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Document Number: DSP1002

Date: 2010-10-21

Version: 2.0.0

5 **Diagnostics Profile**

6 **Document Type: Specification**

7 **Document Status: DMTF Standard**

8 **Document Language: en-US**

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193

3.1 Foreword

194 The *Diagnostics Profile* (DSP1002) was prepared by the DMTF.

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

197 **Acknowledgments**

198 The DMTF acknowledges the following individuals for their contributions to this document:

199 Editors:

- 200 • Barbara Craig – Hewlett-Packard Company
- 201 • Carl Chan – WBEM Solutions, Inc.
- 202 • Jim Davis – WBEM Solutions, Inc.
- 203 • Mateus Baur – Hewlett-Packard Company
- 204 • Ray Pedersen – IBM Corporation

205 Contributors:

- 206 • Aaron Merkin – IBM Corporation
- 207 • Carl Chan – WBEM Solutions, Inc.
- 208 • Dave Barrett – Emulex
- 209 • Eric Tend – Hewlett-Packard Company
- 210 • Jon Hass – Dell Inc.
- 211 • Ken Kotyuk – Hewlett-Packard Company
- 212 • Kevin Kuelbs – Hewlett-Packard Company
- 213 • Rodney Brown – IBM Corporation

214

215

216

3.2 Introduction

217 A *profile* is a collection of Common Information Model (CIM) elements and behavior rules that represent a
218 specific area of management. The purpose of a profile is to ensure interoperability in the use of Web-
219 Based Enterprise Management (WBEM) services for a specific subset of the Distributed Management
220 Task Force (DMTF) CIM schema for a specific management area — in this case, diagnostics.

221 Diagnostics is a critical component of systems management. Diagnostic services are used in problem
222 containment to maintain availability, achieve fault isolation for system recovery, establish system integrity
223 during boot, increase system reliability, and perform routine proactive system verification. The goal of the
224 Common Diagnostic Model (CDM) is to define industry-standard building blocks, based on and consistent
225 with the DMTF CIM, that enable seamless integration of vendor-supplied diagnostic services into system
226 and SAN management frameworks.

227 The CDM is an architecture and methodology for exposing system diagnostic instrumentation through the
228 CIM standard interfaces.

229 The ability to transparently run diagnostic tests and exercisers while the user operating system is
230 functional (no reboot required) may significantly contribute to the reduction of Total Cost of Ownership
231 (TCO) and will also lower warranty costs by reducing the return of defect-free parts for service. This
232 functionality is referred to as *OS-Present Diagnostics* (also known as On-line Diagnostics and Concurrent
233 Diagnostics).

234 A primary objective of the CDM is to standardize the interfaces that diagnostic developers create for their
235 OS-Present Diagnostics in the operating environment, making the diagnostics accessible to all
236 applications that query CIM for diagnostic data or register with CIM to execute diagnostic methods and
237 receive results.

238 Standardization of these interfaces means that clients, implementations, and tests gain a certain degree
239 of portability and, in many cases, need only be written once to satisfy multiple environments and
240 platforms. OEMs can differentiate their diagnostic offerings by how effectively their applications use the
241 information and capabilities available through CIM to maintain and service their systems.

242 Reduced cost through standardization is accompanied by the initial investment of coding to a new
243 interface. The CDM Forum intends to ease this burden by developing tools to generate most of the
244 interface code necessary to communicate with CIM.

245

Diagnostics Profile

246 1 Scope

247 The information in this specification should be sufficient for a provider or consumer of this data to identify
248 unambiguously the classes, properties, methods, and values that shall be instantiated and manipulated to
249 represent and manage the diagnostic service components of systems and subsystems that are modeled
250 using the DMTF CIM core and extended model definitions.

251 The target audience for this specification is implementers who are developing implementations or
252 consumers of management interfaces that represent the component described in this document.

253 2 Normative References

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

258 DMTF DSP0004, *CIM Infrastructure Specification 2.6*,
259 http://www.dmtf.org/standards/published_documents/DSP0004_2.6.pdf

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

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

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

266 DMTF DSP1004, *Base Server Profile 1.0*,
267 http://www.dmtf.org/standards/published_documents/DSP1004_1.0.pdf

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

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

272 **3 Terms and Definitions**

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

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

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

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

286 The terms defined in [DSP0004](#), [DSP0200](#), [DSP1001](#), and [DSP1033](#) apply to this document. For the
287 purposes of this document, the following terms and definitions also apply.

288 **3.1**

289 **conditional**

290 indicates requirements to be followed strictly in order to conform to the document when the specified CIM
291 testable conditions are met

292 **3.2**

293 **mandatory**

294 indicates requirements to be followed strictly in order to conform to the document and from which no
295 deviation is permitted

296 **3.3**

297 **optional**

298 indicates a course of action permissible within the limits of the document

299 **4 Symbols and Abbreviated Terms**

300 The following abbreviations are used in this document.

301 **4.1**

302 **CDM**

303 Common Diagnostic Model

304 **4.2**

305 **CIM**

306 Common Information Model

307 **4.3**

308 **CIMOM**

309 CIM Object Manager

310 **4.4**

311 **CRU**

312 Customer Replaceable Unit

- 313 **4.5**
- 314 **FRU**
- 315 Field Replaceable Unit
- 316 **4.6**
- 317 **ME**
- 318 Managed Element
- 319 **4.7**
- 320 **MOF**
- 321 Managed Object Format
- 322 **4.8**
- 323 **PD**
- 324 Problem Determination
- 325 **4.9**
- 326 **PFA**
- 327 Predictive Failure Analysis
- 328 **4.10**
- 329 **SAN**
- 330 Storage Area Network
- 331 **4.11**
- 332 **WBEM**
- 333 Web-Based Enterprise Management

334 **5 Synopsis**

- 335 **Profile Name:** Diagnostics Profile
- 336 **Version:** 2.0.0
- 337 **Organization:** DMTF
- 338 **CIM schema version:** [2.23](#)
- 339 **Central Class:** CIM_DiagnosticTest
- 340 **Scoping Class:** CIM_ComputerSystem

341 The *Diagnostics Profile* extends the management capability of referencing profiles by adding the
 342 capability to run diagnostic services in a managed system. This profile includes a specification of the
 343 Diagnostic Test Service, its configuration, its associated capabilities, its logging mechanisms, and its
 344 profile registration information.

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

346 CIM_DiagnosticTest shall be the Central Class of this profile. The instance of CIM_DiagnosticTest shall
 347 be the Central Instance of this profile. CIM_ComputerSystem shall be the Scoping Class of this profile.
 348 The instance of CIM_ComputerSystem with which the Central Instance is associated through an instance
 349 of CIM_HostedService shall be the Scoping Instance of this profile.

350 **Table 1 – Related Profiles**

Profile Name	Organization	Version	Relationship	Behavior
--------------	--------------	---------	--------------	----------

Profile Name	Organization	Version	Relationship	Behavior
Profile Registration	DMTF	1.0	Mandatory	

351

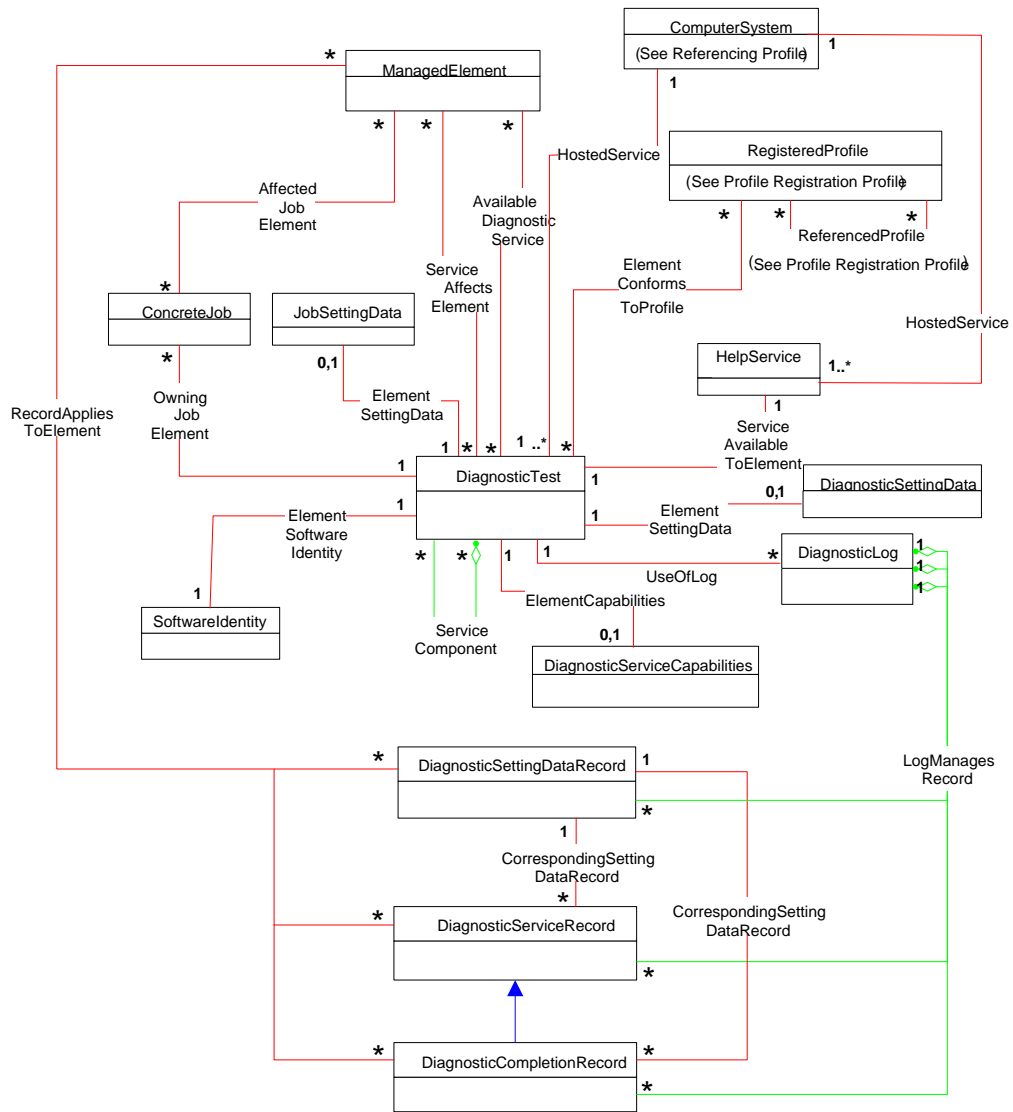
352 6 Description

353 This profile describes the CIM schema extensions that compose the Common Diagnostic Model (CDM)
354 and provides guidelines for the development of diagnostic clients and implementations that will promote
355 seamless integration of option diagnostics into Problem Determination and Systems Management
356 applications. Using this profile as a guide, WBEM clients can discover diagnostic services that have been
357 installed on the system and invoke these services to run on their respective devices. The client can
358 monitor the progress of the service, obtain and modify the status of the service, and query for results.

