1

Power Supply Profile

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150   Foreword

151   The *Power Supply Profile* (DSP1015) was prepared by the Server Management Working Group and the
152   Physical Platform Profiles Working Group of the DMTF.

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

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166   Introduction

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

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

174   # Power Supply Profile

175 ## 1   Scope

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

181 ## 2   Normative References

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

185 ### 2.1   Approved References

186 DMTF DSP0004, *CIM Infrastructure Specification 2.5*,
187 http://www.dmtf.org/standards/published_documents/DSP0004_2.5.pdf

188 DMTF DSP0200, *CIM Operations over HTTP 1.3*,
189 http://www.dmtf.org/standards/published_documents/DSP0200_1.3.pdf

190 DMTF DSP0215, *SM Managed Element Addressing Specification 1.0 (SM ME Addressing)*,
191 http://www.dmtf.org/standards/published_documents/DSP0215_1.0.pdf

192 DMTF DSP1001, *Management Profile Specification Usage Guide 1.0*,
193 http://www.dmtf.org/standards/published_documents/DSP1001_1.0.pdf

194 DMTF DSP1009, *Sensors Profile 1.0*,
195 http://www.dmtf.org/standards/published_documents/DSP1009_1.0.pdf

196 DMTF DSP1011, *Physical Asset Profile 1.0*,
197 http://www.dmtf.org/standards/published_documents/DSP1011_1.0.pdf

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

200 DMTF DSP1053, *Base Metrics Profile 1.0*,
201 http://www.dmtf.org/standards/published_documents/DSP1053_1.0.pdf

202 ### 2.2   Other References

203 ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standards*,
204 http://isotc.iso.org/livelink/livelink.exe?func=ll&objId=4230456&objAction=browse&sort=subtype

205 ## 3   Terms and Definitions

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

207   **3.1**
208   **can**
209   used for statements of possibility and capability, whether material, physical, or causal

210   **3.2**
211   **cannot**
212   used for statements of possibility and capability, whether material, physical, or causal

213   **3.3**
214   **conditional**
215   indicates requirements to be followed strictly in order to conform to the document when the specified
216   conditions are met

217   **3.4**
218   **mandatory**
219   indicates requirements to be followed strictly in order to conform to the document and from which no
220   deviation is permitted

221   **3.5**
222   **may**
223   indicates a course of action permissible within the limits of the document

224   **3.6**
225   **need not**
226   indicates a course of action permissible within the limits of the document

227   **3.7**
228   **optional**
229   indicates a course of action permissible within the limits of the document

230   **3.8**
231   **referencing profile**
232   indicates a profile that owns the definition of this class and can include a reference to this profile in its
233   "Related Profiles" table

234   **3.9**
235   **shall**
236   indicates requirements to be followed strictly in order to conform to the document and from which no
237   deviation is permitted

238   **3.10**
239   **shall not**
240   indicates requirements to be followed strictly in order to conform to the document and from which no
241   deviation is permitted

242   **3.11**
243   **should**
244   indicates that among several possibilities, one is recommended as particularly suitable, without
245   mentioning or excluding others, or that a certain course of action is preferred but not necessarily required

246   **3.12**
247   **should not**
248   indicates that a certain possibility or course of action is deprecated but not prohibited

249 **3.13**
250 **Spare Power Supply**
251 indicates an instance of CIM_PowerSupply that represents a spare power supply in any condition. Spare
252 power supply is part of redundancy set but is not actively driving the load.

253 4   Symbols and Abbreviated Terms

254 **4.1**
255 **CIM**
256 Common Information Model

257 5   Synopsis

258 **Profile Name:** Power Supply

259 **Version:** 1.1.0

260 **Organization:** DMTF

261 **CIM Schema Version:** 2.22

262 **Central Class:** CIM_PowerSupply

263 **Scoping Class:** CIM_ComputerSystem

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

266 Table 1 identifies profiles that are related to this profile.

267   **Table 1 – Related Profiles**

Profile Name	Organization	Version	Relationship
Physical Asset	DMTF	1.0	Optional
Sensors	DMTF	1.0	Optional
Base Metrics	DMTF	1.0	Optional
Profile Registration	DMTF	1.0	Mandatory

268 6   Description

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

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

274 6.1   General Modeling
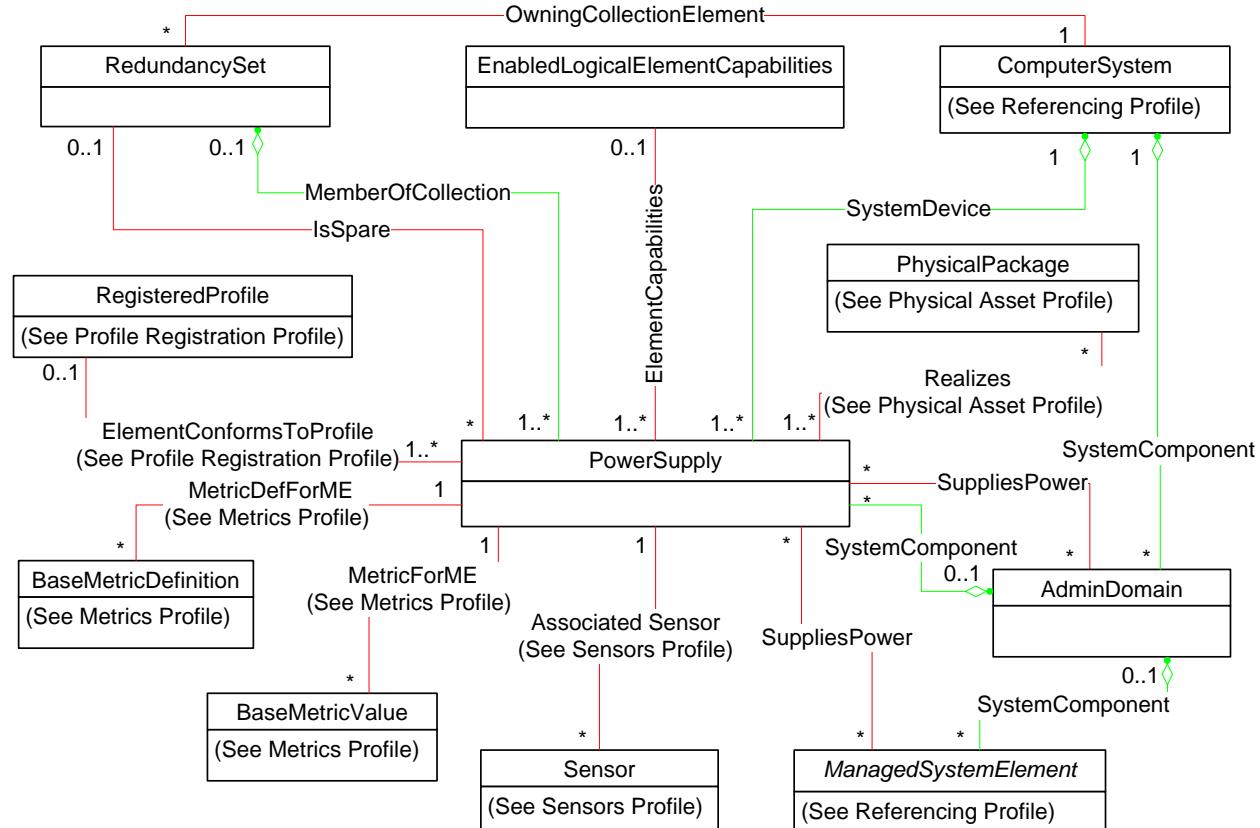
275 The power supply in a managed system is represented by the instance of CIM_PowerSupply. The
276 capability to disable and enable the power supply is advertised through the
277 CIM_EnabledLogicalElementCapabilities instance.

278 The managed elements that receive power from the power supply are associated to the instance of
279 CIM_PowerSupply through an instance of CIM_SuppliesPower. When the CIM_PowerSupply instance is

280   not referenced by the CIM_SuppliesPower association, the power supply represented by the
281   CIM_PowerSupply instance supplies power to the managed system that is scoped through the
282   CIM_SystemDevice association.

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

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

286

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

6.2 Power Supply Redundancy Modeling

289   The redundancy of power supplies in a managed system is represented through an instance of
290   CIM_RedundancySet. Each of the instances of CIM_PowerSupply that corresponds to a redundant power
291   supply is associated to the instance of CIM_RedundancySet through an instance of
292   CIM_MemberOfCollection. The Spare Power Supplies within the redundancy are also associated with the
293   CIM_RedundancySet instance through an instance of CIM_IsSpare.

