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5 **Power Supply Profile**

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118

119

Foreword

120 The *Power Supply Profile* (DSP1015) was prepared by the Server Management Working Group.

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122 management and interoperability.

123

Introduction

124 The information in this specification and referenced specifications should be sufficient for a provider or
125 consumer of this data to identify unambiguously the classes, properties, methods, and values that shall
126 be instantiated and manipulated to represent and manage power supplies and redundant power supplies
127 of managed systems and subsystems that are modeled using the DMTF CIM core and extended model
128 definitions.

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

131

Power Supply Profile

132 1 Scope

133 The *Power Supply Profile* extends the management capabilities of referencing profiles by adding the
134 capability to represent power supplies for manageability and describe power supplies in a redundant
135 configuration. The power supply as a logical device is modeled as referencing the power supply physical
136 package for physical asset information and profile versioning for the schema implementation version
137 information.

138 2 Normative References

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

142 2.1 Approved References

- 143 DMTF [DSP0200](#), *CIM Operations over HTTP 1.2.0*
144 DMTF [DSP0004](#), *CIM Infrastructure Specification 2.3.0*
145 DMTF [DSP1000](#), *Management Profile Specification Template 1.0.0*
146 DMTF [DSP1001](#), *Management Profile Specification Usage Guide 1.0.0*
147 DMTF [DSP1011](#), *Physical Asset Profile 1.0.0*
148 DMTF [DSP1033](#), *Profile Registration Profile 1.0.0*

149 2.2 Other References

- 150 ISO/IEC Directives, Part 2, [Rules for the structure and drafting of International Standards](#)
151 OMG, [Unified Modeling Language \(UML\) from the Open Management Group \(OMG\)](#)

152 3 Terms and Definitions

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

154 3.1

155 **can**

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

157 3.2

158 **cannot**

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

160 3.3

161 **conditional**

162 indicates requirements to be followed strictly in order to conform to the document when the specified
163 conditions are met

- 164 **3.4**
165 **mandatory**
166 indicates requirements to be followed strictly in order to conform to the document and from which no
167 deviation is permitted
- 168 **3.5**
169 **may**
170 indicates a course of action permissible within the limits of the document
- 171 **3.6**
172 **need not**
173 indicates a course of action permissible within the limits of the document
- 174 **3.7**
175 **optional**
176 indicates a course of action permissible within the limits of the document
- 177 **3.8**
178 **referencing profile**
179 indicates a profile that owns the definition of this class and can include a reference to this profile in its
180 "Referenced Profiles" table
- 181 **3.9**
182 **shall**
183 indicates requirements to be followed strictly in order to conform to the document and from which no
184 deviation is permitted
- 185 **3.10**
186 **shall not**
187 indicates requirements to be followed strictly in order to conform to the document and from which no
188 deviation is permitted
- 189 **3.11**
190 **should**
191 indicates that among several possibilities, one is recommended as particularly suitable, without
192 mentioning or excluding others, or that a certain course of action is preferred but not necessarily required
- 193 **3.12**
194 **should not**
195 indicates that a certain possibility or course of action is deprecated but not prohibited
- 196 **3.13**
197 **Spare Power Supply**
198 indicates an instance of CIM_PowerSupply that represents a spare power supply in any condition

199 **4 Symbols and Abbreviated Terms**

- 200 **4.1**
201 **CIM**
202 Common Information Model
- 203 **4.2**
204 **FRU**
205 Field Replaceable Unit

206 5 Synopsis

207 **Profile Name:** Power Supply

208 **Version:** 1.0.1

209 **Organization:** DMTF

210 **CIM Schema Version:** 2.19.1

211 **Central Class:** CIM_PowerSupply

212 **Scoping Class:** CIM_ComputerSystem

213 The *Power Supply Profile* extends the management capability of the referencing profiles by adding the
214 capability to describe power supplies and redundant power supplies.

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

216 **Table 1 – Related Profiles**

Profile Name	Organization	Version	Requirement	Description
Physical Asset	DMTF	1.0.0	Optional	
Profile Registration	DMTF	1.0.0	Mandatory	

217

218 6 Description

219 The *Power Supply Profile* describes power supplies and power supply redundancies in a managed
220 system. The profile also describes the relationship of the power supply class to the power supply's
221 physical aspects, such as FRU data, and DMTF profile version information.

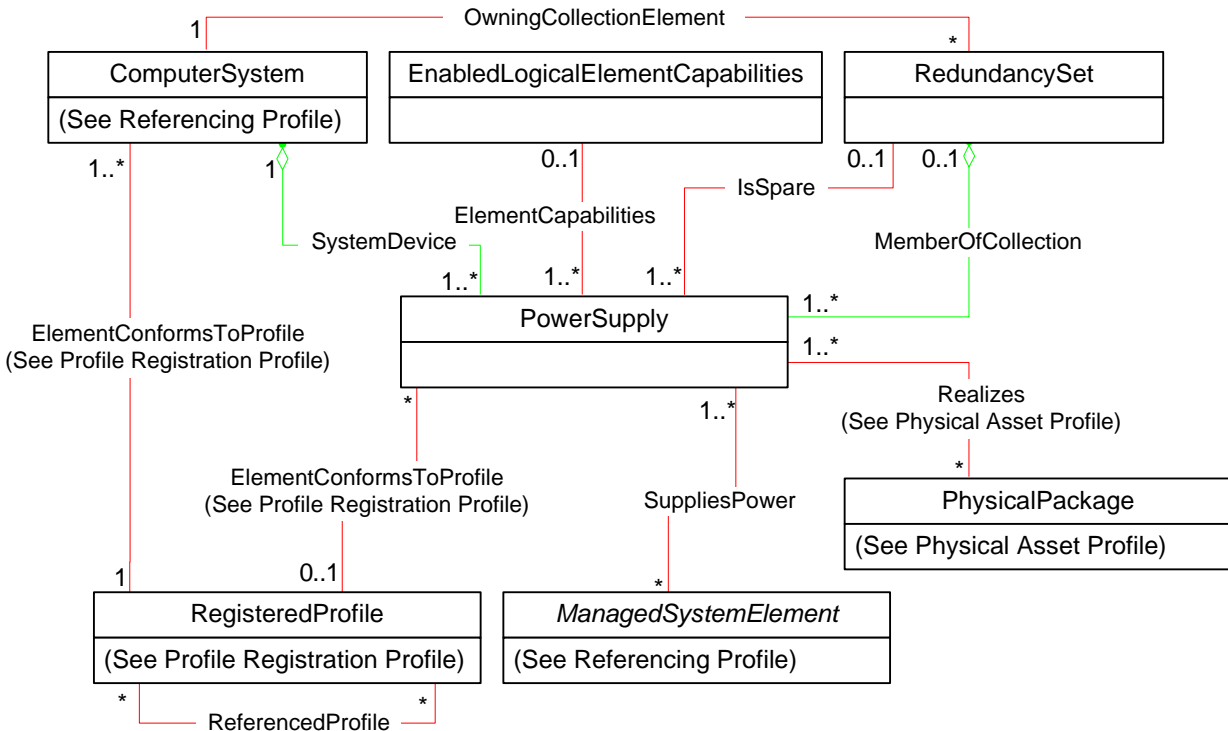
222 Figure 1 represents the class schema for the *Power Supply Profile*. For simplicity, the prefix CIM_ has
223 been removed from the names of the classes.