359 The architecture of the CDM is described in the [CIM Diagnostic Model White Paper](#). This profile is a
360 normative presentation of the model described in the white paper, and it suggests implementation
361 techniques that will result in the highest degree of interoperability. It is targeted at developers of
362 diagnostic applications (WBEM clients) and hardware instrumentation (for the WBEM server) to help them
363 understand the spirit and intent of the CDM.

364

365 Figure 1 presents the class schema for the *Diagnostics Profile*. For simplicity, the prefix CIM_ has been
366 removed from the names of the classes.



367

368

Figure 1 – Diagnostics Profile: Class Diagram

369 7 Implementation

370 This clause details the requirements related to the arrangement of instances and their properties for
371 implementations of this profile.

372 The *Diagnostics Profile* consists of definitions for classes related to the CIM_DiagnosticService class,
373 such as CIM_DiagnosticTest, CIM_DiagnosticSettingData, and CIM_DiagnosticServiceCapabilities. It
374 also defines the CIM_DiagnosticLog class and its related classes, CIM_DiagnosticRecord,
375 CIM_DiagnosticServiceRecord, and CIM_DiagnosticSettingDataRecord. Requirements for propagating
376 and formulating certain properties of these classes and their parents are discussed in this clause.
377 Required methods are listed in clause 8, and properties are listed in clause 10.

378 7.1 CIM_DiagnosticTest

379 CIM_DiagnosticTest is the only defined subclass of CIM_DiagnosticService. CIM_DiagnosticTest inherits
380 the RunDiagnosticService() method, which is used to execute a diagnostic test on a managed element.

381 Each diagnostic test shall be represented by an instance of either CIM_DiagnosticTest or a subclass.
382 Note that a test that actually packages multiple subtests shall also be represented by such an instance
383 and shall set the IsPackage characteristic for that instance (see 7.1.3.5).

384 An implementation may use

- 385 • an instance of CIM_DiagnosticTest for each test
- 386 • an instance of a single subclass (for example, ST_DiskDiagnosticTest) for each test
- 387 • a different subclass and its instance (for example, ST_DiskDiagnosticSelfTest,
388 ST_DiskDiagnosticRWVTest) for each test

389 The same implementation may use a combination of the preceding approaches.

390 7.1.1 CIM_DiagnosticTest.Name

391 The Name property uniquely identifies the service and provides an indication of the functionality that is
392 managed. The value of the Name property shall be unique and should indicate the nature of the service
393 (for example, EjectTest).

394 7.1.2 CIM_DiagnosticTest.ElementName

395 The ElementName property shall be used to provide a user-friendly name for the service. This name shall
396 be used by clients to identify the service to the user.

397 7.1.3 CIM_DiagnosticTest.Characteristics

398 This clause defines the values of the Characteristics property.

399 7.1.3.1 Is Exclusive (value=2)

400 Use this value to indicate that only one instance of the diagnostic test may be running at one time, even if
401 more than one target device exists.

402 If the test can run on multiple target devices, but only one instance per device, use
403 CIM_AvailableDiagnosticService.IsExclusiveForMSE.

404 7.1.3.2 Is Interactive (value=3)

405 Use this value to indicate that the test requires some interaction with the client at the system under test
406 (for example, when media is required in a device for the test to run).

407 7.1.3.3 Is Destructive (value=4)

408 Use this value to indicate that the test has the potential for destroying data, permanently altering the
409 state, or reconfiguring the device.

410 7.1.3.4 Is Risky (value=5)

411 Use this value to indicate that data loss, state change, or reconfiguration may occur if the test is
412 interrupted. For example, a test saves some device data or configuration, changes the device state,
413 performs some operation, and then restores the saved data. If this process is interrupted, the device may
414 be left in an altered state.

415 7.1.3.5 Is Package (value=6)

416 Use this value to indicate that the test is actually a set of lower-level diagnostics that are packaged
417 together by the test. This packaging is implemented by the test, not aggregated by CIM. Information and
418 results associated with the individual tests in the package may be requested by using the Subtests value
419 in the CIM_DiagnosticSettingData.LogOptions array.

420 If the lower-level diagnostics are themselves CIM_DiagnosticTest instances, the packaging test shall be
421 associated to those lower-level diagnostics through an instance of the CIM_ServiceComponent
422 association. See 7.8.

423 7.1.3.6 Reserved (value=7)

424 This value originally contained "Supports PercentOfTestCoverage", which was deprecated and added to
425 the CIM_DiagnosticServiceCapabilities class.

426 7.1.3.7 Is Synchronous (value=8)

427 Use this value to indicate that this diagnostic service will complete before the RunDiagnosticService()
428 method returns to the caller. A job is still created that the client may access for accounting purposes, but
429 the ability to track the progress and status of the job are lost. Additionally, in certain environments, the
430 client may be "blocked" from further action until the service completes. Development of synchronous
431 diagnostic services is not recommended.

432 7.1.3.8 Media Required (value=9)

433 Use this value to indicate that media must be inserted into the device to perform the service.

434 7.1.3.9 Additional Hardware Required (value=10)

435 Use this value to indicate that some additional hardware (for example, a wrap plug) must be installed to
436 perform the service.

437 7.1.4 Looping Tests

438 Looping tests or groups of tests is useful for detecting intermittent faults. The client, implementation, or
439 test may control looping, and the method chosen depends on many factors, a few of which follow:

- 440 • A client may want to loop a test that does not support looping.
- 441 • An implementation may choose to support looping even though its tests do not.
- 442 • A stress test may, by its nature, want to repeat a certain operation a large number of times.

443 Looping in the implementation and test is under control of the LoopControl() and LoopControlParameter()
444 properties of the CIM_DiagnosticSettingData class. These properties are used to specify the number of
445 iterations in the loop, either directly or through a termination condition. If more than one control is set, the
446 first one that reaches its condition terminates the loop.

447 Looping in the client is entirely under the control of the client and would generally not affect the
448 CIM_DiagnosticSettingData object.

449 NOTE: A remote client may incur network delays and CIMOM delays during each iteration of its loop, and this is not
450 an effective way to stress a device.

451 It is recommended that all diagnostic tests support looping. Exceptions exist where looping a test leads to
452 an undesirable condition (for example, a risky test, certain user interactions, or excessive mechanical
453 wear).

454 **7.1.5 Test Effectiveness**

455 Although the focus of this profile is use of the CIM schema, the CDM includes the notion of test
456 effectiveness. A perfectly implemented CDM implementation wrapped around an ineffective test is not
457 very useful.

458 Diagnostic tests should provide support for all properties in the CIM_DiagnosticSettingData class.

459 The QuickMode property of the CIM_DiagnosticSettings class shall be supported for “long-running” tests
460 (that is, tests with running times in excess of what would be considered compatible with a quick system
461 “health check” of a few minutes). QuickMode need not be supported for interactive, risky, or destructive
462 tests, because these tests would not be useful as a health check.

463 NOTE: QuickMode is distinct from PercentOfTestCoverage in that it is a Boolean property that may be set by a client
464 without any particular knowledge of the test. Use of PercentOfTestCoverage requires that the client be aware of the
465 effects and expected outcome of this “throttling” setting control.

466 **7.2 CIM_AvailableDiagnosticService**

467 An instance of CIM_AvailableDiagnosticService shall associate a managed element with a diagnostic
468 service that is available for that element. This instance is the means by which clients discover the
469 diagnostic services that are installed for a particular managed element.

470 **7.2.1 CIM_AvailableDiagnosticService.EstimatedDurationOfService**

471 All tests shall attempt to accurately set the EstimatedDurationOfService property. As stated in the MOF
472 file for this class, this property is an estimation of magnitude, not absolute time, and is to be used as a
473 guide for the client.

474 The CIM_DiagnosticSettingData.LoopControl property allows a client to indicate how long a test should
475 run. Tests should use their default values for the LoopControl properties when determining a value for
476 EstimatedDurationOfService.

477 Interactive tests have an additional complication because their test execution depends on the responses
478 from the user. However, this type of test is not much different than a test whose execution depends on
479 information from a device and the response time of the hardware, or even on how much CPU time or
480 other system resources are allocated to the test. Interactive tests should assume a user response time. If
481 a test cannot reasonably determine an EstimatedDurationOfService value (for example, a completely
482 interactive test that does not know anything about what it will do until a user tells it what tests to run), it
483 can set the value to 0 (Unknown).

484 **7.2.2 CIM_AvailableDiagnosticService.EstimatedDurationQualifier**

485 The EstimatedDurationQualifier property allows for more accurate quantification of the value specified for
486 the EstimatedDurationOfService property. For example, if EstimatedDurationOfService has the value 2

487 (Seconds) and EstimatedDurationQualifier has a value of 20, then the service has an estimated duration
488 of 20 seconds. This property should be implemented if further quantification is possible. In contrast, if
489 EstimatedDurationOfService has the value 0 (Unknown), then EstimatedDurationQualifier may be NULL.

