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## Foreword

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

121 DMTF is a not-for-profit association of industry members dedicated to promoting enterprise and systems  
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:** 1.0.0

209 **Organization:** DMTF

210 **CIM Schema Version:** 2.18.0

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 – Referenced Profiles**

Profile Name	Organization	Version	Relationship
Physical Asset	DMTF	1.0.0	Optional
Profile Registration	DMTF	1.0.0	Mandatory

## 217 6 Description

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

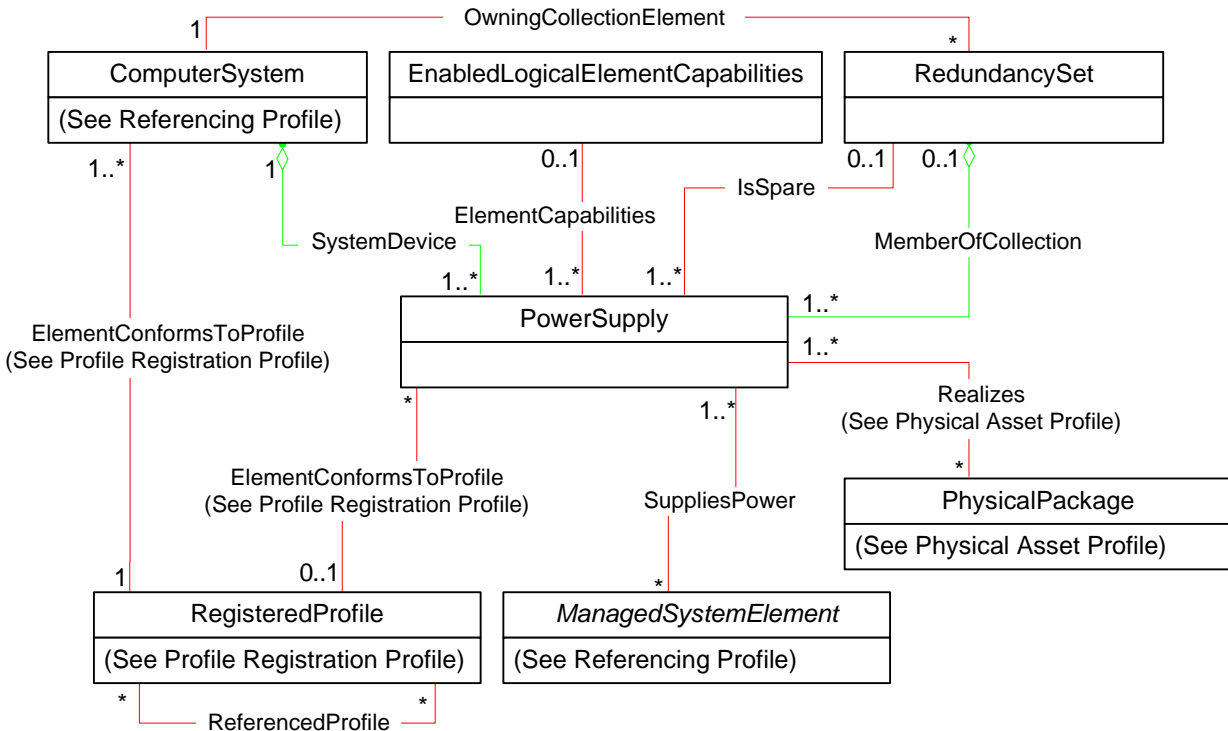
221 Figure 1 represents the class schema for the *Power Supply Profile*. For simplicity, the prefix CIM\_ has  
222 been removed from the names of the classes.

223 The power supply in a managed system is represented by the instance of CIM\_PowerSupply. The  
224 capability to disable and enable the power supply is advertised through the  
225 CIM\_EnabledLogicalElementCapabilities instance.

226 The managed elements that receive power from the power supply are associated to the instance of  
227 CIM\_PowerSupply through an instance of CIM\_SuppliesPower. When the CIM\_PowerSupply instance is  
228 not referenced by the CIM\_SuppliesPower association, the power supply represented by the  
229 CIM\_PowerSupply instance supplies power to the managed system that is scoped through the  
230 CIM\_SystemDevice association.

