Power Cycle (Off-Hard Graceful)), is supported for the
337   PowerState parameter, the PowerManagementCapabilities property array of the associated instance of
338   CIM_PowerManagementCapabilities shall contain value 8 (Graceful Shutdown supported).

339   When the CIM_PowerManagementService.RequestPowerStateChange( ) method returns a value of 0 or
340   4096, the RequestedPowerState property of the instance of CIM_AssociatedPowerManagementService
341   that references the CIM_PowerManagementService instance and the CIM_ComputerSystem instance
342   indicated by the ManagedElement parameter shall be set to the value of the PowerState parameter of the
343   method.

8.1.4   ManagedElement

345   The ManagedElement parameter indicates the reference to the instance of CIM_ComputerSystem that
346   represents the target computer system whose power state is to be set.

347   If the instance of CIM_ComputerSystem is not associated with the instance of
348   CIM_PowerManagementService through the CIM_AssociatedPowerManagementService association, the
349   RequestPowerStateChange( ) method shall return 2 (Error Occurred).

8.1.5   Time

351   The Time parameter is used to set the power state of the managed system at a certain time and can be
352   used only to set the power state to On or Power Cycle. The Time parameter shall be supported when the
353   PowerChangeCapabilities property array of the associated instance of
354   CIM_PowerManagementCapabilities contains the value 5 (Timed Power On Supported). The Time
355   parameter shall not be supported when the PowerState parameter has any value other than 2 (On), 5
356   (Power Cycle (Off–Soft)) 6 (Power Cycle (Off–Hard)), 15 (Power Cycle (Off-Soft Graceful)), or 16 (Power
357   Cycle (Off-Hard Graceful)). When the Time parameter is specified and is not supported, the method shall
358   return a value of 2.

359   When the Time parameter is specified and the method returns a value of 0, the PowerOnTime property of
360   the CIM_AssociatedPowerManagementService association that references the CIM_ComputerSystem
361   instance identified by the ManagedElement parameter and references the
362   CIM_PowerManagementService instance shall have the date-time value that indicates when the
363   computer system will undergo the power state change indicated by the PowerState parameter. When the
364   Time parameter complies with the interval format of the Datetime data type, the interval value indicated
365   by the Time parameter shall be interpreted relative to the current date-time and the calculated absolute
366   date-time shall be the value of the PowerOnTime property. When the Time parameter complies with the
367   timestamp format of the Datetime data type, the PowerOnTime property shall have the value of the Time
368   parameter.

369   When the Time parameter is either Null or 0, an immediate initiation of the power state change shall
370   occur.

8.1.6   Job

372   The Job is an OUT parameter. It is a reference to the instance of CIM_Job that represents the job or task
373   that may be started by the invocation of the RequestPowerStateChange( ) method.

374 The method may return the Job output parameter and a return code value of 4096 when the parameters
375 for the method have been validated, regardless of whether the method will create a Pending Power State
376 Change or an Immediate Power State Change.

8.1.7   TimeoutPeriod

378 The TimeoutPeriod parameter specifies the maximum amount of time that the client allows the
379 RequestPowerStateChange( ) method to complete execution.

380 If the TimeoutPeriod parameter is specified and the value is not in the interval format of the Datetime data
381 type, the method shall return a value of 2. If the TimeoutPeriod parameter is specified and the
382 implementation is able to determine if the power state change will take more time than the TimeoutPeriod
383 parameter, the method shall return a value of 2. A value of 0 or Null for the TimeoutPeriod shall indicate
384 that no timeout requirements exist.

8.2   Profile Conventions for Operations

386 Support for operations for each profile class (including associations) is specified in the following
387 subclauses. Each of these subclauses includes either the statement "All operations in the default list in
388 section 8.2 are supported as described by DSP0200 v1.2" or a table listing all the operations that are not
389 supported by this profile or where the profile requires behavior other than that described by
390 DSP0200 v1.2.

391 The default list of operations is as follows:

392 • GetInstance

393 • EnumerateInstances

394 • EnumerateInstanceNames

395 • Associators

396 • AssociatorNames

397 • References

398 • ReferenceNames

399 A compliant implementation shall support all the operations in the default list for each class, unless the
400 "Requirement" column states something other than *Mandatory*.