224 The power supply in a managed system is represented by the instance of CIM_PowerSupply. The
225 capability to disable and enable the power supply is advertised through the
226 CIM_EnabledLogicalElementCapabilities instance.

227 The managed elements that receive power from the power supply are associated to the instance of
228 CIM_PowerSupply through an instance of CIM_SuppliesPower. When the CIM_PowerSupply instance is
229 not referenced by the CIM_SuppliesPower association, the power supply represented by the
230 CIM_PowerSupply instance supplies power to the managed system that is scoped through the
231 CIM_SystemDevice association.

232 The power supply's physical aspects can be represented by one or more instances of
233 CIM_PhysicalPackage.

234 The profile information is represented with the instance of CIM_RegisteredProfile.



235

236

Figure 1 – Power Supply Profile: Class Diagram

237 **6.1 Power Supply Redundancy**

238 An instance of CIM_RedundancySet represents the redundancy of power supplies in a managed system.
 239 Each of the instances of CIM_PowerSupply that corresponds to a redundant power supply is associated
 240 to the instance of CIM_RedundancySet through an instance of CIM_MemberOfCollection. The Spare
 241 Power Supplies within the redundancy are also associated with the CIM_RedundancySet instance
 242 through an instance of CIM_IsSpare.

243 **7 Implementation Requirements**

244 Requirements and guidelines for propagating and formulating certain properties of the classes are
 245 discussed in this section. Methods are listed in section 8 and properties are listed in section 10.

246 **7.1 CIM_PowerSupply**

247 Zero or more instances of CIM_PowerSupply shall be instantiated.

248 **7.2 CIM_EnabledLogicalElementCapabilities**

249 When the CIM_EnabledLogicalElementCapabilities class is instantiated, the instance of
 250 CIM_EnabledLogicalElementCapabilities shall be associated with the CIM_PowerSupply instance
 251 through an instance of CIM_ElementCapabilities and used for advertising the capabilities of the
 252 CIM_PowerSupply instance.

253 There shall be at most one instance of CIM_EnabledLogicalElementCapabilities associated with a given
 254 instance of CIM_PowerSupply.

255 **7.2.1 CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported**

256 CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported is an array that contains the
257 supported requested states for the instance of CIM_PowerSupply. This property shall be the super set of
258 the values to be used as the RequestedState parameter in the RequestStateChange() method (see
259 section 8.1). The value of the CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported
260 property shall be an empty array or contain any combination of the following values: 2 (Enabled), 3
261 (Disabled), 6 (Offline), or 11 (Reset).

262 **7.2.2 CIM_EnabledLogicalElementCapabilities.ElementNameEditSupported**

263 This property shall have a value of TRUE when the implementation supports client modification of the
264 CIM_PowerSupply.ElementName property.

265 **7.2.3 CIM_EnabledLogicalElementCapabilities.MaxElementNameLen**

266 The MaxElementNameLen property shall be implemented when the ElementNameEditSupported
267 property has a value of TRUE.

268 **7.3 Power Supply State Management**

269 Power supply state management is optional. The power supply state management consists of the
270 CIM_PowerSupply.RequestStateChange() method being supported (see section 8.1) and the value of the
271 CIM_PowerSupply.RequestedState not matching 12 (Not Applicable).

272 **7.3.1 Power Supply State Management Support**

273 When no CIM_EnabledLogicalElementCapabilities instance is associated with the CIM_PowerSupply
274 instance, the power supply state management shall not be supported.

275 When a CIM_EnabledLogicalElementCapabilities instance is associated with the CIM_PowerSupply
276 instance but the value of the CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported
277 property is an empty array, the power supply state management shall not be supported.

278 When a CIM_EnabledLogicalElementCapabilities instance is associated with the CIM_PowerSupply
279 instance and the value of the CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported
280 property is not an empty array, the power supply state management shall be supported.

281 **7.4 CIM_PowerSupply.RequestedState**

282 The CIM_PowerSupply.RequestedState property shall have a value of 12 (Not Applicable), 5 (No
283 Change), or a value contained in the
284 CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property array of the associated
285 CIM_EnabledLogicalElementCapabilities instance (see section 7.2.1).

286 When the power supply state management is supported and the RequestStateChange() method is
287 successfully executed, the RequestedState property shall be set to the value of the parameter
288 RequestedState of RequestStateChange() method. After the RequestStateChange() method has
289 successfully executed, RequestedState and EnabledState shall have equal values with the exception of
290 the transitional requested state 11 (Reset). The value of the RequestedState property may also change
291 as a result of a request for change to the power supply's enabled state by non-CIM implementation.