6.3 Power Measurements Modeling

295   The instrumentation can expose various power measurements within a managed system. Real-time input
296   power by managed elements and real-time output power by power supplies are represented through
297   instances of CIM_Sensor from the *Sensors Profile* (DSP1009). Note that real-time, in this context, refers
298   to the most recent power measurement collected and does not have to be instantaneous. Various metrics
299   on input and output power such as high/low watermarks or historical averages are represented by

300   instances of CIM_BaseMetricDefinition and CIM_BaseMetricValue from the *Base Metrics Profile*.
301   (DSP1053)

7   Implementation Requirements

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

7.1   CIM_PowerSupply

306   Zero or more instances of CIM_PowerSupply shall be instantiated.

7.2   CIM_EnabledLogicalElementCapabilities

308   If the CIM_EnabledLogicalElementCapabilities class is instantiated, the instance of
309   CIM_EnabledLogicalElementCapabilities shall be associated with the CIM_PowerSupply instance
310   through an instance of CIM_ElementCapabilities and used for advertising the capabilities of the
311   CIM_PowerSupply instance.

312   There shall be at most one instance of CIM_EnabledLogicalElementCapabilities associated with a given
313   instance of CIM_PowerSupply.

7.2.1   CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported

315   CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported is an array that contains the
316   supported requested states for the instance of CIM_PowerSupply. This property shall be the complete set
317   of the allowable values to be used as the RequestedState parameter in the RequestStateChange( )
318   method (see section 8.1). The value of the
319   CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property shall be an empty array or
320   contain any combination of the following values: 2 (Enabled), 3 (Disabled), 6 (Offline), or 11 (Reset).

7.2.2   CIM_EnabledLogicalElementCapabilities.ElementNameEditSupported

322   This property shall have a value of TRUE if the implementation supports client modification of the
323   CIM_PowerSupply.ElementName property.

7.2.3   CIM_EnabledLogicalElementCapabilities.MaxElementNameLen

325   The MaxElementNameLen property shall be implemented if the ElementNameEditSupported property
326   has a value of TRUE.

7.2.4   CIM_EnabledLogicalElementCapabilities.ElementNameMask

328   The ElementNameMask property shall be implemented if the ElementNameEditSupported property has a
329   value of TRUE.

7.3   Power Supply State Management

331   The power supply state management defines the requirements for changing the enabled state of power
332   supplies utilizing CIM_PowerSupply.RequestStateChange( ) method (see section 8.1). This section
333   describes the detailed requirements for advertising and supporting power state management. If the power
334   state management is supported, the requirements specified in this clause shall be met.

7.3.1   Power Supply State Management Support

336   If no CIM_EnabledLogicalElementCapabilities instance is associated with the CIM_PowerSupply
337   instance, the power supply state management shall not be supported.

338 If a CIM_EnabledLogicalElementCapabilities instance is associated with the CIM_PowerSupply instance
339 but the value of the CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property is an
340 empty array, the power supply state management shall not be supported.

341 If a CIM_EnabledLogicalElementCapabilities instance is associated with the CIM_PowerSupply instance
342 and the value of the CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property is not
343 an empty array, the power supply state management shall be supported.

344 ## 7.4   CIM_PowerSupply.RequestedState

345 The CIM_PowerSupply.RequestedState property shall have a value of 12 (Not Applicable), 5 (No
346 Change), or a value contained in the
347 CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property array of the associated
348 CIM_EnabledLogicalElementCapabilities instance (see section 7.2.1).

349 If the power supply state management is supported and the RequestStateChange( ) method is
350 successfully executed, the RequestedState property shall be set to the value of the parameter
351 RequestedState of RequestStateChange( ) method. After the RequestStateChange( ) method has
352 successfully executed, RequestedState and EnabledState shall have equal values with the exception of
353 the transitional requested state 11 (Reset). The value of the RequestedState property may also change
354 as a result of a request for change to the power supply's enabled state by non-CIM implementation.

355 ### 7.4.1   RequestedState — 12 (Not Applicable) Value

356 If the power supply state management is not supported, the value of the
357 CIM_PowerSupply.RequestedState property shall be 12 (Not Applicable).

358 ### 7.4.2   RequestedState — 5 (No Change) Value

359 The value 5 (No Change) for the RequestedState property shall only be used if the power supply state
360 management instrumentation has not been invoked and thus the previous requested state cannot be
361 determined.

362 If the power supply state management is supported, the initial value of the
363 CIM_PowerSupply.RequestedState property shall be 5 (No Change) or shall match the previous
364 requested state.

365 ## 7.5   CIM_PowerSupply.EnabledState

366 Table 2 describes the mapping between the values of the CIM_PowerSupply.EnabledState property and
367 the corresponding description of the state of the power supply. The CIM_PowerSupply.EnabledState
368 property shall match the values that are specified in Table 2. If the RequestStateChange( ) method
369 executes but does not complete successfully, and the power supply is in an indeterminate state, the
370 CIM_PowerSupply.EnabledState property shall have value of 5 (Unknown). The value of this property
371 may also change as a result of a change to the power supply's enabled state by non-CIM implementation.

372   **Table 2 – EnabledState Value Description**

Value	Description	Extended Description
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).

7.6   CIM_SystemDevice and CIM_SuppliesPower

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

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

7.7   Modeling Power Supply Redundancy

This clause details the requirements related to managing and representing power supply redundancy. Even when a managed system supports and implements the redundancy, the redundant power supplies may co-exist with non-redundant power supplies. If power supply redundancy is supported, the requirements specified in this clause shall be met only for the CIM_PowerSupply instances that represent redundant power supplies.

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

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

7.7.1   CIM_RedundancySet.TypeOfSet

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

- The CIM_PowerSupply instances shall be associated with the CIM_RedundancySet instance through an instance of CIM_MemberOfCollection.

- The CIM_PowerSupply instances shall not be associated with the CIM_RedundancySet instance through an instance of CIM_IsSpare.

- The CIM_PowerSupply.EnabledState property shall not have value of 6 (Enabled but Offline).

If the CIM_RedundancySet.TypeOfSet property contains either a value of 4 (Sparing), or 5 (Limited Sparing), Spare Power Supplies may exist. The Spare Power Supply shall be associated with the CIM_RedundancySet instance and shall comply with the following requirements:

- The Spare Power Supply shall be associated with the CIM_RedundancySet through instances of both CIM_IsSpare and CIM_MemberOfCollection.

- The Spare Power Supply shall comply to one of the following requirements:

  – If the CIM_PowerSupply.EnabledState property has a value of 6 (Enabled but Offline), the SpareStatus property of the referencing CIM_IsSpare instance shall have a value of 2 (Hot Standby).

  – If the CIM_PowerSupply.EnabledState property has a value of 3 (Disabled), the SpareStatus property of the referencing CIM_IsSpare instance shall have a value of 3 (Cold Standby).

415   –   If the CIM_PowerSupply.EnabledState property has a value other than 3 (Disabled) or 6
416   (Enabled but Offline), the SpareStatus property of the referencing CIM_IsSpare instance
417   shall have a value of 0 (Unknown).

418   7.8   CIM_PowerSupply.ElementName

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

421   Client modification of the CIM_PowerSupply.ElementName property may be supported. This is
422   conditional behavior based on the CIM_EnabledLogicalElementCapabilities.ElementNameEditSupported
423   property of the instance of CIM_EnabledLogicalElementCapabilities associated with the
424   CIM_PowerSupply instance.

425   7.8.1   Support for the ElementName Property Modification

426   If client modification of the CIM_PowerSupply.ElementName property is supported, the following
427   requirements shall be met:

428   •   There shall be an instance of CIM_EnabledLogicalElementCapabilities associated with the
429   CIM_PowerSupply instance.

430   •   CIM_EnabledLogicalElementCapabilities.ElementNameEditSupported property shall have the
431   value TRUE.

432   •   The CIM_EnabledLogicalElementCapabilities.MaxElementNameLen property shall be non-
433   NULL.

434   •   The CIM_EnabledLogicalElementCapabilities.ElementNameMask property shall contain a
435   regular expression defined using the syntax specified in Annex C of DSP1001.

436   7.8.2   No Support for the ElementName Property Modification

437   If client modification of the CIM_PowerSupply.ElementName is not supported, the implementation shall
438   comply to either or both of the following requirements:

439   •   There shall be no instance of CIM_EnabledLogicalElementCapabilities associated with the
440   CIM_PowerSupply instance.

441   •   CIM_EnabledLogicalElementCapabilities.ElementNameEditSupported property shall have the
442   value FALSE on the instance of CIM_EnabledLogicalElementCapabilities associated with the
443   CIM_PowerSupply instance.

444   7.9   Modeling Power Measurement Sensor

445   This clause details the requirements related to modeling power measurement sensors. If power
446   measurement sensors are supported, the requirements specified in this clause shall be met. These
447   requirements are in addition to the constraints described in the *Sensors Profile*. There are two types of
448   the real-time power measurement sensors: input power measurement sensor and output power
449   measurement sensor. The following sections describe the requirement for representing such sensors.

450   7.9.1   Input Power Measurement Sensor

451   The input power measurement sensor shall be represented if and only if the underlying device consuming
452   power is represented by instance of CIM_ManagedSystemElement subclass. If representing the input
453   power measurement sensor, the requirements in this section shall apply.