490 **7.3 CIM_DiagnosticServiceCapabilities**

491 A diagnostic service publishes its support for various options using CIM_DiagnosticServiceCapabilities. A
492 client uses CIM_ElementCapabilities to find the diagnostic service capabilities.
493 CIM_DiagnosticServiceCapabilities and CIM_DiagnosticSettingData are closely related and have similar
494 properties. The settings used to control the execution of a diagnostic test cannot specify unsupported
495 capabilities.

496 **7.4 CIM_DiagnosticSettingData**

497 This class defines specific diagnostic service parameters and execution instructions. To provide more
498 detailed settings for a type of test (that is, additional properties), subclassing is appropriate. This class
499 can be used in two different ways: 1) by the test to optionally publish its default settings or 2) by the client
500 to optionally override the test default settings.

501 NOTE: A CIM_DiagnosticSettingData object shall not contain any values that conflict with the diagnostic service
502 capabilities as indicated by its CIM_DiagnosticServiceCapabilities object. For example, if
503 CIM_DiagnosticServiceCapabilities.SupportedLoopControl includes the value 5 (No Loop Control), then
504 CIM_DiagnosticSettingData.LoopControl cannot include the value 3 (Count). Conflicting values shall be ignored by
505 the implementation.

506 **7.4.1 Default Setting**

507 The default settings for a diagnostic service are obtained by using the CIM_ElementSettingData
508 association to an instance of (a subclass of) CIM_DiagnosticSettingData where the IsDefault property has
509 the value of TRUE.

510 **7.4.2 Client Override**

511 A client can choose to accept the default settings (published or not) or override the default settings by
512 creating its own CIM_DiagnosticSettingData object based upon the settings that an implementation
513 indicates are supported in its CIM_DiagnosticServiceCapabilities object.

514 If a client chooses to accept the default settings (published or not), the DiagnosticSettings argument to
515 the RunDiagnosticService() method of DiagnosticTest should be set to NULL or an empty string.

516 If a client choose to override default settings, the Setting argument to the RunDiagnosticService()
517 method of DiagnosticTest is set to an encoded form of the CIM_DiagnosticSettingData object.

518 Note that the CIM_DiagnosticSettingData subclass may have extensions. If the client is aware of the
519 extensions, these may be modified as well. If the client is unaware, the default values should be used.

520 **7.5 CIM_ConcreteJob**

521 This clause defines the properties of the CIM_ConcreteJob class. Each execution of a test will create an
522 instance of CIM_ConcreteJob so that a client can track the progress and control the execution of the
523 executing diagnostic.

524 **7.5.1 CIM_ConcreteJob.TimeBeforeRemoval**

525 This property represents the amount of time that must elapse before the CIM_ConcreteJob object can be
526 deleted after the job has terminated. A default time is defined in the MOF class definition.

527 To determine the time at which the CIM_ConcreteJob object can be deleted, one must first calculate the
528 Completion Time. The algorithm is as follows:

529 If JobState=Completed OR Terminated OR Killed, then Completion Time=StartTime + ElapsedTime.

530 The CIM_ConcreteJob object may be deleted at Completion Time + TimeBeforeRemoval.

531 **7.5.2 CIM_ConcreteJob.PercentComplete**

532 This property indicates the percentage of the job that has completed at the time that this value is
533 requested.

534 Implementation of this property is mandatory in order to provide progress indication to clients.

535 The value of this property shall be kept current to be useful. Service implementations should update this
536 property within one second of becoming aware of a progress change.

537 The PercentComplete property shall always report the actual percent complete of how much testing was
538 done. It shall be set to 100 percent only when the test is complete. It shall not be set to 100 percent if the
539 test stops for any other reason (for example, the test stopped or was killed by user, the test exited due to
540 a critical failure, or the test found an error and HaltOnError is TRUE) because the actual percent complete
541 is not 100 percent.

542 **7.5.3 CIM_ConcreteJob.InstanceID**

543 CIM_ConcreteJob.InstanceID should be constructed using the following preferred algorithm:

544 <OrgID>:<LocalID>

545 where <OrgID> identifies the business entity (for example, ACME) and <LocalID> is a value that uniquely
546 identifies each ConcreteJob instance that is launched on a system when a test is executed. See the MOF
547 file description for further information.

548 The purpose for <LocalID> is to provide some form of uniqueness within the context of running separate
549 diagnostic tests over a period of time for the domain of the test execution (whether just the local system
550 or several remote systems). In practice, <LocalID> could be an incremented counter or a timestamp in
551 combination with other test identifiers or factors.

552 A unique <LocalID> allows a user to easily retrieve test results from the diagnostic log for a specific test
553 execution because the InstanceID values of CIM_ConcreteJob and the subclasses of
554 CIM_DiagnosticRecord are closely related.

555 **7.6 CIM_DiagnosticLog**

556 All diagnostic result messages shall be represented by instances of CIM_DiagnosticRecord subclasses.
557 Moreover, those records shall be aggregated to an instance of CIM_DiagnosticLog. Each invocation of
558 the RunDiagnosticService method of DiagnosticTest shall instantiate a new CIM_DiagnosticLog object. A
559 diagnostic service may also implement other additional logging mechanisms. Any other implemented
560 logging mechanism shall be indicated in the LogStorage property of the published capabilities.

561 **7.6.1 Logging Results**

562 The ways to record the results of running a diagnostic service are specified by the LogOptions and
563 LogStorage properties of the CIM_DiagnosticSettingData class. Use LogOptions to specify *what* to log
564 and LogStorage to specify *where* to log it. The MOF file describes these properties in some detail, but it is
565 useful to emphasize the mandatory mechanism here.

566 *Diagnostic Records aggregated to the Diagnostic Log* is mandatory for several reasons:

- 567 • The heterogeneous nature of the log entries more easily fits into a self-describing record
- 568 paradigm.
- 569 • Keyed records are easier to manage and retrieve.

570 **7.7 CIM_DiagnosticRecord**

571 CIM_DiagnosticRecord has two subclasses: CIM_DiagnosticServiceRecord and
 572 CIM_DiagnosticSettingDataRecord. CIM_DiagnosticServiceRecord has a single subclass:
 573 CIM_DiagnosticCompletionRecord.

574 CIM_DiagnosticServiceRecord is structured to hold the information that is generated while a particular
 575 service is running. One or more CIM_DiagnosticServiceRecord objects may be created during a single
 576 execution of a test.

577 CIM_DiagnosticSettingDataRecord is structured to hold the attributes of the setting object that was used
 578 as the DiagSetting parameter to the RunDiagnosticService() method. At most, a single
 579 CIM_DiagnosticSettingDataRecord may be created during a single execution of a test.

580 CIM_DiagnosticCompletionRecord is structured to hold the information that is generated as a result of
 581 running the particular service. A single CIM_DiagnosticCompletionDataRecord shall be created during a
 582 single execution of a test.

583 **7.7.1 CIM_DiagnosticRecord.ExpirationDate**

584 After a diagnostic service produces results, the result objects need to persist for a minimum amount of
 585 time to allow diagnostic CIM clients to capture what the application needs. When the data has been
 586 captured, the containing objects need to be deleted in a timely fashion.

587 CIM_DiagnosticSettingData.ResultPersistence shall be used by the client to specify to the diagnostic
 588 service implementation how long the results generated by that service shall persist. A value shall be
 589 chosen that allows the minimum time needed by the client to record the data. When the timeout value has
 590 been reached, the implementation shall delete the data objects that contain the results.

591 The value of CIM_DiagnosticRecord.ExpirationDate shall be calculated by the implementation to account
 592 for the persistence setting value, time zone, and other applicable factors. When this expiration value has
 593 been reached, the record is eligible for immediate deletion by the implementation. It is the
 594 implementation's responsibility to manage the logs to prevent accumulation of expired records.

595 A ResultPersistence value of 0 (zero) indicates that the result does not need to persist; the
 596 ExpirationDate is set to the current date and time. A ResultPersistence value of 0xFFFFFFFF indicates
 597 that the result shall persist until it is explicitly deleted by a client DeleteInstance or ClearLog call; the
 598 ExpirationDate is set to NULL, indicating no expiration date.

599 **7.7.2 CIM_DiagnosticRecord.InstanceID**

600 To simplify the retrieval of test data for a specific test execution, the value of InstanceID for
 601 CIM_ConcreteJob is closely related to the InstanceID for the subclasses of CIM_DiagnosticRecord.

602 CIM_DiagnosticRecord.InstanceID should be constructed using the following preferred algorithm:

603 <ConcreteJob.InstanceID>:<n>

604 <ConcreteJob.InstanceID> is <OrgID>:<LocalID> as described in CIM_ConcreteJob, and <n> is an
 605 increment value that provides uniqueness. <n> should be set to 0 for the first record created by the test
 606 during this job, and incremented for each subsequent record created by the test during this job. Each new
 607 test execution can reset the <n> to 0.

608 7.8 CIM_ServiceComponent

609 CIM_ServiceComponent is the means by which clients discover any individual tests that are also subtests
610 within a packaging test. This association does not imply any order, number, or method of subtest
611 execution, nor that all subtests executed within a packaging test shall be individual tests, nor even that all
612 the subtests would be executed for any specific execution of the packaging test.

613 The packaging test shall ensure that the values in CIM_DiagnosticTest.Characteristics of the packaging
614 test are consistent with the values in CIM_DiagnosticTest.Characteristics of the subtests unless the
615 packaging test can execute the subtest such that it does not have those characteristics. For example, if a
616 subtest sets the values of 4 (Is Destructive) or 3 (Is Interactive), the packaging test values in
617 CIM_DiagnosticTest.Characteristics should reflect those same characteristics, unless the packaging test
618 can execute the subtest so that it is not destructive or interactive.