292 **7.4.1 RequestedState – 12 (Not Applicable) Value**

293 When the power supply state management is not supported, the value of the
294 CIM_PowerSupply.RequestedState property shall be 12 (Not Applicable).

295 7.4.2 RequestedState – 5 (No Change) Value

296 When the power supply state management is supported, the initial value of the
297 CIM_PowerSupply.RequestedState property shall be 5 (No Change).

298 7.5 CIM_PowerSupply.EnabledState

299 Table 2 describes the mapping between the values of the CIM_PowerSupply.EnabledState property and
300 the corresponding description of the state of the power supply. The CIM_PowerSupply.EnabledState
301 property shall match the values that are specified in Table 2. When the RequestStateChange() method
302 executes but does not complete successfully, and the power supply is in an indeterminate state, the
303 CIM_PowerSupply.EnabledState property shall have value of 5 (Not Applicable). The value of this
304 property may also change as a result of a change to the power supply's enabled state by non-CIM
305 implementation.

306 **Table 2 – EnabledState Value Description**

Value	Description	Extended Description
0	Unknown	Power supply state is indeterminate.
2	Enabled	Power supply shall be enabled.
3	Disabled	Power supply shall be disabled.
5	Not Applicable	Power supply state is indeterminate, or the power supply state management is not supported.
6	Enabled but Offline	Power supply shall be enabled but shall not actively supply power (used in redundant configuration; see section 7.7).

307 7.6 CIM_SystemDevice and CIM_SuppliesPower

308 When no instance of CIM_SuppliesPower references the instance of CIM_PowerSupply, the power
309 supply represented by CIM_PowerSupply supplies power to the whole managed system. In this case, the
310 CIM_ComputerSystem instance and the CIM_PowerSupply instance shall only be associated through an
311 instance of CIM_SystemDevice.

312 When at least one instance of CIM_SuppliesPower references the instance of CIM_PowerSupply, all of
313 the power-receiving elements shall be associated with the CIM_PowerSupply instance through an
314 instance of CIM_SuppliesPower.

315 7.7 Modeling Power Supply Redundancy

316 Modeling of power supply redundancy is optional. Even when a managed system supports and
317 implements the redundancy, the redundant power supplies may co-exist with non-redundant power
318 supplies. The conditions and requirements in this section refer only to the CIM_PowerSupply instances
319 that represent redundant power supplies.

320 Power supply redundancy is modeled using CIM_RedundancySet, which is associated with the
321 CIM_PowerSupply instances through instances of CIM_MemberOfCollection and CIM_IsSpare.

322 When power supply redundancy is implemented, at least one instance of CIM_RedundancySet shall
323 exist. The CIM_MemberOfCollection association shall be used to associate the CIM_RedundancySet
324 instance with the CIM_PowerSupply instance. In addition to the CIM_MemberOfCollection association,
325 the CIM_IsSpare association may be used to associate the CIM_RedundancySet instance with the
326 CIM_PowerSupply instance, depending on the type of redundancy implemented (see section 7.7.1).

327 7.7.1 CIM_RedundancySet.TypeOfSet

328 When the CIM_RedundancySet.TypeOfSet property contains a value of 3 (Load Balanced), and/or 2
329 (N+1), or both, and does not contain any other values, the CIM_PowerSupply instances that are
330 associated with the CIM_RedundancySet instance shall comply with the following requirements:

- 331 • The CIM_PowerSupply instances shall be associated with the CIM_RedundancySet instance
332 through an instance of CIM_MemberOfCollection.
- 333 • The CIM_PowerSupply instances shall not be associated with the CIM_RedundancySet
334 instance through an instance of CIM_IsSpare.
- 335 • The CIM_PowerSupply.EnabledState property shall not have value of 6 (Enabled but Offline).

336 When the CIM_RedundancySet.TypeOfSet property has a value of 4 (Sparing), 5 (Limited Sparing), or
337 both, Spare Power Supplies may exist. The Spare Power Supply shall be associated with the
338 CIM_RedundancySet instance and shall comply with the following requirements:

- 339 • The Spare Power Supply shall be associated with the CIM_RedundancySet through instances
340 of both CIM_IsSpare and CIM_MemberOfCollection.
- 341 • The Spare Power Supply shall comply to one of the following requirements:
 - 342 – When the CIM_PowerSupply.EnabledState property has a value of 6 (Enabled but Offline),
343 the SpareStatus property of the referencing CIM_IsSpare instance shall have a value of 2
344 (Hot Standby).
 - 345 – When the CIM_PowerSupply.EnabledState property has a value of 3 (Disabled), the
346 SpareStatus property of the referencing CIM_IsSpare instance shall have a value of 3
347 (Cold Standby).
 - 348 – When the CIM_PowerSupply.EnabledState property has a value other than 3 (Disabled) or
349 6 (Enabled but Offline), the SpareStatus property of the referencing CIM_IsSpare instance
350 shall have a value of 0 (Unknown).

351 7.8 CIM_PowerSupply.ElementName

352 The CIM_PowerSupply.ElementName property shall be formatted as a free-form string of variable length
353 (pattern “.*”).

354 7.8.1 CIM_PowerSupply.ElementName Is Modifiable

355 Implementations may allow the CIM_PowerSupply.ElementName to be modified by a client. This behavior
356 is conditional. This section describes the CIM elements and behavior requirements when an
357 implementation supports client modification of the CIM_PowerSupply.ElementName property.
358 CIM_PowerSupply.ElementName property shall be modifiable when the ElementNameEditSupported
359 property of the associated CIM_EnabledLogicalElementCapabilities instance has a value of TRUE.

360 8 Methods

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

363 8.1 Method: CIM_PowerSupply.RequestStateChange()

364 Invocation of the CIM_PowerSupply.RequestStateChange() method will change the element's state to
365 the value that is specified in the RequestedState parameter.

366 Return values for RequestStateChange() shall be as specified in Table 3 where the method-execution
 367 behavior matches the return-code description. RequestStateChange() method's parameters are specified
 368 in Table 4.