8.3   CIM_PowerManagementService

402 All operations in the default list in section 8.2 are supported as described by DSP0200 v1.2.

8.4   CIM_PowerManagementCapabilities

404 All operations in the default list in section 8.2 are supported as described by DSP0200 v1.2.

8.5   CIM_AssociatedPowerManagementService

406 Table 6 lists operations that either have special requirements beyond those from DSP0200 v1.2 or shall
407 not be supported.

408

Table 6 − Operations: CIM_AssociatedPowerManagementService

Operation	Requirement	Messages
ModifyInstance	Optional. See section 8.5.1.	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

409   **8.5.1   CIM_AssociatedPowerManagementService—ModifyInstance**

410   When the ModifyInstance operation is supported for an instance of
411   CIM_AssociatedPowerManagementService, the ModifyInstance operation shall not modify the following
412   properties:

413   •   PowerState

414   •   OtherPowerState

415   •   PowerOnTime

416   •   RequestedPowerState

417   These properties can be affected by the invocation of the RequestPowerStateChange( ) method; see
418   section 8.1.

419   **8.6   CIM_ElementCapabilities**

420   Table 7 lists operations that either have special requirements beyond those from DSP0200 v1.2 or shall
421   not be supported.

422

Table 7 – Operations: CIM_ElementCapabilities

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

423   **8.7   CIM_HostedService**

424   Table 8 lists operations that either have special requirements beyond those from DSP0200 v1.2 or shall
425   not be supported.

426

Table 8 – Operations: CIM_HostedService

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

427 9   Use Cases

428   This section contains object diagrams and use cases for the *Power State Management Profile.*

429 9.1   Object Diagrams

430   This section contains object diagrams for the *Power State Management Profile.* For simplicity, the prefix
431   CIM_ has been removed from the names of the classes in the diagrams.

432 9.1.1   Advertising the Profile Conformance

433   Figure 2 represents a possible instantiation of the *Power State Management Profile.* In this instantiation,
434   the managed system, system1, hosts a power management service, pwrmgtsvc1. system1 is also the
435   scoping instance for pwrmgtsvc1. Thus, following the CIM_ElementConformsToProfile association to
436   profile1 and then the referenced CIM_ReferencedProfile association to profile2, the client can retrieve
437   profile2. profile2 will show the version of the current *Power State Management Profile* implementation.
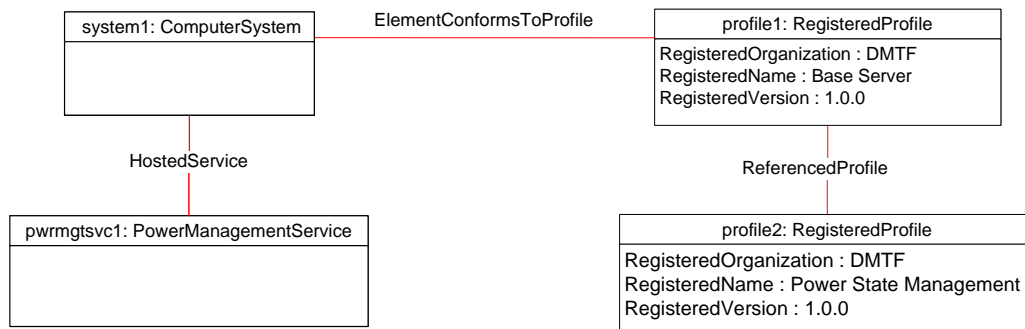
438

439   **Figure 2 – Registered Profile**

440 9.1.2   Monolithic System

441   Figure 3 shows the CIM instances required to control power for a single, monolithic system, system1.
442   system1 hosts the power management service, pwrmgtsvc1, which manages the power for system1.
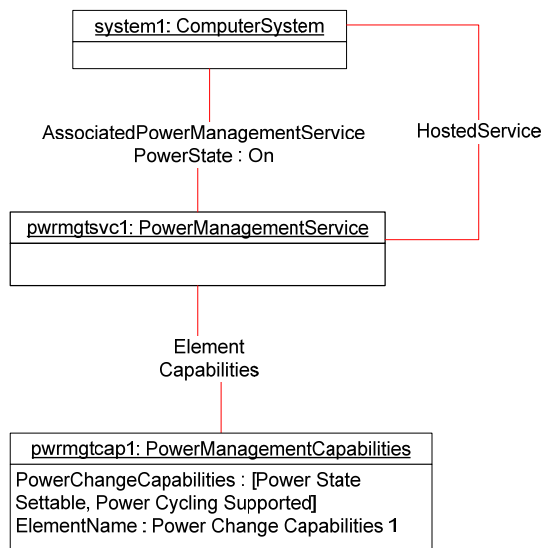
443

444   **Figure 3 – Power Control Instance Diagram: Monolithic System**

445   ### 9.1.3   Monolithic System with Service Processor

446   Figure 4 shows the CIM instances required to control power for a monolithic system with an attached
447   service processor. The power management service, pwrmgtsvc1, hosted by the service processor, sp1, is
448   responsible for managing the power of the system, system1. Optionally, the service processor may host
449   another power management service, pwrmgtsvc2, to control its own power.