619

620 8 Methods

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

623 8.1 CIM_DiagnosticService.RunDiagnosticService() Extrinsic Method

624 The RunDiagnosticService() method is invoked to commence execution of a diagnostic service on a
625 specific managed element. The input parameters specify this managed element and the settings that are
626 to be applied to the diagnostic service and the resultant job. The method returns a reference to the
627 CIM_ConcreteJob instance that is created.

628 Before invoking this method, clients examine the appropriate capabilities and create valid
629 CIM_DiagnosticSettingData and CIM_JobSettingData instances to apply as input parameters. The
630 RunDiagnosticService() method shall capture the attributes of CIM_DiagnosticSettingData in an instance
631 of CIM_DiagnosticSettingDataRecord. This information is useful for post-mortem analysis of diagnostic
632 results.

633 A job shall be instantiated to monitor the diagnostic service as it runs and to provide useful accounting
634 and status information when the diagnostic service has completed.

635 RunDiagnosticService() return values are specified in Table 2 and parameters are specified in Table 3.
636 No standard messages are defined.

637

Table 2 – RunDiagnosticService() Method: Return Code Values

Value	Description
0	Job completed with no error
2	Unknown or unspecified error
3	Cannot complete within the timeout period
4	Failed
5	Invalid parameter
0x8000..0xFFFF	Vendor specific

638

Table 3 – RunDiagnosticService() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	ManagedElement	CIM_ManagedElement	A reference that specifies the element upon which to run the diagnostic service
IN	DiagSetting	[EmbeddedInstance(CIM_DiagnosticSettingData)] string	A string (encoding a CIM_DiagnosticSettingData instance) that specifies the settings to be applied to the diagnostic service. If NULL, the diagnostic service's defaults are used.
IN	JobSetting	[EmbeddedInstance(CIM_JobSettingData)] string	A string (encoding a CIM_JobSettingData instance) that specifies the settings to be applied to the resulting job. If NULL, the job's defaults are used.
OUT	Job	CIM_ConcreteJob	Returns a reference to the resulting job

639 8.2 CIM_ConcreteJob.RequestStateChange() Extrinsic Method

640 All CIM_DiagnosticService.RunDiagnosticService() calls will return a reference to a CIM_ConcreteJob
 641 instance, which represents the diagnostic execution. The CIM_ConcreteJob.RequestStateChange()
 642 method is invoked to control the diagnostic program execution. The input parameters specify the
 643 execution control to be performed (Suspend, Kill, Terminate) and a timeout period that specifies the
 644 maximum amount of time that the client expects the transition to the new state to take.

645 Before invoking this method, clients examine the appropriate capabilities to verify whether the execution
 646 control is supported. The RequestStateChange() method shall change the JobState value if the transition
 647 is successfully performed.

648 RequestStateChange() return values are specified in Table 4 and parameters are specified in Table 5.
 649 No standard messages are defined.

650

Table 4 – RequestStateChange() Method: Return Code Values

Value	Description
0	Completed with No Error
2	Unknown/Unspecified Error
3	Cannot complete within Timeout Period
4	Failed
5	Invalid Parameter
6	In Use
4096	Method parameters checked — transition started
4097	Invalid state transition
4098	Use of timeout parameter not supported
4099	Busy — indicates that the method cannot be invoked "at this time." It is not an error condition, but signals that the implementation is doing something else and cannot respond.
32768..65535	Vendor specific

651

Table 5 – RequestStateChange() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	RequestedState	uint16	The requested state of a job, which may be one of the following values: Start (2), Suspend (3), Terminate (4), Kill (5), or Service (6)
IN	TimeoutPeriod	datetime	A timeout period that specifies the maximum amount of time that the client expects the transition to the new state to take. The interval format shall be used to specify the TimeoutPeriod.

652 **8.3 CIM_Log.ClearLog() Extrinsic Method**

653 The ClearLog() method is invoked to delete all records (instances of CIM_DiagnosticRecord subclasses)
 654 that are associated with the log instance through the CIM_LogManagesRecord association. This method
 655 has no parameters, and no standard messages are defined.

656 ClearLog return values are specified in Table 6.

657

Table 6 – ClearLog() Method: Return Code Values

Value	Description
0	Request was successfully executed.
2	Unknown or unspecified error
3	Cannot complete within the timeout period
4	Failed
5	Invalid parameter
0x8000..0xFFFF	Vendor specific

658 **8.4 CIM_HelpService.GetHelp() Extrinsic Method**

659 The GetHelp() method is invoked to obtain documentation about a diagnostic service. The input
 660 parameters provide the name, format, and delivery type of a document.

661 The CIM_HelpService class has some attributes that publish the available documents, supported delivery
 662 types, and formats. See Table 8 for additional information. Before invoking this method, clients check
 663 these attributes in order to request an available document, format, and delivery type.

664 GetHelp() return values are specified in Table 7 and parameters are specified in Table 8. No standard
 665 messages are defined.

666

Table 7 – GetHelp() Method: Return Code Values

Value	Description
0	Request was successfully executed.
2	Unknown or unspecified error
3	Cannot complete within the timeout period
4	Failed
5	Invalid parameter
0x1000	Busy — indicates that the method cannot be invoked "at this time." It is not an error condition, but signals that the implementation is doing something else and cannot respond.
0x1001	Requested document not found
0x8000..0xFFFF	Vendor Reserved

667

Table 8 – GetHelp() Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	RequestedDocument	string	The document that should be made available to the client. The available documents are published in the DocumentsAvailable attribute.
IN	Format	uint16	The format that the document should have. The supported formats are published in the DocumentFormat attribute.
IN	RequestedDelivery	uint16	The way in which the document should be made available (fully specified path, launch a program, file contents, and so on)
OUT	DocumentInfo	string	This parameter returns information about the document. The format and content will depend on the RequestedDelivery parameter.

668 **8.5 Profile Conventions for Operations**

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

671 The default list of operations is as follows:

- 672 • GetInstance
- 673 • EnumerateInstances
- 674 • EnumerateInstanceNames
- 675 • Associators
- 676 • AssociatorNames
- 677 • References
- 678 • ReferenceNames

679 8.6 CIM_DiagnosticTest

680 Table 9 lists implementation requirements for operations. If implemented, these operations shall be
 681 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 9, all operations in
 682 the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

684 **Table 9 – Operations: CIM_DiagnosticTest**

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None
InvokeMethod	Mandatory	None
ExecQuery	Optional	None
Associators	Mandatory	None
AssociatorNames	Mandatory	None
References	Optional	None
ReferenceNames	Optional	None

685 8.7 CIM_AvailableDiagnosticService

686 Table 10 lists implementation requirements for operations. If implemented, these operations shall be
 687 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 10, all operations
 688 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

690 **Table 10 – Operations: CIM_AvailableDiagnosticService**

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

691 8.8 CIM_ServiceAffectsElement

692 Table 11 lists implementation requirements for operations. If implemented, these operations shall be
 693 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 11, all operations
 694 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

696 **Table 11 – Operations: CIM_ServiceAffectsElement**

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

697 8.9 CIM_SoftwareIdentity

698 Table 12 lists implementation requirements for operations. If implemented, these operations shall be
 699 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 12, all operations
 700 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

702 **Table 12 – Operations: CIM_SoftwareIdentity**

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None
ExecQuery	Optional	None
Associators	Mandatory	None
AssociatorNames	Mandatory	None
References	Optional	None
ReferenceNames	Optional	None

703 8.10 CIM_ElementSoftwareIdentity

704 Table 13 lists implementation requirements for operations. If implemented, these operations shall be
 705 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 13, all operations
 706 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

708 **Table 13 – Operations: CIM_ElementSoftwareIdentity**

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

709 8.11 CIM_HelpService

710 Table 14 lists implementation requirements for operations. If implemented, these operations shall be
 711 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 14, all operations
 712 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

714

Table 14 – Operations: CIM_HelpService

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None
InvokeMethod	Mandatory	None
ExecQuery	Optional	None
Associators	Mandatory	None
AssociatorNames	Mandatory	None
References	Optional	None
ReferenceNames	Optional	None

715 8.12 CIM_ServiceAvailableToElement

716 Table 15 lists implementation requirements for operations. If implemented, these operations shall be
 717 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 15, all operations
 718 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

720

Table 15 – Operations: CIM_ServiceAvailableToElement

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

721 8.13 CIM_DiagnosticSettingData

722 Table 16 lists implementation requirements for operations. If implemented, these operations shall be
 723 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 16, all operations
 724 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

726

Table 16 – Operations: CIM_DiagnosticSettingData

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None
ExecQuery	Optional	None
Associators	Mandatory	None
AssociatorNames	Mandatory	None
References	Optional	None
ReferenceNames	Optional	None

727 8.14 CIM_DiagnosticServiceCapabilities

728 Table 17 lists implementation requirements for operations. If implemented, these operations shall be
 729 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 17, all operations
 730 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

732 **Table 17 – Operations: CIM_DiagnosticServiceCapabilities**

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None
ExecQuery	Optional	None
Associators	Mandatory	None
AssociatorNames	Mandatory	None
References	Optional	None
ReferenceNames	Optional	None

733 8.15 CIM_ElementCapabilities

734 Table 18 lists implementation requirements for operations. If implemented, these operations shall be
 735 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 18, all operations
 736 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

738 **Table 18 – Operations: CIM_ElementCapabilities**

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

739 8.16 CIM_ConcreteJob

740 Table 19 lists implementation requirements for operations. If implemented, these operations shall be
 741 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 19, all operations
 742 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

744

Table 19 – Operations: CIM_ConcreteJob

Operation	Requirement	Messages
GetInstance	Mandatory	None
ModifyInstance	Optional	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None
InvokeMethod	Mandatory	None
ExecQuery	Optional	None
Associators	Mandatory	None
AssociatorNames	Mandatory	None
References	Optional	None
ReferenceNames	Optional	None

745 8.17 CIM_OwningJobElement

746 Table 20 lists implementation requirements for operations. If implemented, these operations shall be
 747 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 20, all operations
 748 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