369 When the power supply state management is supported, the RequestStateChange() method shall be
 370 implemented and shall not return a value of 1 (Not Supported) (see section 7.3.1).

371 When the value of the RequestedState parameter is 6 (Offline) and the power supply is not a Spare
 372 Power Supply, the RequestStateChange() method shall return a value of 2 (Error Occurred).

373 Invoking the CIM_PowerSupply.RequestStateChange() method multiple times could result in earlier
 374 requests being overwritten or lost.

375 No standard messages are defined for this method.

376 **Table 3 – CIM_PowerSupply.RequestStateChange() Method: Return Code Values**

Value	Description
0	Request was successfully executed.
1	Method is not supported in the implementation.
2	Error occurred
4096	Job started

377 **Table 4 – CIM_PowerSupply.RequestStateChange() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN	RequestedState	uint16	Valid state values: 2 (Enabled) 3 (Disabled) (see section 8.1.1) 6 (Offline) (see section 8.1.1) 11 (Reset)
OUT	Job	CIM_ConcreteJob REF	Returned if job started
IN	TimeoutPeriod	Datetime	Client specified maximum amount of time the transition to a new state is supposed to take: 0 or NULL – No time requirements <interval> – Maximum time allowed

378 **8.1.1 RequestStateChange() for the Spare Power Supply**

379 After the successful execution of the RequestStateChange() method on the Spare Power Supply with the
 380 RequestedState parameter set to 6 (Offline), the SpareStatus of the referenced CIM_IsSpare association
 381 shall have value of 2 (Hot Standby).

382 After the successful execution of the RequestStateChange() method on the Spare Power Supply with the
 383 RequestedState parameter set to 3 (Disabled), the SpareStatus of the referenced CIM_IsSpare
 384 association shall have value of 3 (Cold Standby).

385 **8.2 Method: CIM_RedundancySet.Failover()**

386 The CIM_RedundancySet.Failover() method forces a failover from one member of a
 387 CIM_RedundancySet collection to another. When the method executes successfully, the power supply
 388 that is represented by the CIM_PowerSupply instance referenced by the FailoverFrom parameter will

389 become inactive. The power supply that is represented by the CIM_PowerSupply instance referenced by
 390 the FailoverTo parameter will take over as the active power supply.

391 The Failover() method may be supported if the FailoverSupported property of at least one instance of
 392 CIM_IsSpare that references the CIM_RedundancySet has a value of 3 (Manual) or 4 (Both Manual and
 393 Automatic).

394 The Failover() method shall not be supported if the FailoverSupported property of every instance of
 395 CIM_IsSpare that references the CIM_RedundancySet has a value of 2 (Automatic).

396 The execution of the Failover() method shall return a value of 2 (Error Occurred) under the following
 397 conditions:

- 398 • The CIM_PowerSupply instance that is referenced by the FailoverTo parameter is not a Spare
 399 Power Supply.
- 400 • The CIM_PowerSupply instance that is referenced by the FailoverFrom parameter is not
 401 associated with the CIM_RedundancySet instance only through the CIM_MemberOfCollection
 402 association.

403 After the Failover() method executes successfully:

- 404 • The CIM_PowerSupply instance that is referenced by the FailoverTo parameter shall take over
 405 as the active power supply. The CIM_PowerSupply instance that is referenced by the
 406 FailoverTo parameter shall be associated with the CIM_RedundancySet only through the
 407 CIM_MemberOfCollection association.
- 408 • The CIM_PowerSupply instance that is referenced by FailoverFrom parameter shall become a
 409 Spare Power Supply.
- 410 • When the power supply state management is supported, the EnabledState property of the
 411 CIM_PowerSupply instance that is referenced by the FailoverFrom parameter shall not have a
 412 value of 2 (Enabled) but may have a value of 6 (Enabled but Offline).

413 CIM_RedundancySet.Failover() return values shall be as specified in Table 5.

414 CIM_RedundancySet.Failover() parameters are specified in Table 6.

415 No standard messages are defined for this method.

416 **Table 5 – CIM_RedundancySet.Failover() Method: Return Code Values**

Value	Description
0	Request was successfully executed.
1	Method is not supported in the implementation.
2	Error occurred

417 **Table 6 – CIM_RedundancySet.Failover() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	FailoverFrom	CIM_ManagedElement REF	The redundant element that will become inactive
IN, REQ	FailoverTo	CIM_ManagedElement REF	The redundant element that will become active and take over the inactivated element

418 8.3 Profile Conventions for Operations

419 Support for operations for each profile class (including associations) is specified in the following
 420 subclauses. Each subclause includes either the statement “All operations in the default list in section 8.3
 421 are supported as described by [DSP0200 version 1.2](#)” or a table listing all of the operations that are not
 422 supported by this profile or where the profile requires behavior other than that described by [DSP0200](#)
 423 [version 1.2](#).

424 The default list of operations is as follows:

- 425 • GetInstance
- 426 • EnumerateInstances
- 427 • EnumerateInstanceNames
- 428 • Associators
- 429 • AssociatorNames
- 430 • References
- 431 • ReferenceNames

432 A compliant implementation shall support all of the operations in the default list for each class, unless the
 433 “Requirement” column states something other than *Mandatory*.

434 8.4 CIM_ElementCapabilities Operations

435 Table 7 lists operations that either have special requirements beyond those from [DSP0200 version 1.2](#) or
 436 shall not be supported.

437 **Table 7 – CIM_ElementCapabilities Operations**

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

438 8.5 CIM_EnabledLogicalElementCapabilities Operations

439 All operations in the default list in section 8.3 are supported as described by [DSP0200 version 1.2](#).

440 8.6 CIM_IsSpare Operations

441 Table 8 lists operations that either have special requirements beyond those from [DSP0200 version 1.2](#) or
 442 shall not be supported.

443 **Table 8 – CIM_IsSpare Operations**

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

444 **8.7 CIM_MemberOfCollection Operations**

445 Table 9 lists operations that either have special requirements beyond those from [DSP0200 version 1.2](#) or
446 shall not be supported.