454 The discrete input power measurement sensor shall be represented by the CIM_Sensor with the property
455 values as defined in section 10.13. The analog input power measurement sensor shall be represented by
456 the CIM_NumericSensor with the property values as defined in section 10.13.

457 The instance of CIM_Sensor or CIM_NumericSensor representing the input power sensor shall be
458 associated to instance of CIM_ManagedSystemElement subclass representing the managed device
459 consuming the power through the CIM_AssociatedSensor association.

460 If the input power sensor represents the external consumption by all the devices scoped to a managed
461 system, the instance of CIM_Sensor or CIM_NumericSensor representing the sensor shall be associated
462 to the instance of CIM_ComputerSystem representing the managed system through the
463 CIM_AssociatedSensor association.

464 If the input power sensor represents the external consumption by the power supply, the instance of
465 CIM_Sensor or CIM_NumericSensor representing the sensor shall be associated to the Central Instance
466 representing the power supply through the CIM_AssociatedSensor association.

467 7.9.2 Output Power Measurement Sensor

468 If representing the output power measurement sensor, the requirements in this section shall apply.

469 The discrete output power measurement sensor shall be represented by the CIM_Sensor with the
470 property values as defined in section 10.14. The analog output power measurement sensor shall be
471 represented by the CIM_NumericSensor with the property values as defined in section 10.14.

472 If the output power sensor represents the power produced by all the power supplies in a managed
473 system, the instance of CIM_Sensor or CIM_NumericSensor representing the sensor shall be associated
474 to the Scoping Instance through the CIM_AssociatedSensor association.

475 If the output power sensor represents the power produced by the power supply, the instance of
476 CIM_Sensor or CIM_NumericSensor representing the sensor shall be associated to the Central Instance
477 representing the power supply through the CIM_AssociatedSensor association.

478 7.10 Power Metrics

479 This clause details the requirements related to the representation and management of power metrics. If
480 power metrics are supported, the requirements specified in this clause shall be met. The requirements in
481 this clause are in addition to the ones defined in the *Base Metrics Profile* (DSP1053).

482 7.10.1 System Power Metrics

483 System power metrics are metrics that measure power for the whole system. System power metric shall
484 be represented by a CIM_BaseMetricDefinition and the associated instance(s) of CIM_BaseMetricValue
485 per DSP1053. The CIM_BaseMetricDefinition instance and the associated CIM_BaseMetricValue
486 instances shall be associated to the CIM_ComputerSystem instance that represents the system for which
487 the power metrics are represented through the CIM_MetricDefForME and CIM_MetricForME associations
488 respectively. The CIM_BaseMetricDefinition.Name property identifies the particular type of metric as
489 described in the below section. The CIM_BaseMetricDefinition.BreakdownDimensions,
490 CIM_BaseMetricValue.BreakdownDimension and CIM_BaseMetricValue.BreakdownValue specifies how
491 the power metric values can be collected on a more granular level, but in the case of system power
492 metrics no such granular levels are specified.

493 7.10.1.1 Metric Name

494 The CIM_BaseMetricDefinition.Name property shall have the value specified in the "Name" column, and
495 shall conform to the requirements for one of the metrics types mentioned in the corresponding "Supported
496 Metrics" column per DSP1053 if the metric matches the description in the "Description" column of Table 3.

497   **Table 3 – System Power Metrics**

Name	Supported Metrics Type	Description
DMTF:System Input Power	Simple, Aggregation	Power metric describing instantaneous input power of a system including the historic trending data, and high and low watermarks.
DMTF:System Output Power	Simple, Aggregation	Power metric describing the power produced by a system by all of its output power components, such as power supplies, including the historic trending data, and high and low watermarks.
DMTF:System Aggregate Input Energy	Summation	Power metric describing input energy supplied to a system, including its components (KW*hr).
DMTF:System Aggregate Output Energy	Summation	Power metric describing output energy supplied to a system including its components (KW*hr).
DMTF:System Input Power Histogram	Interval Summation, Startup Summation	Power metric describing the cumulative amount of time within a known time interval that the system power consumption has been within a series of power consumption ranges.

498   **7.10.1.2 Breakdown Dimension Definitions**

499   If the CIM_BaseMetricDefinition.Name property is set to "DMTF:System Input Power Histogram", the
500   requirements in this section shall apply, otherwise CIM_BaseMetricDefinition.BreakdownDimensions,
501   CIM_BaseMetricValue.BreakdownDimension, and CIM_BaseMetricValue.BreakdownValue shall be set to
502   NULL.

503   The CIM_BaseMetricDefinition.BreakDownDimensions and CIM_BaseMetricValue.BreakdownDimension
504   properties shall have the value "DMTF:Power Range Milliwatts".

505   The CIM_BaseMetricValue.BreakdownValue property shall be formatted as an integer, followed by a
506   whitespace, a hyphen, a whitespace, and then an integer:

507   [0123456789]+" – "[0123456789]+

508   The first integer shall identify the lower bound of the power range, inclusive, in units of milliwatts. The
509   second integer shall identify the upper bound of the power range, inclusive, in units of milliwatts.

510   **7.10.2 Power Supply Power Metrics**

511   Power supply power metrics are metrics that measure power per power supply of the managed system.
512   Power supply metric shall be represented by a CIM_BaseMetricDefinition and the associated instance(s)
513   CIM_BaseMetricValue per DSP1053. The CIM_BaseMetricDefinition instance and the associated
514   CIM_BaseMetricValue instances shall be associated to the CIM_PowerSupply instance that represents
515   the power supply for which the power metrics are represented through the CIM_MetricDefForME and
516   CIM_MetricForME associations respectively. The CIM_BaseMetricDefinition.Name property identifies the
517   particular type of metric as described in the below section. The
518   CIM_BaseMetricDefinition.BreakdownDimensions, CIM_BaseMetricValue.BreakdownDimension, and

519 CIM_BaseMetricValue.BreakdownValue properties specify how the power metric values can be collected
520 on a more granular level, as described in 7.10.2.2.

521 **7.10.2.1 CIM_BaseMetricDefinition.Name**

522 The CIM_BaseMetricDefinition.Name property shall have the value specified in the "Name" column, and
523 shall conform to the requirements for one of the metrics types mentioned in the corresponding "Supported
524 Metrics" column per DSP1053 if the metric matches the description in the "Description" column of Table 4.

525   **Table 4 – Power Supply Metrics**

Name	Supported Metrics Type	Description
DMTF:Power Supply Input Power	Simple, Aggregation	Power metric describing external consumption of power supply.
DMTF:Power Supply Output Power	Simple, Aggregation	Power metric describing power produced by a power supply.

526 **7.10.2.2 CIM_BaseMetricDefinition.BreakdownDimensions for Input Power Metrics**

527 If the CIM_BaseMetricDefinition.Name property is set to "DMTF:Power Supply Input Power", the
528 requirements in this section shall apply, otherwise CIM_BaseMetricDefinition.BreakdownDimensions,
529 CIM_BaseMetricValue.BreakdownDimension and CIM_BaseMetricValue.BreakdownValue shall be set to
530 NULL.

531 CIM_BaseMetricDefinition.BreakdownDimensions shall be set to NULL or shall contain the values
532 specified in the "Breakdown Dimension" column in Table 5 if the description in the "Description" column
533 matches the breakdown dimension of the power supply metric.

534   **Table 5 – Power Supply Metric Breakdown Dimensions**

Breakdown Dimension	Breakdown Value	Description
DMTF:Cord	Cord<Identifier>	Power supply power metric that is collected on a granularity of cords that supply power to the power supply where the cord shall be identified by the <Identifier>.
DMTF:Phase	PhaseA PhaseB PhaseC	Power supply power metric that is collected on a granularity of phases that supply power to the power supply where each of the phases shall be identified.

535 CIM_BaseMetricValue.BreakdownDimension shall be set to NULL or shall contain the values in the
536 specified in the "Breakdown Dimension" column in Table 5 or shall contain the concatenation of the
537 values specified in the "Breakdown Dimension" column in Table 5 and shall use the character "|" as a
538 delimiter.

539 If CIM_BaseMetricValue.BreakdownDimension is set to NULL, then the
540 CIM_BaseMetricValue.BreakdownValue property shall be set to NULL. If the
541 CIM_BaseMetricValue.BreakDownDimension contains a value specified in Table 5, then the
542 CIM_BaseMetricValue.BreakDownValue shall contain one of the values specified in the corresponding
543 "Breakdown Value" column. If the CIM_BaseMetricValue.BreakDownDimension contains concatenated
544 values specified in Table 5 in a specific order, then the CIM_BaseMetricValue.BreakDownValue shall
545 contain the concatenation of values specified in the corresponding "Breakdown Value" column in the
546 same order and shall use the character "|" as a delimiter.

547 Examples of allowable values of CIM_BaseMetricValue.BreakdownDimension and
548 CIM_BaseMetricValue.BreakdownValue are detailed in Table 6.