450   A service processor in this sense may be an add-in remote management component or an integrated
451   baseboard management controller.
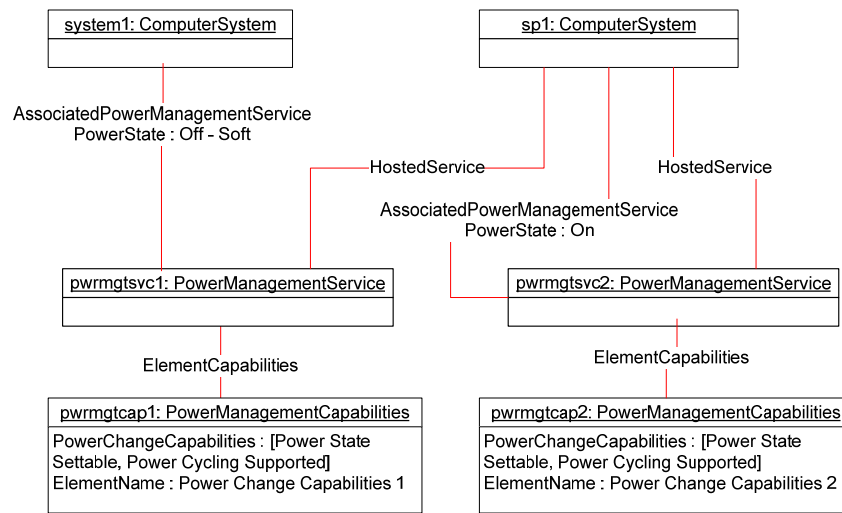
452

453   **Figure 4 – Power Control Instance Diagram: Monolithic System with Service Processor**

454   ### 9.1.4   Modular System with Chassis Service Processor

455   Figure 5 shows the CIM instances required to represent a modular computer system. The chassis
456   manager, chassismgr1, hosts one or more power management services (pwrmgtsvc2) to control the
457   power of all the blade systems. Optionally, the chassis manager may host another power management
458   service (pwrmgtsvc1) to control its own power.
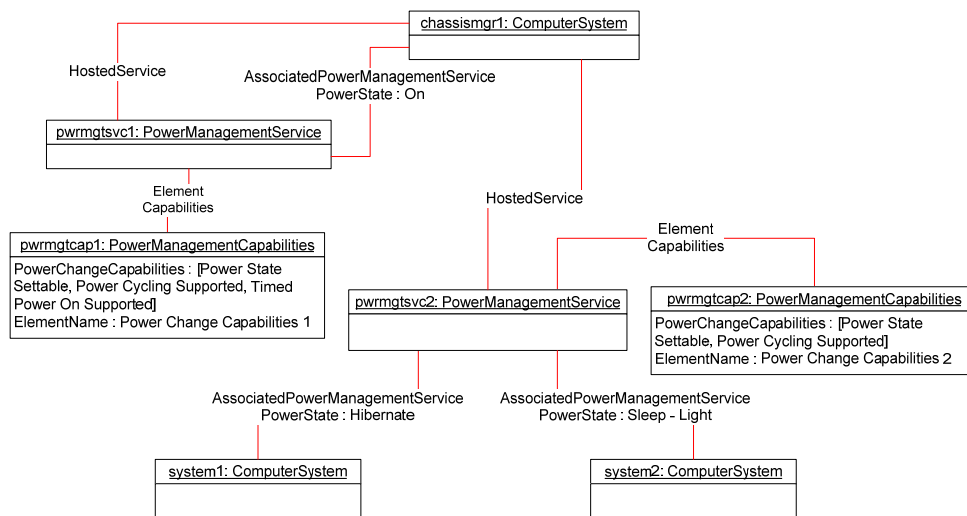
459

460   **Figure 5 – Power Control Instance Diagram: Modular System with Chassis Service Processor**

461 **9.2 Determine the Power State of the Computer System**

462 A client can determine the power state of the computer system as follows:

463 For the instance of CIM_ComputerSystem that represents the given computer system, select the
464 referencing instance of CIM_AssociatedPowerManagementService.