750

Table 20 – Operations: CIM_OwningJobElement

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

751 8.18 CIM_AffectedJobElement

752 Table 21 lists implementation requirements for operations. If implemented, these operations shall be
 753 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 21, all operations
 754 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

756

Table 21 – Operations: CIM_AffectedJobElement

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

757 8.19 CIM_JobSettingData

758 Table 22 lists implementation requirements for operations. If implemented, these operations shall be
 759 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 22, all operations
 760 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

762 **Table 22 – Operations: CIM_JobSettingData**

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None
ExecQuery	Optional	None
Associators	Mandatory	None
AssociatorNames	Mandatory	None
References	Optional	None
ReferenceNames	Optional	None

763 8.20 CIM_ElementSettingData

764 Table 23 lists implementation requirements for operations. If implemented, these operations shall be
 765 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 23, all operations
 766 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

768 **Table 23 – Operations: CIM_ElementSettingData**

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

769 8.21 CIM_DiagnosticLog

770 Table 24 lists implementation requirements for operations. If implemented, these operations shall be
 771 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 24, all operations
 772 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

774

Table 24 – Operations: CIM_DiagnosticLog

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None
InvokeMethod	Mandatory	None
ExecQuery	Optional	None
Associators	Mandatory	None
AssociatorNames	Mandatory	None
References	Optional	None
ReferenceNames	Optional	None

775 8.22 CIM_UseOfLog

776 Table 25 lists implementation requirements for operations. If implemented, these operations shall be
 777 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 25, all operations
 778 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

780

Table 25 – Operations: CIM_UseOfLog

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

781 8.23 CIM_DiagnosticServiceRecord

782 Table 26 lists implementation requirements for operations. If implemented, these operations shall be
 783 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 26, all operations
 784 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

786

Table 26 – Operations: CIM_DiagnosticServiceRecord

Operation	Requirement	Messages
GetInstance	Mandatory	None
CreateInstance	Optional	None
DeleteInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None
ExecQuery	Mandatory	None
Associators	Mandatory	None
AssociatorNames	Mandatory	None
References	Optional	None
ReferenceNames	Optional	None

787 **8.24 CIM_DiagnosticCompletionRecord**

788 Table 27 lists implementation requirements for operations. If implemented, these operations shall be
 789 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 27, all operations
 790 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

792

Table 27 – Operations: CIM_DiagnosticCompletionRecord

Operation	Requirement	Messages
GetInstance	Mandatory	None
CreateInstance	Optional	None
DeleteInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None
ExecQuery	Mandatory	None
Associators	Mandatory	None
AssociatorNames	Mandatory	None
References	Optional	None
ReferenceNames	Optional	None

793 **8.25 CIM_DiagnosticSettingDataRecord**

794 Table 28 lists implementation requirements for operations. If implemented, these operations shall be
 795 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 28, all operations
 796 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

798

Table 28 – Operations: CIM_DiagnosticSettingDataRecord

Operation	Requirement	Messages
GetInstance	Mandatory	None
CreateInstance	Optional	None
DeleteInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None
ExecQuery	Mandatory	None
Associators	Mandatory	None
AssociatorNames	Mandatory	None
References	Optional	None
ReferenceNames	Optional	None

799 8.26 CIM_LogManagesRecord

800 Table 29 lists implementation requirements for operations. If implemented, these operations shall be
 801 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 29, all operations
 802 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

804

Table 29 – Operations: CIM_LogManagesRecord

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

805 8.27 CIM_RecordAppliesToElement

806 Table 30 lists implementation requirements for operations. If implemented, these operations shall be
 807 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 30, all operations
 808 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

810

Table 30 – Operations: CIM_RecordAppliesToElement

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

811 **8.28 CIM_CorrespondingSettingDataRecord**

812 Table 31 lists implementation requirements for operations. If implemented, these operations shall be
 813 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 31, all operations
 814 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

816 **Table 31 – Operations: CIM_CorrespondingSettingDataRecord**

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

817 **8.29 CIM_ServiceComponent**

818 Table 32 lists implementation requirements for operations. If implemented, these operations shall be
 819 implemented as defined in [DSP0200](#). In addition, and unless otherwise stated in Table 32, all operations
 820 in the default list in 8.5 shall be implemented as defined in [DSP0200](#).

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

822 **Table 32 – Operations: CIM_ServiceComponent**

Operation	Requirement	Messages
GetInstance	Mandatory	None
EnumerateInstances	Mandatory	None
EnumerateInstanceNames	Mandatory	None

823 9 Use Cases

824 This clause contains object diagrams and use cases for the *Diagnostics Profile*.

825 9.1 Profile Conformance

826 Conformance of a central class instance and its associated instances to a particular profile may be
827 identified by examining instances of the CIM_ElementConformsToProfile association class according to
828 the Central Class Methodology. In some environments, an alternative method that relies on the Scoping
829 Class Methodology through the scoping class instance may be desirable.

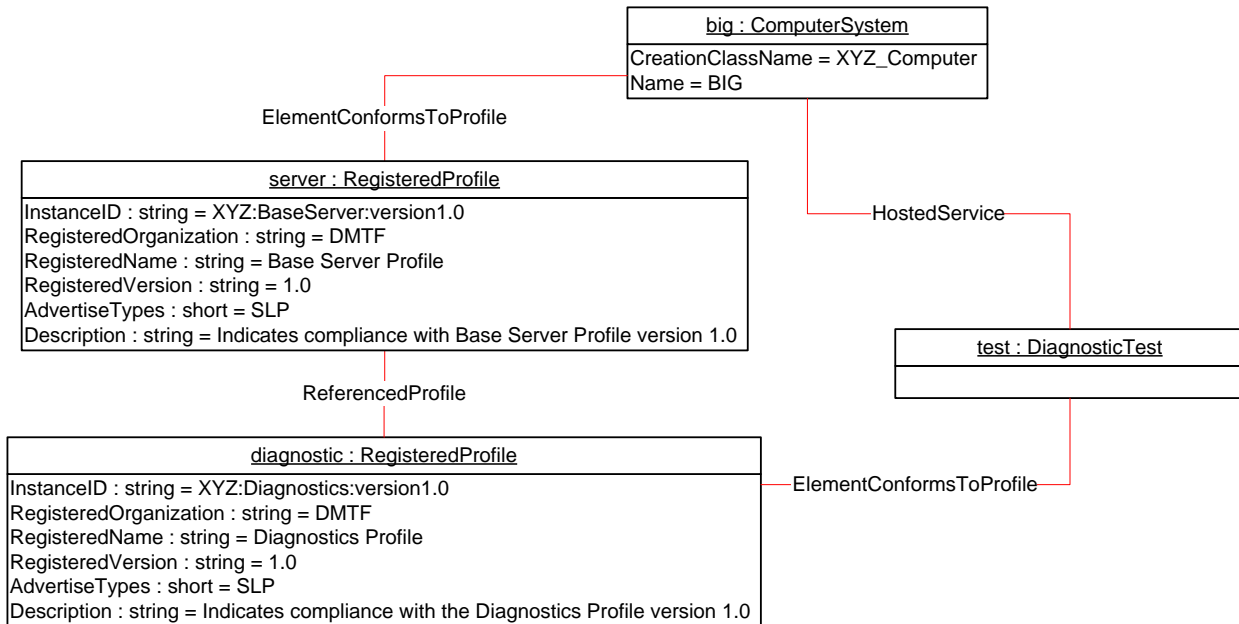
830 With CIM_ComputerSystem as the Scoping Class of this profile, the object diagram in Figure 2 shows
831 how instances of CIM_RegisteredProfile may be used to identify the version of the *Diagnostics Profile* to
832 which an instance of CIM_DiagnosticTest and its associated instances conform. In this example (using
833 BaseServer as the system configuration), one instance of CIM_RegisteredProfile identifies the "*Base
834 Server Profile v1.0*" and the other instance identifies the "*Diagnostics Profile v2.0*."

835 To support the Scoping Class Methodology for advertising profile implementation conformance, a
836 CIM_DiagnosticTest instance is associated to an instance of the Scoping Class, CIM_ComputerSystem,
837 through an instance of CIM_HostedService. This instance of CIM_ComputerSystem is advertised as
838 being in implementation conformance with the *Base Server Profile v1.0* as indicated by the
839 CIM_ElementConformsToProfile association to the "server" CIM_RegisteredProfile instance. The
840 CIM_ReferencedProfile relationship between "server" and "diagnostic" places the CIM_DiagnosticTest
841 instance within the scope of "diagnostic." Thus, the CIM_DiagnosticTest instance is conformant with the
842 *Diagnostics Profile v2.0*.

843 To support the Central Class Methodology for advertising profile implementation conformance, a
844 CIM_ElementConformsToProfile association is established between the CIM_DiagnosticTest central
845 class instance and the instance of CIM_RegisteredProfile that represents the *Diagnostics Profile*.

846 For these methodologies to be successful, profiles for systems that can support diagnostics need to
847 reference the *Diagnostics Profile*. In this example, the [Base Server Profile](#) would need to include the
848 *Diagnostics Profile* in its "Related Profiles" table.

849 The CIM_ prefix has been omitted from the class names in Figure 2 for simplicity and readability.



850

851

Figure 2 – Registered Profile

852 **9.2 Use Case Summary**

853 Table 33 summarizes the use cases that are described in this clause. The use cases are categorized and
 854 named, and references are provided to the body text that describes the use case.

855 NOTE: Although use case names follow the convention for naming classes, properties, and methods in the schema,
 856 this naming was done for readability only and does not imply any functionality attached to the name.

857 The CIM_ prefix has been omitted from the class names in the use cases for readability.

858

Table 33 – Diagnostics Profile Use Cases

Category	Name	Description
Discover Available Diagnostics See 9.4.	GetAllDiagnostics	Find all diagnostics available on a system. See 9.4.1.
	GetAllDiagnosticMEPairs	Find all diagnostic/managed elements pairs available on a system. See 9.4.2.
	GetDiagnosticsForME	Find all the diagnostics available on a system, for a managed element. See 9.4.3.
	GetMEsForDiagnostic	Find all the managed elements that support a particular diagnostic. See 9.4.4.
	GetCapabilitiesOfDiagnostic	Find the capabilities of a particular diagnostic. See 9.4.5.
	GetCharacteristicsOfDiagnostic	Find the characteristics of a particular diagnostic. See 9.4.6.