447 **Table 9 – CIM_MemberOfCollection Operations**

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

448 **8.8 CIM_OwningCollectionElement Operations**

449 Table 10 lists operations that either have special requirements beyond those from [DSP0200 version 1.2](#)
450 or shall not be supported.

451 **Table 10 – CIM_OwningCollectionElement Operations**

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

452 **8.9 CIM_PowerSupply Operations**

453 Table 11 lists operations that either have special requirements beyond those from [DSP0200 version 1.2](#)
454 or shall not be supported.

455 **Table 11 – CIM_PowerSupply Operations**

Operation	Requirement	Messages
ModifyInstance	Conditional. See section 8.9.1.	None

456 **8.9.1 CIM_PowerSupply—ModifyInstance**

457 This section details the requirements for the ModifyInstance operation applied to an instance of
458 CIM_PowerSupply. The ModifyInstance operation may be supported.

459 The ModifyInstance operation shall be supported and CIM_PowerSupply.ElementName shall be
460 modifiable when the ElementNameEditSupported property of the
461 CIM_EnabledLogicalElementCapabilities instance that is associated with the CIM_PowerSupply instance
462 has a value of TRUE. See section 8.9.1.1.

463 **8.9.1.1 CIM_PowerSupply.ElementName**

464 When the ElementNameEditSupported property of the CIM_EnabledLogicalElementCapabilities instance
465 that is associated with the CIM_PowerSupply instance has a value of TRUE, the implementation shall
466 allow the ModifyInstance operation to change the value of the ElementName property of the

467 CIM_PowerSupply instance. The ModifyInstance operation shall enforce the length restriction specified in
468 the MaxElementNameLen property of the CIM_EnabledLogicalElementCapabilities instance.

469 When the ElementNameEditSupported property of the CIM_EnabledLogicalElementCapabilities instance
470 has a value of FALSE or if there is no CIM_EnabledLogicalElementCapabilities associated with the
471 CIM_PowerSupply instance through the CIM_ElementCapabilities association, the implementation shall
472 not allow the ModifyInstance operation to change the value of the ElementName property of the
473 CIM_PowerSupply instance.

474 8.10 CIM_RedundancySet Operations

475 All operations in the default list in section 8.3 are supported as described by [DSP0200 version 1.2](#).

476 8.11 CIM_SuppliesPower Operations

477 Table 12 lists operations that either have special requirements beyond those from [DSP0200 version 1.2](#)
478 or shall not be supported.

479 **Table 12 – CIM_SuppliesPower Operations**

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

480 8.12 CIM_SystemDevice Operations

481 Table 13 lists operations that either have special requirements beyond those from [DSP0200 version 1.2](#)
482 or shall not be supported.