231 The power supply's physical aspects can be represented by one or more instances of  
232 CIM\_PhysicalPackage.

233 The profile information is represented with the instance of CIM\_RegisteredProfile.



234

235

**Figure 1 – Power Supply Profile: Class Diagram**

236 **6.1 Power Supply Redundancy**

237 An instance of CIM\_RedundancySet represents the redundancy of power supplies in a managed system.  
 238 Each of the instances of CIM\_PowerSupply that corresponds to a redundant power supply is associated  
 239 to the instance of CIM\_RedundancySet through an instance of CIM\_MemberOfCollection. The Spare  
 240 Power Supplies within the redundancy are also associated with the CIM\_RedundancySet instance  
 241 through an instance of CIM\_IsSpare.

242 **7 Implementation Requirements**

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

245 **7.1 CIM\_PowerSupply**

246 Zero or more instances of CIM\_PowerSupply shall be instantiated.

247 **7.2 CIM\_EnabledLogicalElementCapabilities**

248 When the CIM\_EnabledLogicalElementCapabilities class is instantiated, the instance of  
 249 CIM\_EnabledLogicalElementCapabilities shall be associated with the CIM\_PowerSupply instance  
 250 through an instance of CIM\_ElementCapabilities and used for advertising the capabilities of the  
 251 CIM\_PowerSupply instance.

252 There shall be at most one instance of CIM\_EnabledLogicalElementCapabilities associated with a given  
 253 instance of CIM\_PowerSupply.

### 254 **7.2.1 CIM\_EnabledLogicalElementCapabilities.RequestedStatesSupported**

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

### 261 **7.2.2 CIM\_EnabledLogicalElementCapabilities.ElementNameEditSupported**

262 This property shall have a value of TRUE when the implementation supports client modification of the  
263 CIM\_PowerSupply.ElementName property.

### 264 **7.2.3 CIM\_EnabledLogicalElementCapabilities.MaxElementNameLen**

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

## 267 **7.3 Power Supply State Management**

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

### 271 **7.3.1 Power Supply State Management Support**

272 When no CIM\_EnabledLogicalElementCapabilities instance is associated with the CIM\_PowerSupply  
273 instance, the power supply state management shall not be supported.

274 When a CIM\_EnabledLogicalElementCapabilities instance is associated with the CIM\_PowerSupply  
275 instance but the value of the CIM\_EnabledLogicalElementCapabilities.RequestedStatesSupported  
276 property is an empty array, the power supply state management shall not be supported.

277 When a CIM\_EnabledLogicalElementCapabilities instance is associated with the CIM\_PowerSupply  
278 instance and the value of the CIM\_EnabledLogicalElementCapabilities.RequestedStatesSupported  
279 property is not an empty array, the power supply state management shall be supported.

## 280 **7.4 CIM\_PowerSupply.RequestedState**

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

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

### 291 **7.4.1 RequestedState – 12 (Not Applicable) Value**

292 When the power supply state management is not supported, the value of the  
293 CIM\_PowerSupply.RequestedState property shall be 12 (Not Applicable).

## 294 7.4.2 RequestedState – 5 (No Change) Value

295 When the power supply state management is supported, the initial value of the  
296 CIM\_PowerSupply.RequestedState property shall be 5 (No Change).

## 297 7.5 CIM\_PowerSupply.EnabledState

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

305 **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).

## 306 7.6 CIM\_SystemDevice and CIM\_SuppliesPower

307 When no instance of CIM\_SuppliesPower references the instance of CIM\_PowerSupply, the power  
308 supply represented by CIM\_PowerSupply supplies power to the whole managed system. In this case, the  
309 CIM\_ComputerSystem instance and the CIM\_PowerSupply instance shall only be associated through an  
310 instance of CIM\_SystemDevice.

311 When at least one instance of CIM\_SuppliesPower references the instance of CIM\_PowerSupply, all of  
312 the power-receiving elements shall be associated with the CIM\_PowerSupply instance through an  
313 instance of CIM\_SuppliesPower.

## 314 7.7 Modeling Power Supply Redundancy

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

319 Power supply redundancy is modeled using CIM\_RedundancySet, which is associated with the  
320 CIM\_PowerSupply instances through instances of CIM\_MemberOfCollection and CIM\_IsSpare.