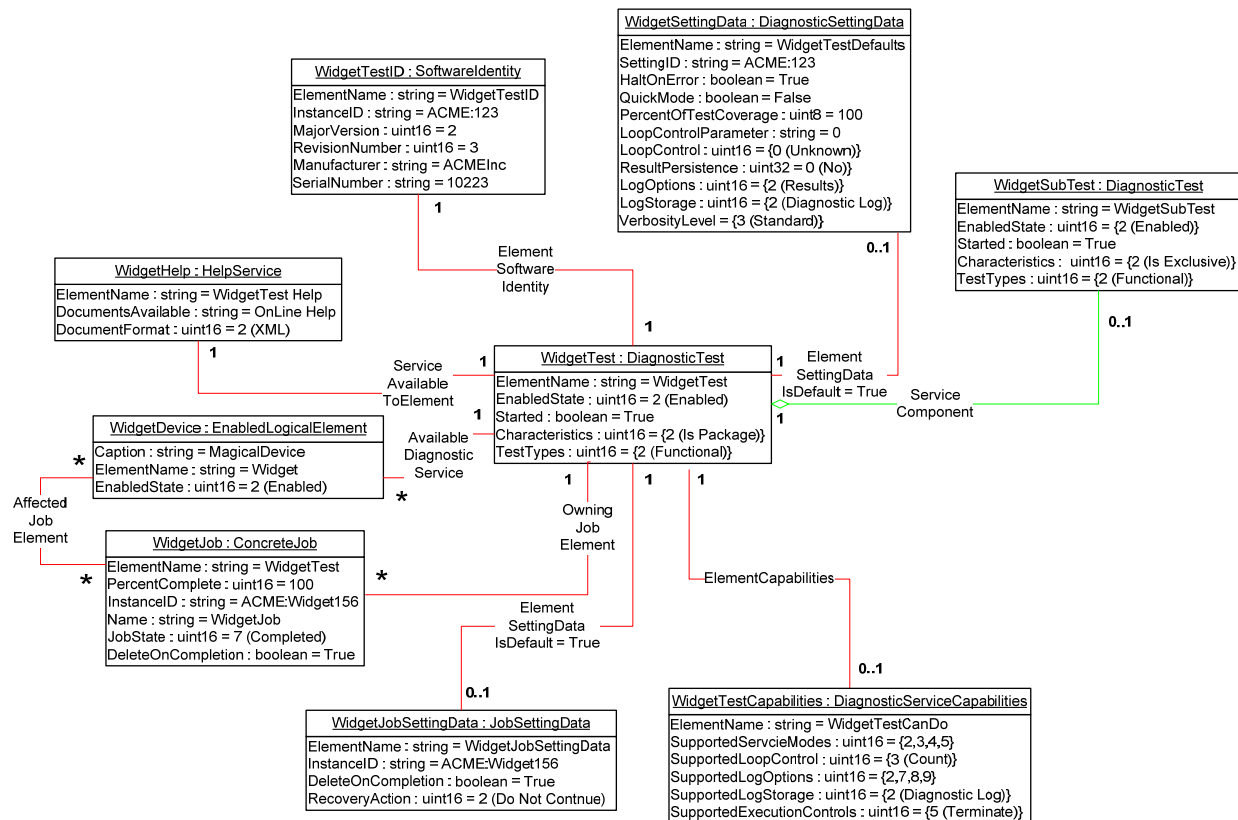
Category	Name	Description
	GetDiagnosticsWithCharacteristicsForME	Find all the diagnostics available on a system, for a managed element, with certain characteristics. See 9.4.7.
	GetDiagnosticsWithCapabilitiesForME	Find all the diagnostics available on a system, for a managed element, with certain capabilities. See 9.4.8.
	GetPackageSubtests	Find the subtests for a diagnostic test with the value of the DiagnosticTest.Characteristics property set to Is Package. See 9.4.9.
Configure Diagnostic See 9.5.	GetDefaultDiagnosticSettings	Find the default diagnostic settings for a diagnostic. See 9.5.1.
	CreateDiagnosticSettings	Create a unique setting for a diagnostic. See 9.5.2.
	GetDefaultJobSettings	Find the default job settings for a diagnostic. See 9.5.3.
	CreateJobSettings	Create a unique setting for a diagnostic job. See 9.5.4.
Execute and Control Diagnostic See 9.6.	RunDiagnostic	Run a diagnostic with default and unique settings. See 9.6.1.
	SuspendDiagnostic	Suspend a running diagnostic. See 9.6.2.
	ResumeDiagnostic	Resume a running diagnostic. See 9.6.3.
	AbortDiagnostic	Abort a running diagnostic. See 9.6.4.
	KillDiagnostic	Abort a running diagnostic immediately, with no attempt to perform a clean shutdown. See 9.6.5.
Discover Diagnostic Executions See 9.7.	GetAffectedMEs	Find all the managed elements affected by a running diagnostic. See 9.7.1.
	GetAllDiagnosticExecutionsForME	Find all the diagnostic executions on a system for a managed element. See 9.7.2.
	GetSpecificDiagnosticExecutions	Find all the executions of a specific diagnostic. See 9.7.3.
	GetSpecificDiagnosticExecutionsForME	Find all the executions of a specific diagnostic for a particular managed element. See 9.7.4.
Discover Diagnostic Results (in-progress and final) See 9.8.	GetLogRecordsForDiagnostic	Find all the diagnostic log records for a particular diagnostic. See 9.8.1.
	GetLogRecordsForME	Find all the diagnostic log records for a particular managed element. See 9.8.2.

Category	Name	Description
	GetLogRecordsForMEAndDiagnostic	Find all the diagnostic log records for a particular diagnostic run on a particular managed element. See 9.8.3.
	GetDiagnosticExecutionFinalResults	Determine the final result of a diagnostic execution. See 9.8.4.
	GetDiagnosticExecutionResults	Find all diagnostic log records for a particular execution (job). See 9.8.5.
	GetDiagnosticExecutionSettings	Find the settings used in a diagnostic execution. See 9.8.6.
	GetDiagnosticProgress	Get the progress of a running diagnostic. See 9.8.7.

859 **9.3 Diagnostic Services Object Diagram**

860 Figure 3 is an object diagram for diagnostic services for a fictitious device called "Widget." Only classes, 861 properties, and methods that are of particular interest for the diagnostic model are shown. Refer to this 862 diagram for the use cases in this clause.

863 The CIM_ prefix has been omitted from the class names in the diagram for readability.



864

865

Figure 3 – Diagnostic Services Object Diagram

866 **9.4 Discover Available Diagnostics**

867 The use cases in this clause describe how the client can find available diagnostics. The CIM_ prefix has
868 been omitted from the class names in the use cases for readability.

869 **9.4.1 GetAllDiagnostics**

870 The client can find all of the diagnostics that are available on a system as follows:

- 871 1) The client calls the EnumerateInstances (or EnumerateInstanceNames) operation using
872 the DiagnosticTest class.
- 873 2) The operation returns DiagnosticTest instances that represent a diagnostic that is available
874 on the system.

875 **9.4.2 GetAllDiagnosticMEPairs**

876 The client can find all of the diagnostics/managed element pairs that are available on a system as follows.
877 Each pair comprises a diagnostic and a ManagedElement (device) that is supported by the diagnostic.

- 878 1) The client calls the EnumerateInstances (or EnumerateInstanceNames) operation using the
879 AvailableDiagnosticService class.
- 880 1) The operation returns AvailableDiagnosticService instances that have a reference to the
881 DiagnosticTest instance and another reference to the ManagedElement instance.

882 **9.4.3 GetDiagnosticsForME**

883 The client can find all of the diagnostics on a system that can be launched against a specific device
884 (managed element) as follows. Assume that the client starts at a known ManagedElement instance,
885 which represents the device to be tested.

- 886 1) From the ManagedElement instance, the client calls the Associators operation
887 using AvailableDiagnosticService as the association class.
- 888 2) The operation returns DiagnosticTest instances that represent a diagnostic that can be
889 launched against the ManagedElement.

890 **9.4.4 GetMEsForDiagnostic**

891 The client can find all managed elements (devices) that are supported by a specific diagnostic as follows.
892 Assume that the client starts at a known DiagnosticTest instance.

- 893 1) From the DiagnosticTest instance, the client calls the Associators operation
894 using AvailableDiagnosticService as the association class.
- 895 2) The operation returns ManagedElement instances that represent a device that is supported by
896 the DiagnosticTest.

897 **9.4.5 GetCapabilitiesOfDiagnostic**

898 A diagnostic service publishes its support for various options through a DiagnosticServiceCapabilities
899 instance. A client can use the information in DiagnosticServiceCapabilities to generate an instance of
900 DiagnosticSettingData that is passed as the DiagSettings argument of the RunDiagnosticService extrinsic
901 method of DiagnosticTest. The client can find the capabilities of a diagnostic as follows. Assume that the
902 client starts at a known DiagnosticTest instance.

- 903 1) From the DiagnosticTest instance, the client calls the Associators operation
904 using ElementCapabilities as the association class and DiagnosticServiceCapabilities as the
905 result class.

- 906 2) The operation should return only one DiagnosticServiceCapabilities instance, which represents
907 the diagnostic capabilities.

908 NOTE: Because the implementation of DiagnosticServiceCapabilities is optional, it may not be available. In this case,
909 no assumptions should be made regarding the diagnostic capabilities.