465 The PowerState property of the referencing instance of CIM_AssociatedPowerManagementService
466 represents the power state of the computer system.

467 **9.3 Find the Power Management Service for a Computer System**

468 A client can find the power management service for a computer system as follows:

469 For the instance of CIM_ComputerSystem that represents the given computer system, select the instance
470 of CIM_PowerManagementService that represents the power management service for the computer
471 system through the CIM_AssociatedPowerManagementService association.

472 **9.4 Find All the Computer Systems for a Power Management Service**

473 A client can find all the computer systems for a power management service as follows:

474 For the instance of CIM_PowerManagementService that represents the given power management
475 service, select all of the instances of CIM_ComputerSystem that are associated with it through the
476 CIM_AssociatedPowerManagementService association.

477 **9.5 Change the Power State of the Computer System**

478 A client can change the power state of the computer system as follows:

479   1) Navigate from the target instance of CIM_ComputerSystem to the instance of
480   CIM_PowerManagementService that represents the service that manages that system by using
481   the CIM_AssociatedPowerManagementService association.

482   2) Invoke the RequestPowerStateChange( ) method of the instance of
483   CIM_PowerManagementService with an argument that contains the PowerState action
484   appropriate to the operation.

485 **9.6 Determine Whether the Power Cycle Is Supported for a Computer System**

486 A client can determine whether Power Cycle is supported for a computer system as follows:

487   1) Navigate from the target instance of CIM_ComputerSystem to the instance of
488   CIM_PowerManagementService using the CIM_AssociatedPowerManagementService
489   association.

490   2) Using the instance of CIM_PowerManagementService, navigate to the instance of
491   CIM_PowerManagementCapabilities through the CIM_ElementCapabilities association.

492 If the PowerChangeCapabilities property array contains the value 4 (Power Cycling Supported), Power
493 Cycle shall be supported for the computer system.

494 **9.7 Execute Power Cycle (Off–Soft) within a Given Time**

495 A client can execute Power Cycle (Off–Soft) within a given time as follows:

496   1)   Navigate from the target instance of CIM_ComputerSystem to the instance of
497   CIM_PowerManagementService using the CIM_AssociatedPowerManagementService
498   association.

499   2)   Invoke the RequestPowerStateChange( ) method of the instance of
500   CIM_PowerManagementService with the Power State argument set to 5 (Power Cycle (Off–
501   Soft)) and the TimeoutPeriod argument set to "t".

9.8   Execute Power Cycle (Off–Soft Graceful)

503   A client can determine whether Power Cycle and Graceful Shutdown is supported for a computer system
504   as follows:

505   1)   Navigate from the target instance of CIM_ComputerSystem to the instance of
506   CIM_PowerManagementService using the CIM_AssociatedPowerManagementService
507   association.

508   2)   Using the instance of CIM_PowerManagementService, navigate to the instance of
509   CIM_PowerManagementCapabilities through the CIM_ElementCapabilities association.

510   If the PowerChangeCapabilities property array contains the value 4 (Power Cycling Supported) and 8
511   (Graceful Shutdown Supported), Power Cycle and Graceful Shutdown shall be supported for the
512   computer system.

513   If the Power Cycle and Graceful Shutdown is supported, then a client can execute Power Cycle (Off–Soft
514   Graceful) as follows:

515   1)   Navigate from the target instance of CIM_ComputerSystem to the instance of
516   CIM_PowerManagementService using the CIM_AssociatedPowerManagementService
517   association.

518   2)   Invoke the RequestPowerStateChange( ) method of the instance of
519   CIM_PowerManagementService with the Power State argument set to 15 (Power Cycle (Off–
520   Soft Graceful))

10   CIM Elements

522   Table 9 shows the instances of CIM Elements for this profile. Instances of the CIM Elements shall be
523   implemented as described in Table 9. Sections 7 ("Implementation") and 8 ("Methods") may impose
524   additional requirements on these elements.