549 **Table 6 – Examples of Values for the CIM_BaseMetricValue.BreakdownDimension and**
550 **CIM_BaseMetricValue.BreakdownValue Properties**

CIM_BaseMetricValue.BreakdownDimension	CIM_BaseMetricValue.BreakdownValue
DMTF:Cord	Cord1
DMTF:Phase	PhaseB
DMTF:Phase|DMTF:Cord	Cord2|PhaseA
DMTF:Cord|DMTF:Phase	PhaseC|Cord1

551 ### 7.10.3 Component and Generic Power Metrics

552 Component power metrics are metrics that measure power for a particular component. Component power
553 metric shall be represented by a CIM_BaseMetricDefinition and the associated instance(s)
554 CIM_BaseMetricValue per DSP1053. The CIM_BaseMetricDefinition instance and the associated
555 CIM_BaseMetricValue instances shall be associated to the CIM_ManagedElement derived concrete
556 instance that represents the component for which the power metrics are represented through the
557 CIM_MetricDefForME and CIM_MetricForME associations respectively. The
558 CIM_BaseMetricDefinition.Name property identifies the particular type of metric as described in the below
559 section. The CIM_BaseMetricDefinition.BreakdownDimensions,
560 CIM_BaseMetricValue.BreakdownDimension and CIM_BaseMetricValue.BreakdownValue specifies how
561 the power metric values can be collected on a more granular level, but in the case of system power
562 metrics no such granular levels are specified.

563 #### 7.10.3.1 Metric Name

564 The CIM_BaseMetricDefinition.Name property shall have the value specified in the "Name" column, and
565 shall conform to the requirements for one of the metrics types mentioned in the corresponding "Supported
566 Metrics" column per DSP1053 if the metric matches the description in the "Description" column of Table 7.

567 **Table 7 – Power Supply Profile Metrics**

Name	Supported Metrics Type	Description
DMTF:Component Input Power	Simple, Aggregation	Power metric describing the input power by a specific component.
DMTF:Generic Input Power	Simple, Aggregation, Summation	Generic power metric that describes input power by a single or group of managed elements which could include a mix of power supplies and consuming components.
DMTF:Generic Output Power	Simple, Aggregation, Summation	Generic power metric that describes output power by a single or group of managed elements which could include a mix of power supplies and consuming components.

568 #### 7.10.3.2 Breakdown Dimension Definitions

569 The CIM_BaseMetricDefinition.BreakdownDimensions, CIM_BaseMetricValue.BreakdownDimension and
570 CIM_BaseMetricValue.BreakdownValue properties shall be set to NULL.

571 # 8 Methods

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

574 ## 8.1 Method: CIM_PowerSupply.RequestStateChange( )

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

577 Return values for RequestStateChange( ) shall be as specified in Table 8 where the method-execution
578 behavior matches the return-code description. RequestStateChange( ) method's parameters are specified
579 in Table 9.

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

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

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

586 No standard messages are defined for this method.

587   **Table 8 – 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

588   **Table 9 – CIM_PowerSupply.RequestStateChange( ) Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	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, REQ	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

589 ### 8.1.1 RequestStateChange( ) for a Spare Power Supply

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

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

8.2   Method: CIM_RedundancySet.Failover( )

597   The CIM_RedundancySet.Failover( ) method forces a failover from one member of a
598   CIM_RedundancySet collection to another. When the method executes successfully, the power supply
599   that is represented by the CIM_PowerSupply instance referenced by the FailoverFrom parameter will
600   become inactive. The power supply that is represented by the CIM_PowerSupply instance referenced by
601   the FailoverTo parameter will take over as the active power supply.

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

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

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

609   •   The CIM_PowerSupply instance that is referenced by the FailoverTo parameter is not a Spare
610   Power Supply.

611   •   The CIM_PowerSupply instance that is referenced by the FailoverFrom parameter is not
612   associated with the CIM_RedundancySet instance only through the CIM_MemberOfCollection
613   association.

614   After the Failover( ) method executes successfully:

615   •   The CIM_PowerSupply instance that is referenced by the FailoverTo parameter shall take over as
616   the active power supply. The CIM_PowerSupply instance that is referenced by the FailoverTo
617   parameter shall be associated with the CIM_RedundancySet only through the
618   CIM_MemberOfCollection association.

619   •   The CIM_PowerSupply instance that is referenced by FailoverFrom parameter shall become a
620   Spare Power Supply.

621   •   If the power supply state management is supported, the EnabledState property of the
622   CIM_PowerSupply instance that is referenced by the FailoverFrom parameter shall have a value
623   a value of 6 (Enabled but Offline) or 3 (Disabled).

624   CIM_RedundancySet.Failover( ) return values shall be as specified in Table 10.
625   CIM_RedundancySet.Failover( ) parameters are specified in Table 11.

626   No standard messages are defined for this method.

627   **Table 10 – 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

628 **Table 11 – 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

629 **8.3 Profile Conventions for Operations**

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

632 The default list of operations is as follows:

633 • GetInstance

634 • EnumerateInstances

635 • EnumerateInstanceNames

636 • Associators

637 • AssociatorNames

638 • References

639 • ReferenceNames

640 **8.4 CIM_ElementCapabilities Operations**

641 Table 12 lists implementation requirements for operations. If implemented, these operations shall be
642 implemented as defined in DSP0200. In addition, and unless otherwise stated in Table 12, all operations
643 in the default list in 8.3 shall be implemented as defined in DSP0200.

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

645 **Table 12 – CIM_ElementCapabilities Operations**

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

646 **8.5 CIM_EnabledLogicalElementCapabilities Operations**

647 All operations in the default list in 8.3 shall be implemented as defined in DSP0200.

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

649 **8.6 CIM_HostedCollection Operations**

650 Table 13 lists implementation requirements for operations. If implemented, these operations shall be
651 implemented as defined in DSP0200. In addition, and unless otherwise stated in Table 13, all operations
652 in the default list in 8.3 shall be implemented as defined in DSP0200.

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

654   **Table 13 – CIM_HostedCollection Operations**

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

655   8.7   CIM_IsSpare Operations

656   Table 14 lists implementation requirements for operations. If implemented, these operations shall be
657   implemented as defined in DSP0200. In addition, and unless otherwise stated in Table 14, all operations
658   in the default list in 8.3 shall be implemented as defined in DSP0200.

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

660   **Table 14 – CIM_IsSpare Operations**

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

661   8.8   CIM_MemberOfCollection Operations

662   Table 15 lists implementation requirements for operations. If implemented, these operations shall be
663   implemented as defined in DSP0200. In addition, and unless otherwise stated in Table 15, all operations
664   in the default list in 8.3 shall be implemented as defined in DSP0200.

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

666   **Table 15 – CIM_MemberOfCollection Operations**

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

667   8.9   CIM_OwningCollectionElement Operations

668   Table 16 lists implementation requirements for operations. If implemented, these operations shall be
669   implemented as defined in DSP0200. In addition, and unless otherwise stated in Table 16, all operations
670   in the default list in 8.3 shall be implemented as defined in DSP0200.

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

672

Table 16 – CIM_OwningCollectionElement Operations

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

673 8.10 CIM_PowerSupply Operations

674 Table 17 lists implementation requirements for operations. If implemented, these operations shall be
675 implemented as defined in DSP0200. In addition, and unless otherwise stated in Table 17, all operations
676 in the default list in 8.3 shall be implemented as defined in DSP0200.

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

678

Table 17 – CIM_PowerSupply Operations

Operation	Requirement	Messages
ModifyInstance	Optional. See section 8.10.1.	None

679 8.10.1 CIM_PowerSupply — ModifyInstance

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

682 The ModifyInstance operation shall be supported and CIM_PowerSupply.ElementName shall be
683 modifiable if the ElementNameEditSupported property of the CIM_EnabledLogicalElementCapabilities
684 instance that is associated with the CIM_PowerSupply instance has a value of TRUE. See section
685 8.10.1.1.

686 8.10.1.1 CIM_PowerSupply.ElementName

687 If the ElementNameEditSupported property of the CIM_EnabledLogicalElementCapabilities instance that
688 is associated with the CIM_PowerSupply instance has a value of TRUE, the implementation shall allow
689 the ModifyInstance operation to change the value of the ElementName property of the CIM_PowerSupply
690 instance. The ModifyInstance operation shall enforce the length restriction specified in the
691 MaxElementNameLen property of the CIM_EnabledLogicalElementCapabilities instance.

692 If the ElementNameEditSupported property of the CIM_EnabledLogicalElementCapabilities instance has
693 a value of FALSE, the implementation shall not allow the ModifyInstance operation to change the value of
694 the ElementName property of the CIM_PowerSupply instance.

695 8.11 CIM_RedundancySet Operations

696 All operations in the default list in 8.3 shall be implemented as defined in DSP0200.

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

698 8.12 CIM_SuppliesPower Operations

699 Table 18 lists implementation requirements for operations. If implemented, these operations shall be
700 implemented as defined in DSP0200. In addition, and unless otherwise stated in Table 18, all operations
701 in the default list in 8.3 shall be implemented as defined in DSP0200.