321 When power supply redundancy is implemented, at least one instance of CIM\_RedundancySet shall  
322 exist. The CIM\_MemberOfCollection association shall be used to associate the CIM\_RedundancySet  
323 instance with the CIM\_PowerSupply instance. In addition to the CIM\_MemberOfCollection association,  
324 the CIM\_IsSpare association may be used to associate the CIM\_RedundancySet instance with the  
325 CIM\_PowerSupply instance, depending on the type of redundancy implemented (see section 7.7.1).

### 326 7.7.1 CIM\_RedundancySet.TypeOfSet

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

- 330 • The CIM\_PowerSupply instances shall be associated with the CIM\_RedundancySet instance  
331 through an instance of CIM\_MemberOfCollection.
- 332 • The CIM\_PowerSupply instances shall not be associated with the CIM\_RedundancySet  
333 instance through an instance of CIM\_IsSpare.
- 334 • The CIM\_PowerSupply.EnabledState property shall not have value of 6 (Enabled but Offline).

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

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

## 350 7.8 CIM\_PowerSupply.ElementName

351 The CIM\_PowerSupply.ElementName property shall be formatted as a free-form string of variable length  
352 (pattern “.\*”).

### 353 7.8.1 CIM\_PowerSupply.ElementName Is Modifiable

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

## 359 8 Methods

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

### 362 8.1 Method: CIM\_PowerSupply.RequestStateChange()

363 Invocation of the CIM\_PowerSupply.RequestStateChange() method will change the element's state to  
364 the value that is specified in the RequestedState parameter.

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

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

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

372 Invoking the CIM\_PowerSupply.RequestStateChange() method multiple times could result in earlier  
 373 requests being overwritten or lost.

374 No standard messages are defined for this method.

375 **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

376 **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

### 377 **8.1.1 RequestStateChange() for the Spare Power Supply**

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

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

### 384 **8.2 Method: CIM\_RedundancySet.Failover()**

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

388 become inactive. The power supply that is represented by the CIM\_PowerSupply instance referenced by  
 389 the FailoverTo parameter will take over as the active power supply.

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

393 The Failover() method shall not be supported if the FailoverSupported property of every instance of  
 394 CIM\_IsSpare that references the CIM\_RedundancySet has a value of 2 (Automatic).

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

- 397 • The CIM\_PowerSupply instance that is referenced by the FailoverTo parameter is not a Spare  
 398 Power Supply.
- 399 • The CIM\_PowerSupply instance that is referenced by the FailoverFrom parameter is not  
 400 associated with the CIM\_RedundancySet instance only through the CIM\_MemberOfCollection  
 401 association.

402 After the Failover() method executes successfully:

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

412 CIM\_RedundancySet.Failover() return values shall be as specified in Table 5.

413 CIM\_RedundancySet.Failover() parameters are specified in Table 6.

414 No standard messages are defined for this method.

415 **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

416 **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

### 417 8.3 Profile Conventions for Operations

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

423 The default list of operations is as follows:

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

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

### 433 8.4 CIM\_ElementCapabilities Operations

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

436 **Table 7 – CIM\_ElementCapabilities Operations**

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

### 437 8.5 CIM\_EnabledLogicalElementCapabilities Operations

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

### 439 8.6 CIM\_IsSpare Operations

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

442 **Table 8 – CIM\_IsSpare Operations**

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



443 **8.7 CIM\_MemberOfCollection Operations**

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

446 **Table 9 – CIM\_MemberOfCollection Operations**

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

447 **8.8 CIM\_OwningCollectionElement Operations**

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

450 **Table 10 – CIM\_OwningCollectionElement Operations**

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

451 **8.9 CIM\_PowerSupply Operations**

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

454 **Table 11 – CIM\_PowerSupply Operations**

Operation	Requirement	Messages
ModifyInstance	Conditional. See section 8.9.1.	None

455 **8.9.1 CIM\_PowerSupply—ModifyInstance**

456 This section details the requirements for the ModifyInstance operation applied to an instance of  
 457 CIM\_PowerSupply. The ModifyInstance operation may be supported.

458 The ModifyInstance operation shall be supported and CIM\_PowerSupply.ElementName shall be  
 459 modifiable when the ElementNameEditSupported property of the  
 460 CIM\_EnabledLogicalElementCapabilities instance that is associated with the CIM\_PowerSupply instance  
 461 has a value of TRUE. See section 8.9.1.1.