483 **Table 13 – CIM_SystemDevice Operations**

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

484 9 Use Cases

485 This section contains object diagrams and use cases for the *Power Supply Profile*.

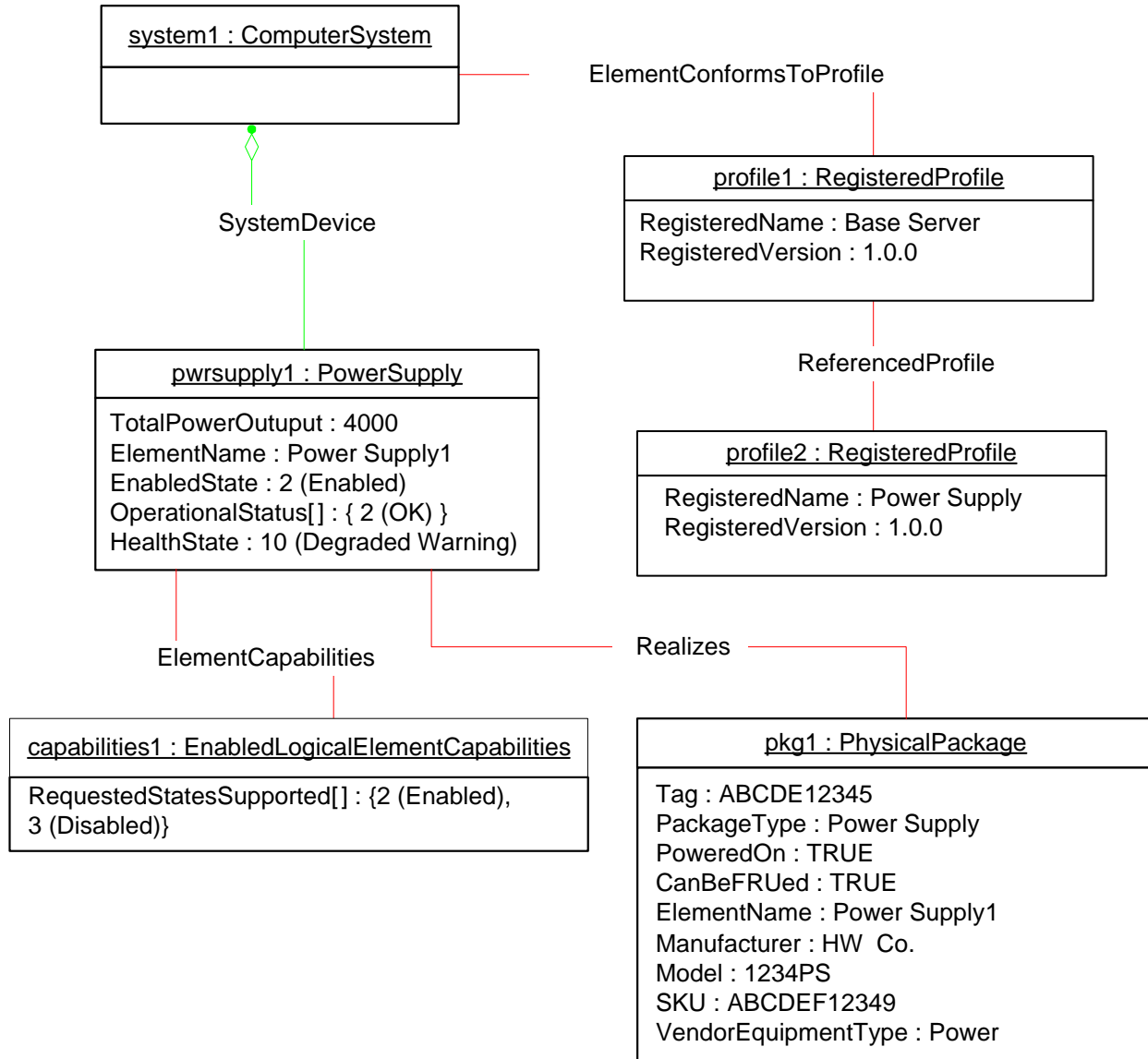
486 9.1 Object Diagrams

487 Figure 2 represents a possible instantiation of the *Power Supply Profile*. In this instantiation, the managed
488 system, system1, has a power supply, pwrsupply1. The power supply is operating but in a degraded
489 state. pwrsupply1 produces 4000 milliwatts of power. pwrsupply1's physical package information is
490 represented as well.

491 Because pwrsupply1 does not have the CIM_SuppliesPower association reference, pwrsupply1 is
492 supplying power to system1, which is denoted by the CIM_SystemDevice association. system1 is also the
493 scoping instance for pwrsupply1. Thus, following the CIM_ElementConformsToProfile association to

494 profile1 and then the referenced CIM_ReferencedProfile association to a CIM_RegisteredProfile instance
 495 with the RegisteredName property set to "Power Supply", the client can retrieve profile2. profile2 will show
 496 the version of the current *Power Supply Profile* implementation.

497 For simplicity, the prefix CIM_ has been removed from the names of the classes in the figure.



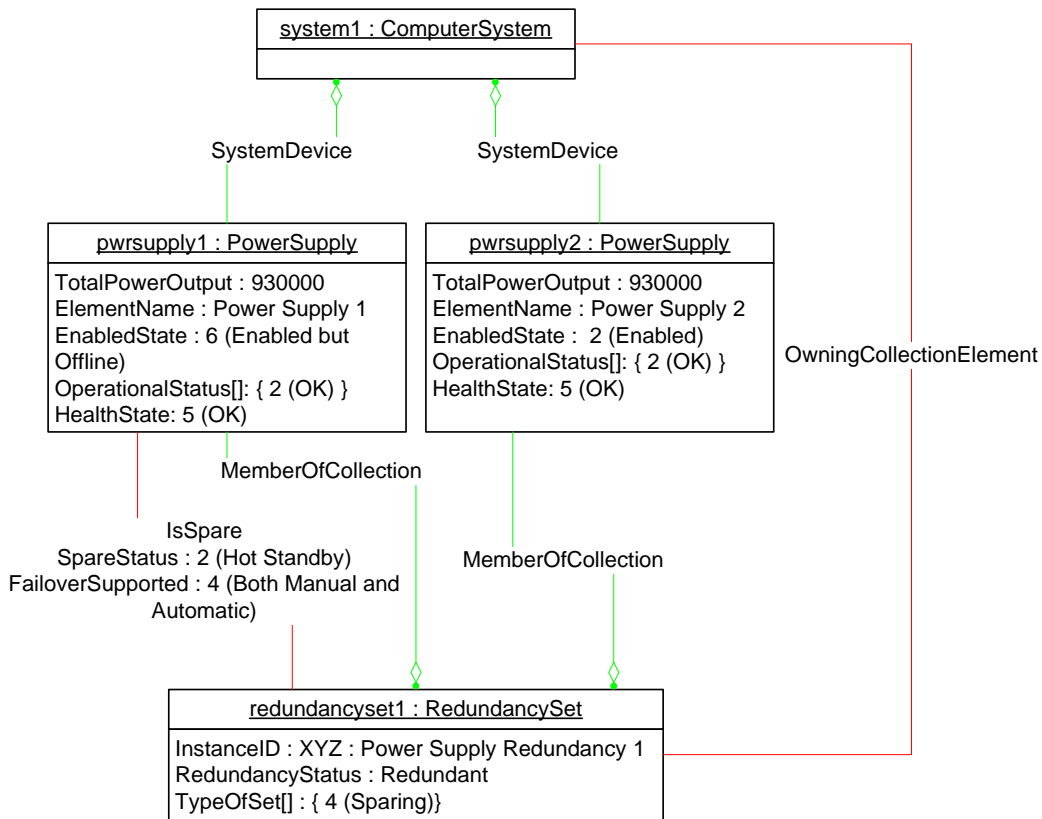
498

499 **Figure 2 – Power Supply Profile: Object Diagram**

500 Figure 3 represents a possible instantiation of the *Power Supply Profile* with redundancy. system1 has
 501 spare power supply redundancy. Because pwrsupply1 is associated with redundancysset1 through the
 502 CIM_IsSpare association, and the value of the pwrsupply1's EnabledState property is 6 (Enabled but
 503 Offline), the pwrsupply1 is a Spare Power Supply that is enabled but is not actively providing power to
 504 system1. pwrsupply2 is the active power supply of system1 because the value of its EnabledState
 505 property is 2 (Enabled) and pwrsupply2 is associated with redundancysset1 only through the
 506 CIM_MemberOfCollection association.

507 If redundancysset1 supports the Failover() method, a client can execute the Failover() method with the
 508 FailoverFrom parameter referencing pwrsupply2 and the FailoverTo parameter referencing pwrsupply1.