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

703   **Table 18 – CIM_SuppliesPower Operations**

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

704   8.13 CIM_SystemDevice Operations

705   Table 19 lists implementation requirements for operations. If implemented, these operations shall be
706   implemented as defined in DSP0200. In addition, and unless otherwise stated in Table 19, all operations
707   in the default list in 8.3 shall be implemented as defined in DSP0200.

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

709   **Table 19 – CIM_SystemDevice Operations**

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

710   9   Use Cases
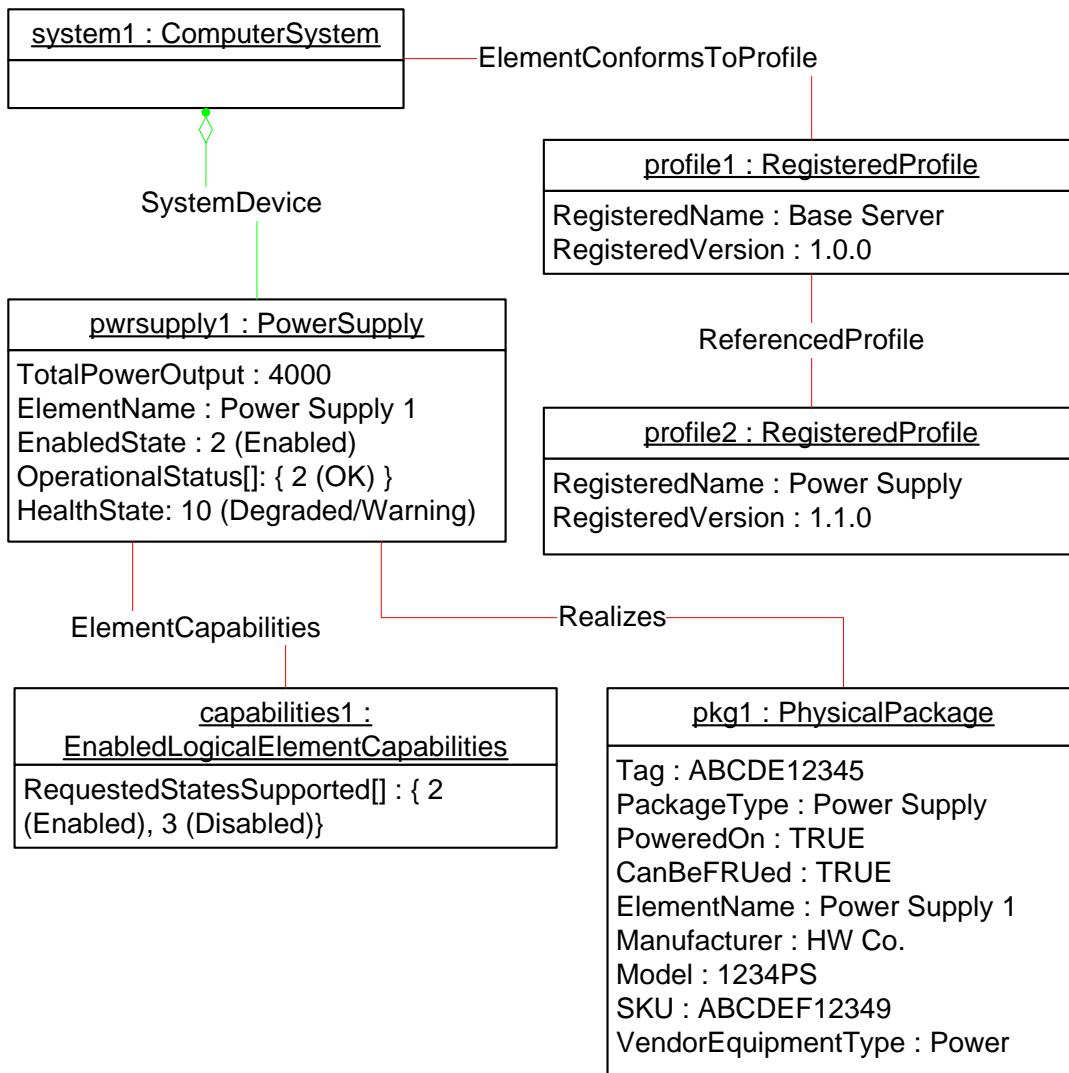
711   This section contains object diagrams and use cases for the *Power Supply Profile*.

712   9.1   Object Diagrams

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

717   Because pwrsupply1 does not have the CIM_SuppliesPower association reference, pwrsupply1 is
718   supplying power to system1, which is denoted by the CIM_SystemDevice association. system1 is also the
719   scoping instance for pwrsupply1. Thus, following the CIM_ElementConformsToProfile association to
720   profile1 and then the referenced CIM_ReferencedProfile association to a CIM_RegisteredProfile instance
721   with the RegisteredName property set to "Power Supply", the client can retrieve profile2. profile2 will show
722   the version of the current *Power Supply Profile* implementation.

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

724
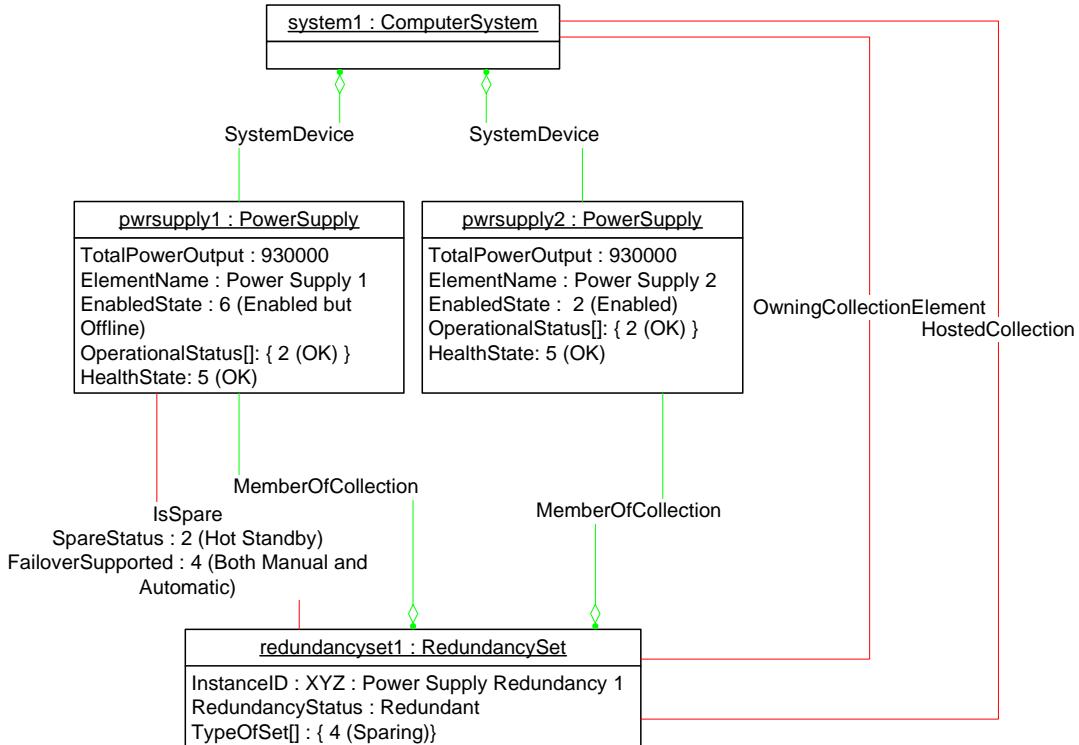
Figure 2 – Power Supply Profile: Object Diagram

726 Figure 3 represents a possible instantiation of the *Power Supply Profile* with redundancy. system1 has
727 spare power supply redundancy. Because pwrsupply1 is associated with redundancyset1 through the
728 CIM_IsSpare association, and the value of the pwrsupply1's EnabledState property is 6 (Enabled but
729 Offline), the pwrsupply1 is a Spare Power Supply that is enabled but is not actively providing power to
730 system1. pwrsupply2 is the active power supply of system1 because the value of its EnabledState
731 property is 2 (Enabled) and pwrsupply2 is associated with redundancyset1 only through the
732 CIM_MemberOfCollection association.

733 If redundancyset1 supports the Failover( ) method, a client can execute the Failover( ) method with the
734 FailoverFrom parameter referencing pwrsupply2 and the FailoverTo parameter referencing pwrsupply1.