910 **9.4.6 GetCharacteristicsOfDiagnostic**

911 The client can discover all of the characteristics (is destructive, is interactive, is synchronous, and so on)
912 of a diagnostic. From the DiagnosticTest instance, the client reads just the Characteristics and
913 OtherCharacteristicsDescriptions attributes, which contain the diagnostic characteristics. See the MOF file
914 class definition for DiagnosticTest for further information.

915 **9.4.7 GetDiagnosticsWithCharacteristicsForME**

916 The client can find all of the diagnostics that can be launched against a specific device (managed
917 element) and have specific characteristics as follows. Assume that the client starts at a known
918 ManagedElement instance, which represents the device to be tested.

- 919 1) The client discovers all of the diagnostics that are available for the specific ManagedElement.
920 The GetDiagnosticsForME use case (see 9.4.3) describes the necessary steps.
- 921 2) For each DiagnosticTest instance, the client checks the diagnostic characteristics. The
922 GetCharacteristicsOfDiagnostic use case (see 9.4.6) describes the necessary steps.
- 923 3) If the characteristics of the DiagnosticTest instance match the desired characteristics, the
924 DiagnosticTest instance is the one desired.

925 **9.4.8 GetDiagnosticsWithCapabilitiesForME**

926 The client can find all of the diagnostics that can be launched against a specific device (managed
927 element) and have specific capabilities as follows. Assume that the client starts at a known
928 ManagedElement instance, which represents the device to be tested.

- 929 1) The client discovers all of the diagnostics that are available for the specific ManagedElement.
930 The GetDiagnosticsForME use case (see 9.4.3) describes the necessary steps.
- 931 1) For each DiagnosticTest instance, the client checks the diagnostic capabilities. The
932 GetCapabilitiesOfDiagnostic use case (see 9.4.5) describes the necessary steps.
- 933 2) If the capabilities of the DiagnosticTest instance match the desired capabilities, the
934 DiagnosticTest instance is the one desired.

935 **9.4.9 GetPackageSubtests**

936 The client can find the subtests for a diagnostic test with the IsPackage value set in the
937 DiagnosticTest.Characteristics property, using the following procedure. Assume that the client starts at a
938 known DiagnosticTest instance.

- 939 1) The client checks the DiagnosticTest.Characteristics property for the IsPackage value.
 - 940 1) If the IsPackage value is present, the client calls the Associators operation using
941 ServiceComponent as the association class and DiagnosticTest as the result class.
 - 942 2) The operation returns the DiagnosticTest instances that are subtests of the known
943 DiagnosticTest.

944 **9.5 Configure Diagnostic**

945 The use cases in this clause describe how the client can find and create settings for diagnostics. The
946 CIM_ prefix has been omitted from the class names in the use cases for readability.

947 **9.5.1 GetDefaultDiagnosticSettings**

948 The client can obtain the default settings for a diagnostic service as follows. Assume that the client starts
949 at a known DiagnosticTest instance.

- 950 1) From the DiagnosticTest instance, the client calls the Associators operation
951 using ElementSettingData as the association class and DiagnosticSettingData as the result
952 class. The operation returns DiagnosticSettingData instances.
- 953 1) For each DiagnosticSettingData instance, the client calls the References operation using
954 ElementSettingData as the result class. The operation returns ElementSettingData
955 instances.
- 956 2) For each ElementSettingData instance, the client determines whether the value of the
957 ElementSettingData.ManagedElement property matches the DiagnosticTest name and the
958 value of the ElementSettingData.IsDefault property is 1 (Is Default). If so, the
959 DiagnosticSettingData instance represents the default diagnostic settings. The name of
960 this DiagnosticSettingData instance may also be retrieved from
961 ElementSettingData.SettingData property.

962 NOTE: Because the implementation of DiagnosticSettingData is optional, it may not be available.

963 **9.5.2 CreateDiagnosticSettings**

964 To run a diagnostic test, the client invokes the RunDiagnosticService extrinsic method of DiagnosticTest.
965 The DiagSetting argument may be an empty string, NULL or a string representing an embedded instance
966 of DiagnosticSettingData. When DiagSetting is an empty string or NULL, then the test runs using the
967 default settings which may or may not have been published by the implementation.

968 Note that the diagnostic default settings are represented by a DiagnosticSettingData subclass that may
969 have extensions. If the client is aware of the extensions, they may be modified as well. If the client is
970 unaware, the default values should be used. Assume that the client starts at a known DiagnosticTest
971 instance. The client may use their own diagnostic settings as follows

- 972 1) The client discovers the diagnostic capabilities of the DiagnosticTest instance. The
973 GetCapabilitiesOfDiagnostic use case (9.4.5) describes the necessary steps.
- 974 1) If Step 1 does not return an instance, the client can attempt to discover the default
975 diagnostic settings of the DiagnosticTest instance. The GetDefaultDiagnosticSettings use
976 case (9.5.1) describes the necessary steps.
- 977 2) If Step 2 does not return an instance or if the client chooses to create an instance of the
978 DiagnosticSettingData class, a GetClass operation for DiagnosticSettingData can be
979 performed and then used to create an instance locally in the client scope (for example,
980 IwbemClassObject or CIMInstance object) based on the class definition.
- 981 3) The client modifies the created DiagnosticSettingData instance as necessary. However,
982 the client should consider the diagnostic capabilities during the changes. If test capabilities
983 are published, the client should set the values in DiagnosticSettingData instance based on
984 the published capabilities (if any) because any setting for an unsupported capability shall
985 be ignored.

986 **9.5.3 GetDefaultJobSettings**

987 The client can obtain the default job settings for a diagnostic service as follows. Assume that the client
988 starts at a known DiagnosticTest instance.

- 989 1) From the DiagnosticTest instance, the client calls the Associators operation
990 using ElementSettingData as the association class and JobSettingData as the result class. The
991 operation returns JobSettingData instances.

- 992 1) For each JobSettingData instance, the client calls the References operation using
 993 ElementSettingData as the result class. The operation returns ElementSettingData
 994 instances.
- 995 2) For each ElementSettingData instance, the client determines whether the value of the
 996 ElementSettingData.ManagedElement property matches the DiagnosticTest name and the
 997 value of the ElementSettingData.IsDefault property is 1 ("Is Default"). If so, the
 998 JobSettingData instance represents the default job settings. The name of this
 999 JobSettingData instance may also be retrieved from ElementSettingData.SettingData
 1000 property.

1001 NOTE: Because the implementation of JobSettingData is optional, it may not be available.

1002 **9.5.4 CreateJobSettings**

1003 To run a diagnostic test, the client invokes the RunDiagnosticService extrinsic method of DiagnosticTest.
 1004 The JobSetting argument may be an empty string, NULL or a string representing an embedded instance
 1005 of JobSettingData. When JobSetting is an empty string or NULL, then the job runs using the default
 1006 settings which may or may not have been published by the implementation.

1007 Note that the diagnostic default job settings are represented by a JobSettingData subclass that may have
 1008 extensions. If the client is aware of the extensions, they may be modified as well. If the client is unaware,
 1009 the default values should be used. Assume that the client starts at a known DiagnosticTest instance. The
 1010 client may use their own job settings as follows:

- 1011 1) The client can attempt to discover the default job settings of the DiagnosticTest instance. The
 1012 GetDefaultJobSettings use case (see 9.5.3) describes the necessary steps.
- 1013 1) If Step 1 does not return an instance or if the client chooses to create an instance of the
 1014 JobSettingData class, a GetClass operation for JobSettingData can be performed and then
 1015 used to create an instance locally in the client scope (for example, IwbemClassObject or
 1016 CIMInstance object) based on the class definition.
- 1017 2) The client modifies the created JobSettingData instance as necessary.

1018 **9.6 Execute and Control Diagnostic**

1019 The RunDiagnosticService() method is invoked to start the diagnostic service. Input parameters are the
 1020 ManagedElement being tested, the test settings and the job settings to be used for the test execution.
 1021 The test settings and job settings arguments are optional. If the settings argument is NULL or an empty
 1022 string, then default settings are used. A reference to a ConcreteJob instance shall be returned.

1023 An instance of ConcreteJob is created by the diagnostic implementation to allow monitoring and control of
 1024 the running service. By invoking the RequestStateChange method, the client may start, stop, suspend,
 1025 and resume the job. By inspecting the value of PercentComplete, the client may determine the job's
 1026 progress.

1027 The ManagedElement being tested and the DiagnosticTest instance that launched the test are related to
 1028 the job instance through the OwningJobElement and the AffectedJobElement associations. The client
 1029 may find jobs associated with services or managed elements of interest by using these associations.

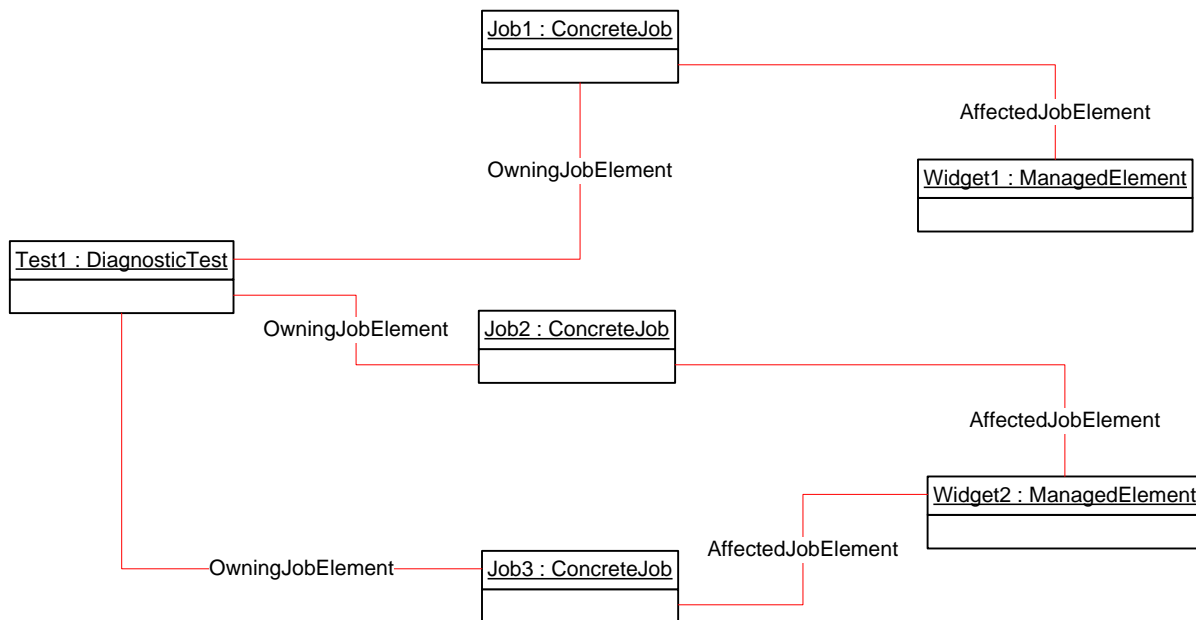
1030 NOTE: In order to expedite test data retrieval, the InstanceID values of ConcreteJob, DiagnosticSettingDataRecord,
 1031 DiagnosticServiceRecord and DiagnosticCompletionRecord are closely related to each other. For further information,
 1032 see the Discover Diagnostic Results use cases in 9.8.