462 **8.9.1.1 CIM\_PowerSupply.ElementName**

463 When the ElementNameEditSupported property of the CIM\_EnabledLogicalElementCapabilities instance  
 464 that is associated with the CIM\_PowerSupply instance has a value of TRUE, the implementation shall  
 465 allow the ModifyInstance operation to change the value of the ElementName property of the

466 CIM\_PowerSupply instance. The ModifyInstance operation shall enforce the length restriction specified in  
467 the MaxElementNameLen property of the CIM\_EnabledLogicalElementCapabilities instance.

468 When the ElementNameEditSupported property of the CIM\_EnabledLogicalElementCapabilities instance  
469 has a value of FALSE or if there is no CIM\_EnabledLogicalElementCapabilities associated with the  
470 CIM\_PowerSupply instance through the CIM\_ElementCapabilities association, the implementation shall  
471 not allow the ModifyInstance operation to change the value of the ElementName property of the  
472 CIM\_PowerSupply instance.

## 473 8.10 CIM\_RedundancySet Operations

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

## 475 8.11 CIM\_SuppliesPower Operations

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

478 **Table 12 – CIM\_SuppliesPower Operations**

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

## 479 8.12 CIM\_SystemDevice Operations

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

482 **Table 13 – CIM\_SystemDevice Operations**

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

# 483 9 Use Cases

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

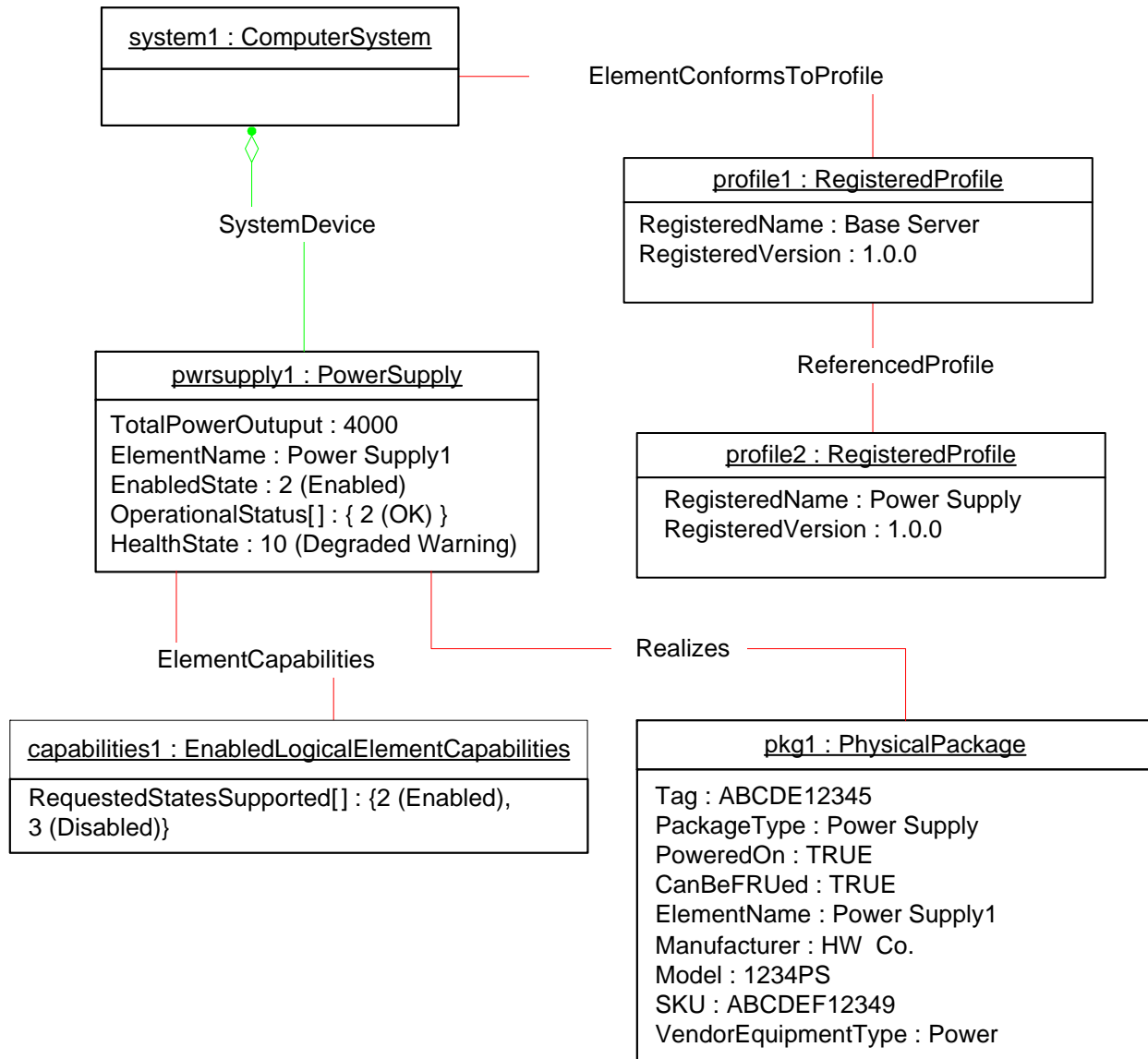
## 485 9.1 Object Diagrams

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

490 Because pwrsupply1 does not have the CIM\_SuppliesPower association reference, pwrsupply1 is  
491 supplying power to system1, which is denoted by the CIM\_SystemDevice association. system1 is also the  
492 scoping instance for pwrsupply1. Thus, following the CIM\_ElementConformsToProfile association to