735 When the Failover( ) method executes successfully, pwrsupply1 will be the active power supply for
736 system1 with an EnabledState property value of 2 (Enabled) and will not be associated with
737 redundancyset1 through the CIM_IsSpare association. Additionally, pwrsupply2 will not have an
738 EnabledState property value of 2 (Enabled) and will be associated to redundancyset1 through the
739 CIM_IsSpare association. Because pwrsupply1 and pwrsupply2 do not have the CIM_SuppliesPower
740 association reference, both are supplying power to system1, which is denoted by the CIM_SystemDevice
741 association.
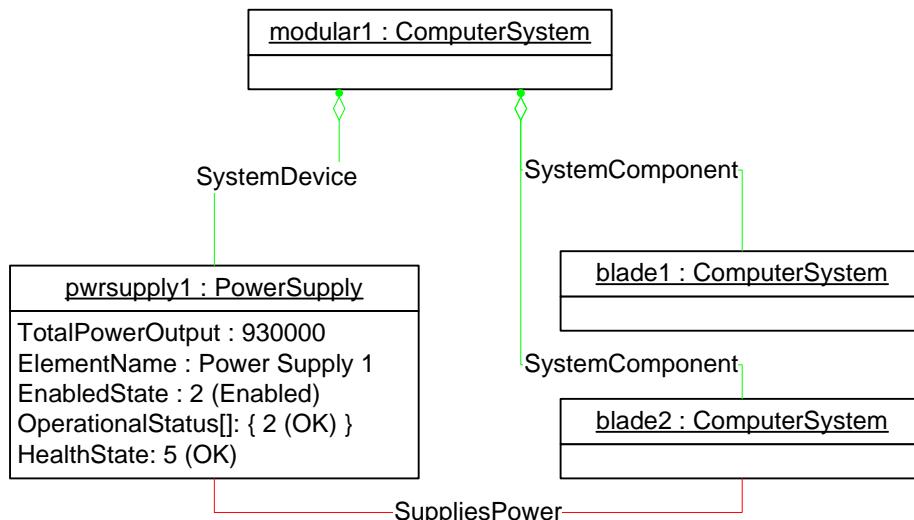
742

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

744   Figure 4 shows a possible instantiation of the *Power Supply Profile* in which the power supply is
745   dedicated to supply power to a particular managed element. In this diagram, pwrsupply1 is associated to
746   blade2 through the CIM_SuppliesPower association. This association denotes that pwrsupply1 supplies
747   power only to blade2 and does not supply power to modular1 and blade1. In this case, the
748   CIM_SystemDevice association does not reference the element to which pwrsupply1 supplies power.
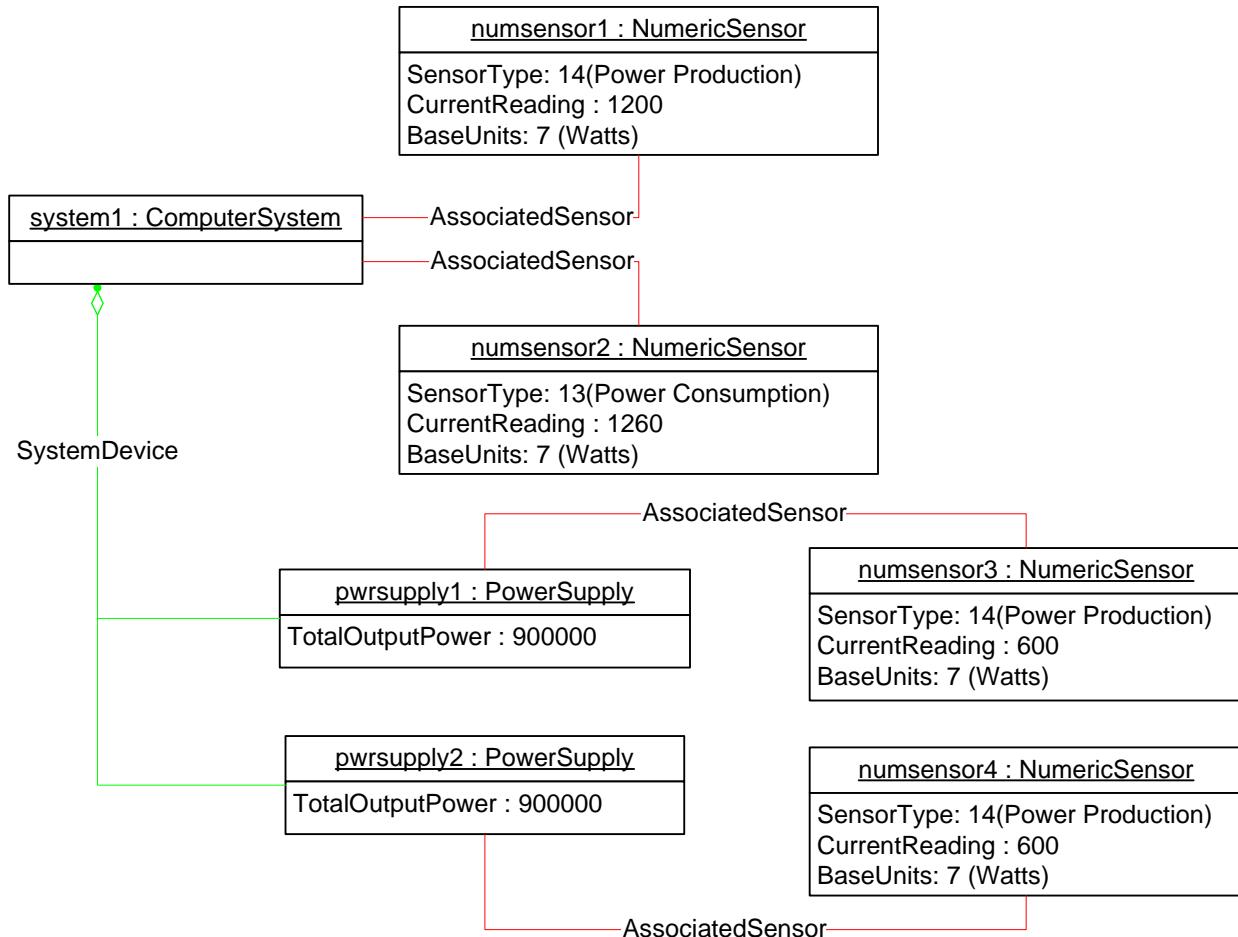
749

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

751 **9.2   Power Sensor Information**

752 Figure 5 shows a possible instantiation of the *Power Supply Profile* including the power measuring
753 sensors. Numsensor1, represents the numeric reading of Watts for the total power produced by all the
754 power supplies of system1, pwrsupply1, and pwrsupply2. Each individual power supply's supplied power
755 is represented by sensors numsensor3 and numsensor4. Numsensor2 represents the total power
756 consumed by all the power consuming devices of system1.
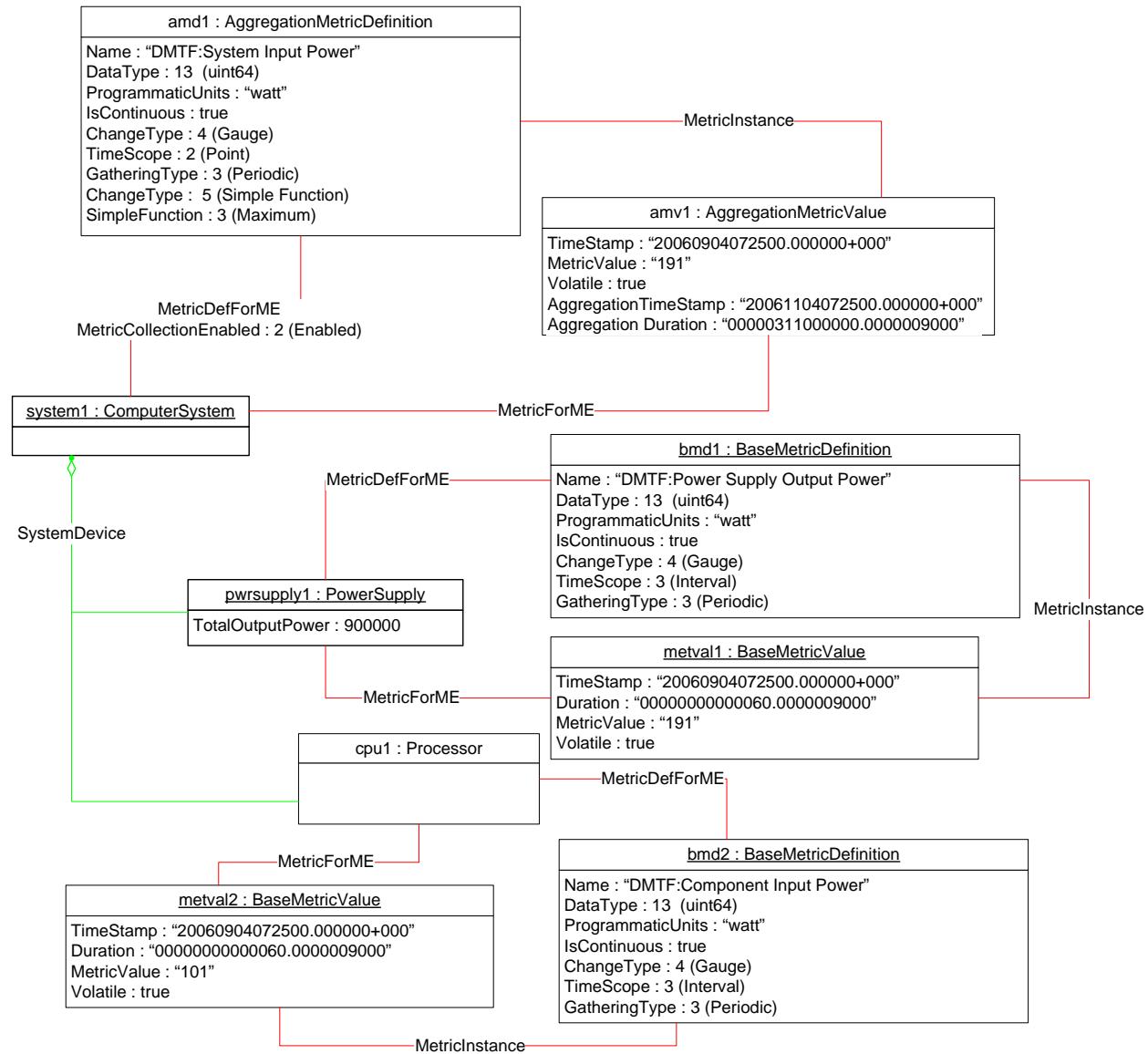
757