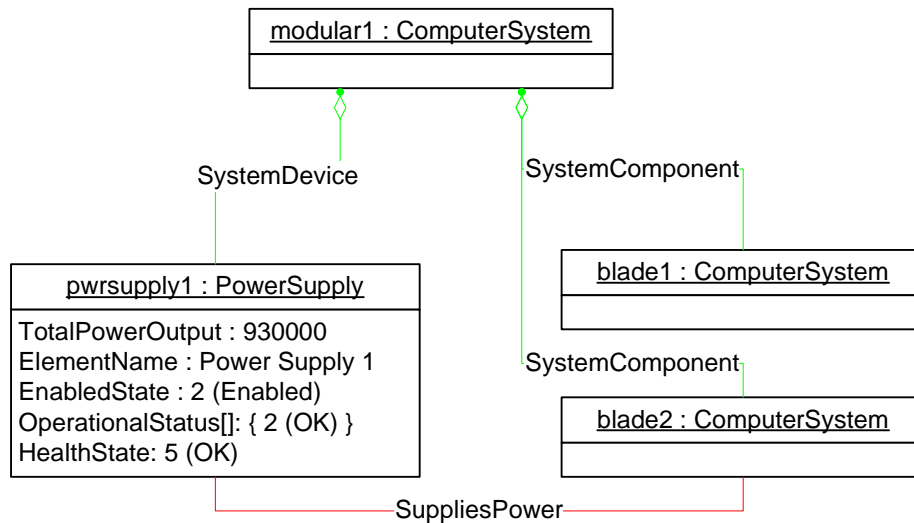
509 When the Failover() method executes successfully, pwrsupply1 will be the active power supply for
 510 system1 with an EnabledState property value of 2 (Enabled) and will not be associated with
 511 redundancysset1 through the CIM_IsSpare association. Additionally, pwrsupply2 will not have an
 512 EnabledState property value of 2 (Enabled) and will be associated to redundancysset1 through the
 513 CIM_IsSpare association. Because pwrsupply1 and pwrsupply2 do not have the CIM_SuppliesPower
 514 association reference, both are supplying power to system1, which is denoted by the CIM_SystemDevice
 515 association.



516

517 **Figure 3 – Power Supply Profile: Redundancy Object Diagram**

518 Figure 4 shows a possible instantiation of the *Power Supply Profile* in which the power supply is
 519 dedicated to supply power to a particular managed element. In this diagram, pwrsupply1 is associated to
 520 blade2 through the CIM_SuppliesPower association. This association denotes that pwrsupply1 supplies
 521 power only to blade2 and does not supply power to modular1 and blade1. In this case, the
 522 CIM_SystemDevice association does not reference the element to which pwrsupply1 supplies power.



523

524

Figure 4 – Power Supply Profile: Dedicated Power Supply

525 **9.2 Retrieve the Power Supply’s Power Output Information**

526 A client can determine the power output information for a given instance of CIM_PowerSupply by
527 retrieving the TotalPowerOutput property.

528 **9.3 Reset the Power Supply**

529 A client can reset the power supply as follows:

- 530 1) For the given instance of CIM_PowerSupply, find the associated instance of
531 CIM_EnabledLogicalElementCapabilities.
- 532 2) If the CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property is a non-
533 empty array that contains the value 11 (Reset), execute the RequestStateChange() method
534 with the value of the RequestedState parameter set to 11 (Reset), which will disable and then
535 enable the power supply represented by this instance.

536 **9.4 Retrieve the Power Supply Redundancy Status**

537 A client can determine the redundancy status for a given instance of CIM_PowerSupply as follows:

- 538 1) Find the instance of CIM_RedundancySet that is associated with the instance of
539 CIM_PowerSupply through an instance of CIM_MemberOfCollection.
- 540 2) Retrieve the value of the CIM_RedundancySet.RedundancyStatus property.

541 **9.5 Find the Elements to Which the Power Supply Supplies Power**

542 A client can determine the elements to which a given instance of CIM_PowerSupply supplies power as
543 follows:

- 544 1) Find all of the CIM_SuppliesPower association instances that reference the given instance of
545 CIM_PowerSupply.
- 546 2) If the CIM_SuppliesPower association instances exist, the CIM_SuppliesPower.Dependent
547 properties will reference all the instances of the subclass of CIM_ManagedSystemElement that
548 receive power from the power supply.

- 549 3) If no CIM_SuppliesPower association instances exist, select the CIM_ComputerSystem
550 instance associated with the given instance of the CIM_PowerSupply instance through the
551 CIM_SystemDevice association.

552 **9.6 Determine Whether the CIM_PowerSupply.ElementName Is Modifiable**

553 A client can determine whether it can modify the CIM_PowerSupply.ElementName property as follows:

- 554 1) Find the CIM_EnabledLogicalElementCapabilities instance that is associated with the
555 CIM_PowerSupply instance.
- 556 2) Query the value of the ElementNameEditSupported property of the instance. If the value is
557 TRUE, the client can modify the CIM_PowerSupply.ElementName property.

558 **10 CIM Elements**

559 Table 14 shows the instances of CIM Elements for this profile. Instances of the CIM Elements shall be
 560 implemented as described in Table 14. Sections 7 (“Implementation Requirements”) and 8 (“Methods”)
 561 may impose additional requirements on these elements.

562 **Table 14 – CIM Elements: Power Supply Profile**

Element Name	Requirement	Description
Classes		
CIM_ElementCapabilities	Optional	See section 10.1.
CIM_EnabledLogicalElementCapabilities	Optional	See sections 7.2 and 10.2.
CIM_IsSpare	Optional	See section 10.3.
CIM_MemberOfCollection	Optional	See section 10.4.
CIM_OwningCollectionElement	Optional	See section 10.9.
CIM_PowerSupply	Mandatory	See sections 7.1 and 10.5.
CIM_RedundancySet	Optional	See sections 7.7 and 10.6.
CIM_RegisteredProfile	Mandatory	See section 10.7.
CIM_SuppliesPower	Optional	See sections 7.6 and 10.10.
CIM_SystemDevice	Mandatory	See sections 7.6 and 10.8.
Indications		
None defined in this profile		

563 **10.1 CIM_ElementCapabilities**

564 CIM_ElementCapabilities is used to associate an instance of CIM_PowerSupply with an instance of
 565 CIM_EnabledLogicalElementCapabilities that describes the capabilities of the CIM_PowerSupply
 566 instance.