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

496 For simplicity, the prefix CIM\_ has been removed from the names of the classes in the figure.



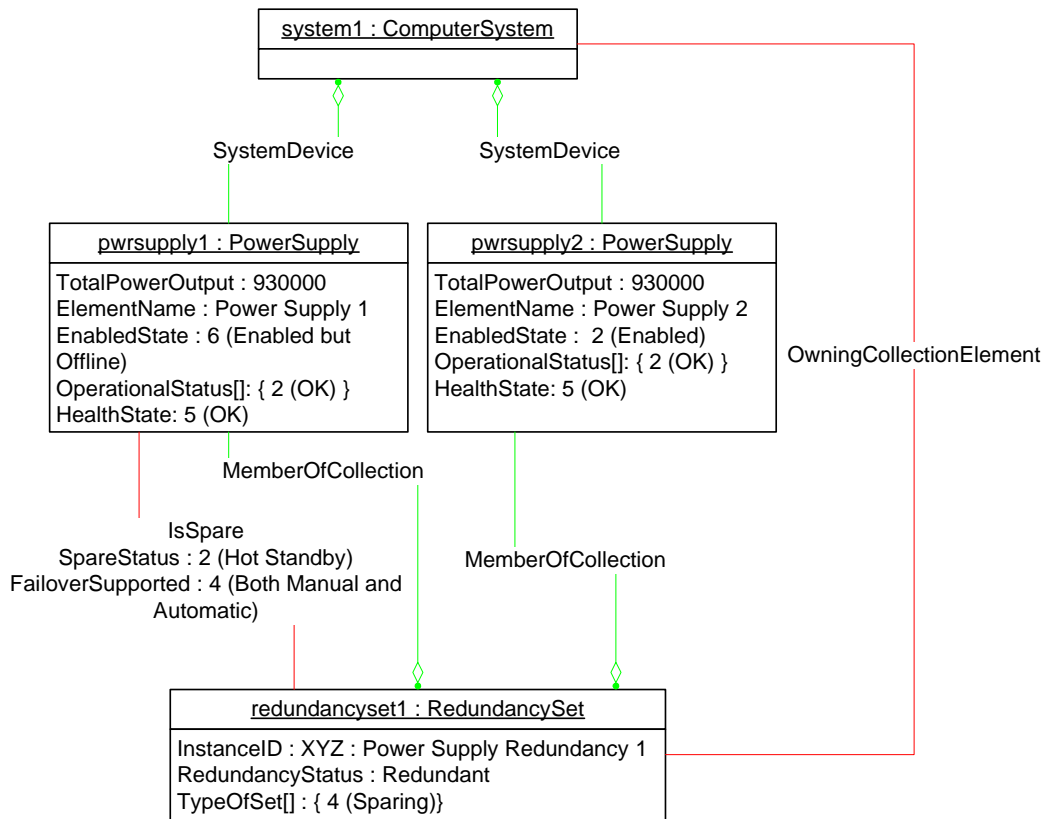
497

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

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

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

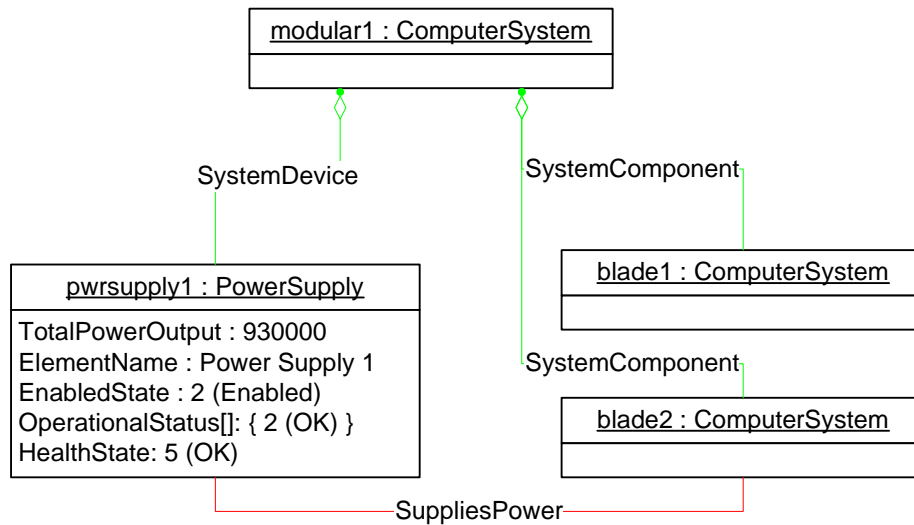
508 When the Failover() method executes successfully, pwrsupply1 will be the active power supply for  
 509 system1 with an EnabledState property value of 2 (Enabled) and will not be associated with  
 510 redundancysset1 through the CIM\_IsSpare association. Additionally, pwrsupply2 will not have an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



515

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

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



522

523

**Figure 4 – Power Supply Profile: Dedicated Power Supply**

524 **9.2 Retrieve the Power Supply’s Power Output Information**

525 A client can determine the power output information for a given instance of CIM\_PowerSupply by  
 526 retrieving the TotalPowerOutput property.

527 **9.3 Reset the Power Supply**

528 A client can reset the power supply as follows:

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

535 **9.4 Retrieve the Power Supply Redundancy Status**

536 A client can determine the redundancy status for a given instance of CIM\_PowerSupply as follows:

- 537 1) Find the instance of CIM\_RedundancySet that is associated with the instance of  
 538 CIM\_PowerSupply through an instance of CIM\_MemberOfCollection.
- 539 2) Retrieve the value of the CIM\_RedundancySet.RedundancyStatus property.

540 **9.5 Find the Elements to Which the Power Supply Supplies Power**

541 A client can determine the elements to which a given instance of CIM\_PowerSupply supplies power as  
 542 follows:

- 543 1) Find all of the CIM\_SuppliesPower association instances that reference the given instance of  
 544 CIM\_PowerSupply.
- 545 2) If the CIM\_SuppliesPower association instances exist, the CIM\_SuppliesPower.Dependent  
 546 properties will reference all the instances of the subclass of CIM\_ManagedSystemElement that  
 547 receive power from the power supply.

- 548 3) If no CIM\_SuppliesPower association instances exist, select the CIM\_ComputerSystem  
 549 instance associated with the given instance of the CIM\_PowerSupply instance through the  
 550 CIM\_SystemDevice association.

## 551 9.6 Determine Whether the CIM\_PowerSupply.ElementName Is Modifiable

552 A client can determine whether it can modify the CIM\_PowerSupply.ElementName property as follows:

- 553 1) Find the CIM\_EnabledLogicalElementCapabilities instance that is associated with the  
 554 CIM\_PowerSupply instance.
- 555 2) Query the value of the ElementNameEditSupported property of the instance. If the value is  
 556 TRUE, the client can modify the CIM\_PowerSupply.ElementName property.