758 **Figure 5 – Power Supply Profile: Power Sensors**

759 **9.3   Power Metrics**

760 Figure 6 shows a possible instantiation of the *Power Supply Profile* including the power metrics. The
761 metval1 through metval200 are values collected for interval metrics, bmd1, that represents the external
762 input power of system1. Amd1 represents the high watermark for the bmd1 metrics, the high watermark of
763 the system1 external input power. Psbmd1 is the interval metrics measuring the output power by
764 pwrsupply1.
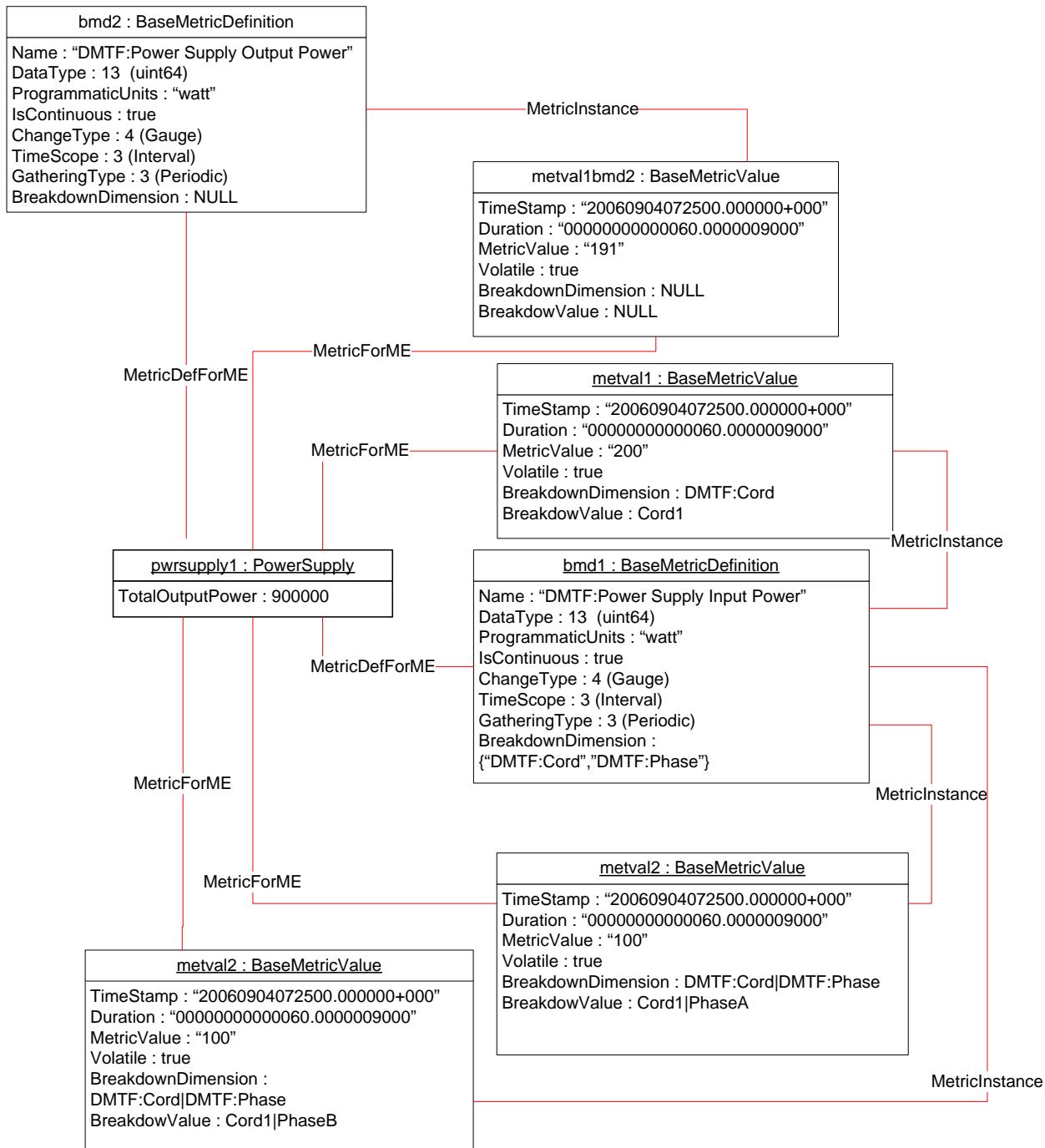
765

766   **Figure 6 – Power Supply Profile: Power Metrics**

767   Figure 7 shows a possible instantiation of the *Power Supply Profile* that includes metrics with breakdown
768   dimensions. Bmd2 defines power supply metrics for output power that does not have any further
769   breakdown. Thus, the bmd2.BreakdownDimension is set to NULL. The BreakdownDimension and
770   BreakdownValue of the associated metric value, metval1bmd2, is also set to NULL, and the MetricValue
771   property is a measurement for the total output power for pwrsupply1.

772   On the other hand, bmd1, which represents pwrsupply1's input power metric, defines a more granular
773   metric value. The bmd1.BreakdownDimension array property contains "DMTF:Cord" and "DMTF:Phase"
774   values representing that metric for input power can be collected per cord and/or per phase. Metval1
775   represents metric for input power collected for Cord1, metval2 represents input power metric collected for
776   Cord1 and PhaseA, and metval3 represents input power metric collected for Cord1 and PhaseB.

778   **Figure 7 – Power Supply Profile: Power Metrics with Breakdown Dimensions**

779 ## 9.4   Retrieve the Power Supply's Power Output Information

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

9.5   Reset the Power Supply

783   A client can reset the power supply as follows:

    1)   For the given instance of CIM_PowerSupply, find the associated instance of CIM_EnabledLogicalElementCapabilities.

    2)   If the CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property is a non-empty array that contains the value 11 (Reset), execute the RequestStateChange( ) method with the value of the RequestedState parameter set to 11 (Reset), which will disable and then enable the power supply represented by this instance.

9.6   Retrieve the Power Supply Redundancy Status

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

    1)   Find the instance of CIM_RedundancySet that is associated with the instance of CIM_PowerSupply through an instance of CIM_MemberOfCollection.

    2)   Retrieve the value of the CIM_RedundancySet.RedundancyStatus property.

9.7   Find the Elements to Which the Power Supply Supplies Power

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

    1)   Find all of the CIM_SuppliesPower association instances that reference the given instance of CIM_PowerSupply.

    2)   If the CIM_SuppliesPower association instances exist, the CIM_SuppliesPower.Dependent properties will reference all the instances of the subclass of CIM_ManagedSystemElement that receive power from the power supply.

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

9.8   Determine Whether the CIM_PowerSupply.ElementName Is Modifiable

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

    1)   Find the CIM_EnabledLogicalElementCapabilities instance that is associated with the CIM_PowerSupply instance.

    2)   Query the value of the ElementNameEditSupported property of the instance. If the value is TRUE, the client can modify the CIM_PowerSupply.ElementName property.

10 CIM Elements

813   Table 20 shows the instances of CIM Elements for this profile. Instances of the CIM Elements shall be implemented as described in Table 20. Sections 7 ("Implementation Requirements") and section 8 ("Methods") may impose additional requirements on these elements.