525   **Table 9 – CIM Elements: Power State Management Profile**

Element Name	Requirement	Description
Classes		
PowerManagementCapabilities	Mandatory	See sections 7.2 and 10.1.
PowerManagementService	Mandatory	See sections 7.1 and 10.2.
AssociatedPowerManagementService	Mandatory	See section 10.3.
ElementCapabilities	Mandatory	See section 10.4.
HostedService	Mandatory	See section 10.5.
RegisteredProfile	Mandatory	See section 10.6.
Indications		
None defined in this profile		

526 **10.1 CIM_PowerManagementCapabilities**

527 CIM_PowerManagementCapabilities represents the power management capabilities of a computer
528 system. Table 10 contains the requirements for elements of this class.

529 **Table 10 – Class: CIM_PowerManagementCapabilities**

Elements	Requirement	Notes
InstanceID	Mandatory	**Key**
PowerChangeCapabilities	Mandatory	See section 7.2.1.
ElementName	Mandatory	See section 7.2.2.
PowerStatesSupported	Mandatory	See section 7.2.3.

530 **10.2 CIM_PowerManagementService**

531 CIM_PowerManagementService represents the power management service responsible for controlling
532 the power of a computer system. Table 11 contains the requirements for elements of this class.

533 **Table 11 – Class: CIM_PowerManagementService**

Elements	Requirement	Notes
CreationClassName	Mandatory	**Key**
Name	Mandatory	**Key**
ElementName	Mandatory	See section 7.1.1.
RequestPowerStateChange( )	Conditional	See section 8.1.

534 **10.3 CIM_AssociatedPowerManagementService**

535 CIM_AssociatedPowerManagementService associates the CIM_ComputerSystem instance that
536 represents the target computer system with the CIM_PowerManagementService instance that represents
537 the service responsible for controlling the power of a computer system. Table 12 contains the
538 requirements for elements of this class.

539 **Table 12 – Class: CIM_AssociatedPowerManagementService**

Elements	Requirement	Notes
ServiceProvided	Mandatory	**Key** Cardinality 1
UserOfService	Mandatory	**Key** Cardinality *
PowerState	Mandatory	See section 7.3.
RequestedPowerState	Conditional	See section 7.4.
PowerOnTime	Conditional	See section 7.4.

540 **10.4 CIM_ElementCapabilities**

541 CIM_ElementCapabilities associates the CIM_PowerManagementService instance that represents the
542 service responsible for controlling the power of a computer system with the

543   CIM_PowerManagementCapabilities instance that represents the power management capabilities of a
544   computer system. Table 13 contains the requirements for elements of this class.

545   **Table 13 – Class: CIM_ElementCapabilities**

Elements	Requirement	Notes
ManagedElement	Mandatory	This property shall be a reference to the instance of CIM_PowerManagementService. Cardinality 1..*
Capabilities	Mandatory	This property shall be a reference to the instance of CIM_PowerManagementCapabilities. Cardinality 1

546   ## 10.5 CIM_HostedService

547   CIM_HostedService associates the CIM_ComputerSystem instance with the
548   CIM_PowerManagementService instance that it hosts. Table 14 contains the requirements for elements
549   of this class.

550   **Table 14 – Class: CIM_HostedService**

Elements	Requirement	Notes
Antecedent	Mandatory	This property shall be a reference to the instance of CIM_ComputerSystem. Cardinality 1..*
Dependent	Mandatory	This property shall be a reference to the instance of CIM_PowerManagementService. Cardinality *

551   ## 10.6 CIM_RegisteredProfile

552   CIM_RegisteredProfile is defined by the *Profile Registration Profile*. The requirements denoted in
553   Table 15 are in addition to those mandated by the *Profile Registration Profile*.

554   **Table 15 – Class: CIM_RegisteredProfile**

Elements	Requirement	Notes
RegisteredName	Mandatory	This property shall have a value of "Power State Management".
RegisteredVersion	Mandatory	This property shall have a value of "1.0.1".
RegisteredOrganization	Mandatory	This property shall have a value of 2 (DMTF).

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

558 ## ANNEX A
559 ## (informative)
560
561 ## Change Log

Version	Date	Description
1.0.0b	2006/07/11	Preliminary Standard version.
1.0.0c	2007/01/30	Preliminary Standard refresh. Updated CIM schema version from 2.11 to 2.15 to reflect the correct schema that contains all the properties that the profile references.
1.0.0	2008/04/11	Final Standard version.
1.0.1	2008/09/25	Errata 1.0.1 version

562

563

564   **ANNEX B**
565   **(informative)**
566

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