567 **Table 15 – CIM_ElementCapabilities**

Properties	Requirement	Notes
ManagedElement	Mandatory	Key: Shall reference the instance of CIM_PowerSupply Cardinality 1..* indicating one or more references
Capabilities	Mandatory	Key: Shall reference the instance of CIM_EnabledLogicalElementCapabilities Cardinality 0..1 indicating zero or one reference

568 **10.2 CIM_EnabledLogicalElementCapabilities**

569 CIM_EnabledLogicalElementCapabilities represents the capabilities of the power supply.

570 **Table 16 – CIM_EnabledLogicalElementCapabilities**

Properties	Requirement	Notes
InstanceID	Mandatory	Key
RequestedStatesSupported	Mandatory	See section 7.2.1.

Properties	Requirement	Notes
ElementNameEditSupported	Mandatory	See section 7.2.2.
MaxElementNameLen	Conditional	See section 7.2.3.

571 10.3 CIM_IsSpare

572 CIM_IsSpare is used to associate an instance of CIM_PowerSupply with the instance of
 573 CIM_RedundancySet of which the CIM_PowerSupply instance is a member and is a Spare Power
 574 Supply.

575 **Table 17 – Class: CIM_IsSpare**

Properties	Notes	Notes
Antecedent	Mandatory	Key: Shall reference the CIM_RedundancySet instance of which the CIM_PowerSupply instance is a member and where the CIM_PowerSupply instance is a spare Cardinality 0..1 indicating zero or one reference
Dependent	Mandatory	Key: Shall reference the CIM_PowerSupply instance Cardinality 1..* indicating one or more references
SpareStatus	Mandatory	None
FailoverSupported	Mandatory	None

576 10.4 CIM_MemberOfCollection

577 CIM_MemberOfCollection is used to associate an instance of CIM_PowerSupply with the instance of
 578 CIM_RedundancySet of which the CIM_PowerSupply is a member.

579 **Table 18 – Class: CIM_MemberOfCollection**

Properties	Requirement	Notes
Collection	Mandatory	Key: Shall reference the CIM_RedundancySet instance of which the CIM_PowerSupply instance is a member. Cardinality 0..1 indicating zero or one reference
Member	Mandatory	Key: Shall reference the CIM_PowerSupply instance Cardinality 1..* indicating one or many references

580 10.5 CIM_PowerSupply

581 CIM_PowerSupply is used to represent the power supply.

582 **Table 19 – Class: CIM_PowerSupply**

Properties and Methods	Requirement	Notes
SystemCreationClassName	Mandatory	Key
SystemName	Mandatory	Key
CreationClassName	Mandatory	Key
DeviceID	Mandatory	Key
TotalOutputPower	Mandatory	Shall match 0 when the power supply's total output power is unknown

Properties and Methods	Requirement	Notes
ElementName	Mandatory	See section 7.8.
OperationalStatus	Mandatory	None
HealthState	Mandatory	None
EnabledState	Mandatory	See section 7.5.
RequestedState	Mandatory	See section 7.4.
RequestStateChange()	Conditional	See section 8.1.

583 **10.6 CIM_RedundancySet**

584 CIM_RedundancySet is used to represent the aggregation of redundant power supplies.

585 **Table 20 – Class: CIM_RedundancySet**

Properties and Methods	Requirement	Notes
InstanceID	Mandatory	Key
RedundancyStatus	Mandatory	None
TypeOfSet	Mandatory	See section 7.7.1.
MinNumberNeeded	Mandatory	Shall match 0 when the minimum number of power supplies needed for the redundancy is unknown
ElementName	Mandatory	Shall be formatted as a free-form string of variable length (pattern ".*")
Failover()	Optional	See section 8.1.1.

586 **10.7 CIM_RegisteredProfile**

587 The CIM_RegisteredProfile class is defined by the [Profile Registration Profile](#). The requirements denoted
 588 in Table 21 are in addition to those mandated by the [Profile Registration Profile](#).

589 **Table 21 – Class: CIM_RegisteredProfile**

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

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

593 **10.8 CIM_SystemDevice**

594 CIM_SystemDevice is used to associate an instance of CIM_PowerSupply with the instance of
 595 CIM_ComputerSystem of which the CIM_PowerSupply instance is a member.

596 **Table 22 – Class: CIM_SystemDevice**

Properties	Requirement	Notes
GroupComponent	Mandatory	Key: Shall reference the CIM_ComputerSystem instance of which the CIM_PowerSupply instance is a member Cardinality 1 indicating one reference
PartComponent	Mandatory	Key: Shall reference the CIM_PowerSupply instance Cardinality 1..* indicating one or more references

597 **10.9 CIM_OwningCollectionElement**

598 CIM_OwningCollectionElement is used to associate an instance of CIM_RedundancySet with the
 599 instance of CIM_ComputerSystem of which the CIM_RedundancySet instance is a member.

600 **Table 23 – Class: CIM_OwningCollectionElement**

Properties	Requirement	Notes
OwningElement	Mandatory	Key: Shall reference the CIM_ComputerSystem instance of which the CIM_RedundancySet instance is a member Cardinality 1 indicating one reference
OwnedElement	Mandatory	Key: Shall reference the CIM_RedundancySet instance Cardinality * indicating zero or more references

601 **10.10 CIM_SuppliesPower**

602 CIM_SuppliesPower is used to associate an instance of CIM_PowerSupply with the instance of
 603 CIM_ManagedSystemElement to which the power supply represented by the CIM_PowerSupply instance
 604 supplies power. See section 7.6.

605 **Table 24 – Class: CIM_SuppliesPower**

Properties	Requirement	Notes
Antecedent	Mandatory	Key: Shall reference the CIM_PowerSupply instance Cardinality 1..* indicating one or more references
Dependent	Mandatory	Key: Shall reference the instance of the subclass of CIM_ManagedSystemElement that represents the element receiving the power Cardinality * indicating zero or more references

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ANNEX 1 (informative)

Change Log

Version	Date	Description
1.0.0c	04/24/2006	Incorporated Cpubs corrections. Release as Preliminary Standard
1.0.0	04/02/2008	Final Standard revision
1.0.1	09/23/2008	Errata 1.0.1

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ANNEX 1 (informative)

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