816   **Table 20 – CIM Elements: Power Supply Profile**

Element Name	Requirement	Description
Classes		
CIM_BaseMetricDefinition	Optional	See section 10.1.
CIM_BaseMetricValue	Optional	See section 10.2.
CIM_ElementCapabilities	Conditional	See section 10.3.
CIM_EnabledLogicalElementCapabilities	Optional	See sections 7.2 and 10.4.
CIM_HostedCollection	Conditional	See section 10.5.
CIM_IsSpare	Optional	See section 10.6.
CIM_MemberOfCollection	Conditional	See section 10.7.
CIM_NumericSensor	Optional	See sections 10.8 and 10.9.
CIM_OwningCollectionElement	Conditional	See section 10.16.
CIM_PowerSupply	Mandatory	See sections 7.1 and 10.10.
CIM_RedundancySet	Optional	See sections 7.7 and 10.11.
CIM_RegisteredProfile	Mandatory	See section 10.12.
CIM_Sensor	Optional	See sections 7.9 and 10.14.
CIM_SuppliesPower	Optional	See sections 7.6 and 10.17.
CIM_SystemDevice	Mandatory	See sections 7.6 and 10.15.
Indications		
None defined in this profile		

817   ## 10.1 CIM_BaseMetricDefinition

818   The CIM_BaseMetricDefinition class is defined by the *Base Metrics Profile* (DSP1053). The requirements
819   denoted in Table 21 are in addition to those mandated by the DSP1053.

820   **Table 21 – Class: CIM_BaseMetricDefinition**

Properties	Requirement	Description
Name	Mandatory	See section 7.10.
IsContinuous	Mandatory	Matches TRUE
BreakdownDimension	Mandatory	See section 7.10.

821   Table 22 describes the requirements for using CIM_BaseMetricDefinition to define a "DMTF:System Input
822   Power Histogram" metric. These constraints are in addition to those specified in DSP1053.

823   **Table 22 – Class: CIM_BaseMetricDefinition – Histogram**

Properties	Requirement	Notes
Name	Mandatory	"DMTF:System Input Power Histogram"
DataType	Mandatory	Matches 3 (datetime)
ProgramaticUnits	Mandatory	Matches NULL
ChangeType	Mandatory	Matches 3 (counter)
Timescope	Mandatory	Matches 3 (Interval) or 4 (StartupInterval)
BreakdownDimensions	Mandatory	Matches "DMTF:Power Range Milliwatts"

824   ## 10.2 CIM_BaseMetricValue

825   The CIM_BaseMetricValue class is defined by DSP1053. The requirements denoted in Table 23 are in
826   addition to those mandated by DSP1053.

827   **Table 23 – Class: CIM_BaseMetricValue**

Properties	Requirement	Description
BreakdownDimension	Mandatory	See section 7.10.
BreakdownValue	Mandatory	See section 7.10.

828   ## 10.3 CIM_ElementCapabilities

829   CIM_ElementCapabilities is used to associate an instance of CIM_PowerSupply with an instance of
830   CIM_EnabledLogicalElementCapabilities that describes the capabilities of the CIM_PowerSupply
831   instance. CIM_ElementCapabilities is mandatory if the CIM_EnabledLogicalElementCapabilities instance
832   is instantiated.

833   **Table 24 – 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

834   ## 10.4 CIM_EnabledLogicalElementCapabilities

835   CIM_EnabledLogicalElementCapabilities represents the capabilities of the power supply.

836   **Table 25 – CIM_EnabledLogicalElementCapabilities**

Properties	Requirement	Notes
InstanceID	Mandatory	Key
RequestedStatesSupported	Mandatory	See section 7.2.1.
ElementNameEditSupported	Mandatory	See section 7.2.2.
MaxElementNameLen	Conditional	See section 7.2.3.
ElementNameMask	Conditional	See section 7.2.4.

837 **10.5 CIM_HostedCollection**

838 CIM_HostedCollection is used to associate an instance of CIM_RedundancySet with the instance of
839 CIM_ComputerSystem of which the CIM_RedundancySet instance is part of. The instance of
840 CIM_HostedCollection is conditional on the instantiation of the CIM_RedundancySet class.

841   **Table 26 – Class: CIM_HostedCollection**

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

842 **10.6 CIM_IsSpare**

843 CIM_IsSpare is used to associate an instance of CIM_PowerSupply with the instance of
844 CIM_RedundancySet of which the CIM_PowerSupply instance is a member and is a Spare Power
845 Supply.

846   **Table 27 – Class: CIM_IsSpare**

Properties	Notes	Description
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	
FailoverSupported	Mandatory	

847 **10.7 CIM_MemberOfCollection**

848 CIM_MemberOfCollection is used to associate an instance of CIM_PowerSupply with the instance of
849 CIM_RedundancySet of which the CIM_PowerSupply is a member. CIM_MemberOfCollection is
850 mandatory if CIM_RedundancySet is instantiated.

851   **Table 28 – Class: CIM_MemberOfCollection**

Properties	Requirement	Description
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

852 **10.8 CIM_NumericSensor — Input Power Measurement Sensor**

853 The CIM_NumericSensor class is defined by the *Sensors Profile* (DSP1009). The requirements denoted
854 in Table 29 are in addition to those mandated by DSP1009.

855   **Table 29 – Class: CIM_NumericSensor**

Properties	Requirement	Description
SensorType	Mandatory	SensorType shall be set to 13 (Power Consumption).

856 **10.9 CIM_NumericSensor — Output Power Measurement Sensor**

857 The CIM_NumericSensor class is defined by DSP1009. The requirements denoted in Table 30 are in
858 addition to those mandated by DSP1009.

859   **Table 30 – Class: CIM_NumericSensor**

Properties	Requirement	Description
SensorType	Mandatory	SensorType shall be set to 14 (Power Production).

860 **10.10 CIM_PowerSupply**

861 CIM_PowerSupply is used to represent the power supply.

862   **Table 31 – Class: CIM_PowerSupply**

Properties and Methods	Requirement	Description
SystemCreationClassName	Mandatory	Key
SystemName	Mandatory	Key
CreationClassName	Mandatory	Key
DeviceID	Mandatory	Key
TotalOutputPower	Mandatory	Shall match 0 if the power supply's total output power is unknown
ElementName	Mandatory	See section 7.8.
OperationalStatus	Mandatory	
HealthState	Mandatory	
EnabledState	Mandatory	See section 7.5.
RequestedState	Mandatory	See section 7.4.
RequestStateChange( )	Conditional	See section 8.1.

863 **10.11 CIM_RedundancySet**

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

865 **Table 32 – Class: CIM_RedundancySet**

Properties and Methods	Requirement	Description
InstanceID	Mandatory	**Key**
RedundancyStatus	Mandatory	
TypeOfSet	Mandatory	See section 7.7.1.
MinNumberNeeded	Mandatory	Shall match 0 if 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.

866 **10.12 CIM_RegisteredProfile**

867 The CIM_RegisteredProfile class is defined by the *Profile Registration Profile* (DSP1033). The
868 requirements denoted in Table 33 are in addition to those mandated by DSP1033.

869 **Table 33 – Class: CIM_RegisteredProfile**

Properties	Requirement	Description
RegisteredName	Mandatory	This property shall have a value of "Power Supply".
RegisteredVersion	Mandatory	This property shall have a value of "1.1.0".
RegisteredOrganization	Mandatory	This property shall have a value of 2 (DMTF).

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

873 **10.13 CIM_Sensor — Input Power Measurement Sensor**

874 The CIM_Sensor class is defined by DSP1009. The requirements denoted in Table 34 are in addition to
875 those mandated by DSP1009.

876 **Table 34 – Class: CIM_Sensor**

Properties	Requirement	Description
SensorType	Mandatory	SensorType shall be set to13 (Power Consumption).

877 **10.14 CIM_Sensor — Output Power Measurement Sensor**

878 The CIM_Sensor class is defined by DSP1009. The requirements denoted in Table 35 are in addition to
879 those mandated by DSP1009.

880 **Table 35 – Class: CIM_Sensor**

Properties	Requirement	Description
SensorType	Mandatory	SensorType shall be set to 14 (Power Production).

881 **10.15 CIM_SystemDevice**

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

884 **Table 36 – Class: CIM_SystemDevice**

Properties	Requirement	Description
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 * indicating zero or more references

885 **10.16 CIM_OwningCollectionElement**

886 CIM_OwningCollectionElement is used to associate an instance of CIM_RedundancySet with the
887 instance of CIM_ComputerSystem of which the CIM_RedundancySet instance is a member. The instance
888 of CIM_OwningCollectionElement is conditional on the instantiation of the CIM_RedundancySet class.

889 **Table 37 – Class: CIM_OwningCollectionElement**

Properties	Requirement	Description
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

890 **10.17 CIM_SuppliesPower**

891 CIM_SuppliesPower is used to associate an instance of CIM_PowerSupply with the instance of
892 CIM_ManagedSystemElement to which the power supply represented by the CIM_PowerSupply instance
893 supplies power. See section 7.6.

894 **Table 38 – Class: CIM_SuppliesPower**

Properties	Requirement	Description
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

895 **ANNEX A**
896 **(informative)**

897

898 **Change Log**

Version	Date	Description
1.0.0a	05/07/2007	Preliminary 1.0.0 version.
1.1.0a	5/22/08	Preliminary 1.1.0 version.
1.1.0	8/14/09	DMTF Standard Release

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