## 557 10 CIM Elements

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

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

Element Name	Requirement	Description
<b>Classes</b>		
CIM_ElementCapabilities	Conditional	See section 10.1.
CIM_EnabledLogicalElementCapabilities	Optional	See sections 7.2 and 10.2.
CIM_IsSpare	Optional	See section 10.3.
CIM_MemberOfCollection	Conditional	See section 10.4.
CIM_OwningCollectionElement	Conditional	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.
<b>Indications</b>		
None defined in this profile		

562 **10.1 CIM\_ElementCapabilities**

563 CIM\_ElementCapabilities is used to associate an instance of CIM\_PowerSupply with an instance of  
 564 CIM\_EnabledLogicalElementCapabilities that describes the capabilities of the CIM\_PowerSupply  
 565 instance. CIM\_ElementCapabilities is mandatory when the CIM\_EnabledLogicalElementCapabilities  
 566 instance is instantiated.

567 **Table 15 – CIM\_ElementCapabilities**

Properties	Requirement	Notes
ManagedElement	Mandatory	<b>Key:</b> Shall reference the instance of CIM_PowerSupply Cardinality 1..* indicating one or more references
Capabilities	Mandatory	<b>Key:</b> 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	<b>Key</b>
RequestedStatesSupported	Mandatory	See section 7.2.1.
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	<b>Key:</b> 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	<b>Key:</b> 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. CIM\_MemberOfCollection is  
 579 mandatory when CIM\_RedundancySet is instantiated.

580 **Table 18 – Class: CIM\_MemberOfCollection**

Properties	Requirement	Notes
Collection	Mandatory	<b>Key:</b> 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	<b>Key:</b> Shall reference the CIM_PowerSupply instance Cardinality 1..* indicating one or many references

581 **10.5 CIM\_PowerSupply**

582 CIM\_PowerSupply is used to represent the power supply.

583 **Table 19 – Class: CIM\_PowerSupply**

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



584 **10.6 CIM\_RedundancySet**

585 CIM\_RedundancySet is used to represent the aggregation of redundant power supplies.

586 **Table 20 – Class: CIM\_RedundancySet**

Properties and Methods	Requirement	Notes
InstanceID	Mandatory	<b>Key</b>
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.

587 **10.7 CIM\_RegisteredProfile**

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

590 **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 "1.0.0".
RegisteredOrganization	Mandatory	This property shall have a value of 2 (DMTF).

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

594 **10.8 CIM\_SystemDevice**

595 CIM\_SystemDevice is used to associate an instance of CIM\_PowerSupply with the instance of  
596 CIM\_ComputerSystem of which the CIM\_PowerSupply instance is a member.

597 **Table 22 – Class: CIM\_SystemDevice**

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

## 598 10.9 CIM\_OwningCollectionElement

599 CIM\_OwningCollectionElement is used to associate an instance of CIM\_RedundancySet with the  
 600 instance of CIM\_ComputerSystem of which the CIM\_RedundancySet instance is a member. The instance  
 601 of CIM\_OwningCollectionElement is conditional on the instantiation of the CIM\_RedundancySet class.

602 **Table 23 – Class: CIM\_OwningCollectionElement**

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

## 603 10.10 CIM\_SuppliesPower

604 CIM\_SuppliesPower is used to associate an instance of CIM\_PowerSupply with the instance of  
 605 CIM\_ManagedSystemElement to which the power supply represented by the CIM\_PowerSupply instance  
 606 supplies power. See section 7.6.

607 **Table 24 – Class: CIM\_SuppliesPower**

Properties	Requirement	Notes
Antecedent	Mandatory	<b>Key:</b> Shall reference the CIM_PowerSupply instance Cardinality 1..* indicating one or more references
Dependent	Mandatory	<b>Key:</b> 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**

<b>Version</b>	<b>Date</b>	<b>Description</b>
1.0.0c	04/24/2006	Incorporated Cpubs corrections. Release as Preliminary Standard
1.0.0	04/02/2008	Final Standard revision

613

614 **ANNEX 1**  
615 (informative)

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618 The authors wish to acknowledge the following people.

619 **Editor:**

- 620 • Jon Hass – Dell Inc.
- 621 • Khachatur Papanyan – Dell Inc.
- 622 • Jeff Hilland – HP

623 **Contributors:**

- 624 • Jon Hass – Dell Inc.
- 625 • John Ackerly – Sun Microsystems
- 626 • Khachatur Papanyan – Dell Inc.
- 627 • Jeff Hilland – HP
- 628 • Christina Shaw – HP
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