1033 Figure 4 is an object diagram that shows the state of instances when a DiagnosticTest
 1034 RunDiagnosticService() method has been called three times. Two of the times were to run a test on the
 1035 same device, ManagedElement2.

1036 NOTE: Not all diagnostic tests are capable of running on the same device simultaneously; that is,
 1037 DiagnosticTest.Characteristics has the value of 2 (Is Exclusive). If this had been the case in this example, the

1038 DiagnosticTest would have returned an error on the second RunDiagnosticService() method call to run a test on
 1039 ManagedElement2.

1040 The CIM_ prefix has been omitted from the class names in the diagram and the use cases for readability.



1041

1042

Figure 4 – Job Example

1043 9.6.1 RunDiagnostic

1044 The client can run a diagnostic with default and unique settings as follows. (See 9.4 for use cases related
 1045 to finding diagnostics that can be initiated. See 9.5 for use cases related to creating and modifying
 1046 diagnostic settings to configure diagnostic execution.)

1047 1) The client calls the RunDiagnosticService() method, passing in EmbeddedInstances of
 1048 DiagnosticSettingData and JobSettings to use to execute the test as well as the reference to the
 1049 ManagedElement to test. If the client passes in NULL or an empty string for these classes, the
 1050 default values are used.

1051 1) The diagnostic service creates a Job instance to represent that test running on that
 1052 managed element and shall return a reference to it in the return call from
 1053 RunDiagnosticService(). In addition, the diagnostic service creates the OwningJobElement
 1054 association between the Job and the Service and the AffectedJobElement association
 1055 between the Job and the ManagedElement.

1056 9.6.2 SuspendDiagnostic

1057 The client can suspend the execution of the test by using the RequestStateChange() method call on the
 1058 Job instance that is returned from the RunDiagnosticService() method, as shown in the following
 1059 procedure. Assume that the client starts at a known DiagnosticTest instance.

1060 1) The client follows the ElementCapabilities association from the DiagnosticTest to the
 1061 DiagnosticServiceCapabilities for the service.

1062 1) The client checks the DiagnosticServiceCapabilities.SupportedExecutionControls()
 1063 property for the value of 4 ("Suspend Job"). If the value exists, the Job supports
 1064 suspension.

- 1065 2) The client finds the appropriate Job instances. The GetSpecificDiagnosticExecutions use
1066 case (see 9.7.3) describes the necessary steps.
- 1067 3) The client calls the RequestStateChange() method, passing in a RequestedState value of
1068 3 ("Suspend").
- 1069 4) When the transition completes successfully, the ConcreteJob that represents the test will
1070 set the value of the JobState property to 5 ("Suspended") and set the value of
1071 TimeOfLastStateChange to the current time.

1072 9.6.3 ResumeDiagnostic

1073 The client can resume the execution of a test by using the RequestStateChange() method call on the Job
1074 instance that is returned from the RunDiagnosticService() method, as shown in the following procedure.
1075 Assume that the client starts at a known DiagnosticTest instance.

- 1076 1) The client follows the ElementCapabilities association from the DiagnosticTest to the
1077 DiagnosticServiceCapabilities for the service.
- 1078 1) The client checks the DiagnosticServiceCapabilities.SupportedExecutionControls()
1079 property for the value of 4 ("Suspend Job"). If the value exists, the Job supports
1080 resumption.
- 1081 2) The client finds the appropriate Job instances. The GetSpecificDiagnosticExecutions use
1082 case (see 9.7.3) describes the necessary steps.
- 1083 3) The client calls the RequestStateChange() method of DiagnosticTest, passing in a
1084 RequestedState value of 2 ("Enabled").
- 1085 4) When the transition completes successfully, the ConcreteJob that represents the test will
1086 set the value of the JobState property to 4 ("Running") and set the value of
1087 TimeOfLastStateChange to the current time.

1088 NOTE: The JobState property may transition from the value 3 ("Starting") before the final transition to the value of 4
1089 ("Running").

1090 9.6.4 AbortDiagnostic

1091 The client can cleanly abort the execution of a test by using the RequestStateChange() method call on
1092 the Job instance that is returned from the RunDiagnosticService() method, as shown in the following
1093 procedure. Assume that the client starts at a known DiagnosticTest instance.

- 1094 1) The client follows the ElementCapabilities association from the DiagnosticTest to the
1095 DiagnosticServiceCapabilities for the service.
- 1096 1) The client checks the DiagnosticServiceCapabilities.SupportedExecutionControls()
1097 property for the value of 5 ("Terminate Job"). If the value exists, the Job supports
1098 termination.
- 1099 2) The client finds the appropriate Job instances. The GetSpecificDiagnosticExecutions use
1100 case (see 9.7.3) describes the necessary steps.
- 1101 3) The client calls the RequestStateChange() method, passing in a RequestedState value of
1102 4 ("Terminate").
- 1103 4) When the transition completes successfully, the ConcreteJob that represents the test will
1104 set the value of the JobState property to 8 ("Terminated") and set the value of
1105 TimeOfLastStateChange to the current time.

1106 NOTE: The JobState property may transition to "Shutting Down" before the final transition to "Terminated".

1107 9.6.5 KillDiagnostic

1108 The client can immediately abort the execution of a test, with no attempt to perform a clean shutdown, by
 1109 using the RequestStateChange() method call on the Job instance that is returned from the
 1110 RunDiagnosticService() method, as shown in the following procedure. Assume that the client starts at a
 1111 known DiagnosticTest instance.

- 1112 1) The client follows the ElementCapabilities association from the DiagnosticTest to the
 1113 DiagnosticServiceCapabilities for the service.
- 1114 1) The client checks the DiagnosticServiceCapabilities.SupportedExecutionControls()
 1115 property for the value of 3 ("Kill Job"). If the value exists, the Job supports kill.
- 1116 2) The client finds the appropriate Job instances. The GetSpecificDiagnosticExecutions use
 1117 case (see 9.7.3) describes the necessary steps.
- 1118 3) The client calls the RequestStateChange() method, passing in a RequestedState value of
 1119 5 ("Kill").
- 1120 4) When the transition completes successfully, the ConcreteJob that represents the test will
 1121 set the value of the JobState property to 9 ("Killed") and set the value of
 1122 TimeOfLastStateChange to the current time.

1123 9.7 Discover Diagnostic Executions

1124 In the following use cases, the term *execution* refers to an instance of the ConcreteJob class created to
 1125 control a diagnostic service that was started on a managed element. The job may be in any of the states
 1126 represented by the JobState property value, not necessarily active and running.

1127 The CIM_ prefix has been omitted from the class names in the use cases for readability.

1128 9.7.1 GetAffectedMEs

1129 The client can find all of the managed elements that are affected by a diagnostic execution as follows.
 1130 Assume that the client starts at a known DiagnosticTest instance.

- 1131 1) From the DiagnosticTest instance, the client calls the Associators operation using
 1132 OwingJobElement as the association class and ConcreteJob as the result class. The operation
 1133 returns the ConcreteJob instances launched by the DiagnosticTest.
- 1134 1) For each ConcreteJob instance, the client calls the Associators operation using
 1135 AffectedJobElement as the association class and ManagedElement as the result class.
 1136 The operation returns the ManagedElement instances that this DiagnosticTest affects.

1137 NOTE: This use case depends on the optional AffectedJobElement association. If that association does not exist, this
 1138 use case is invalid.

1139 9.7.2 GetAllDiagnosticExecutionsForME

1140 The client can find all of the diagnostic executions on a system for a managed element as follows.
 1141 Assume that the client starts at a known ManagedElement instance.

- 1142 1) From the ManagedElement instance, the client calls the Associators operation
 1143 using AffectedJobElement as the association class. The operation returns the ConcreteJob
 1144 instances launched against this ManagedElement.
- 1145 1) For each ConcreteJob instance, the client calls the AssociatorNames operation using
 1146 OwingJobElement as the association class and DiagnosticTest as the result class. The
 1147 operation returns the instance paths to the DiagnosticTest instances that launched the
 1148 ConcreteJob against this ManagedElement.
- 1149 2) Each ConcreteJob instance that is associated with a DiagnosticTest represents
 1150 an execution of a diagnostic service on that ManagedElement.

1151 NOTE: This use case depends on the optional AffectedJobElement association. If that association does not exist, this
1152 use case is invalid.

1153 **9.7.3 GetSpecificDiagnosticExecutions**

1154 The client can find all of the executions of a specific diagnostic as follows. Assume that the client starts at
1155 a known DiagnosticTest instance.

1156 1) From the DiagnosticTest instance, the client calls the Associators operation
1157 using OwningJobElement as the association class. The operation returns the ConcreteJob
1158 instances launched by the DiagnosticTest.

1159 1) Each ConcreteJob instance represents an execution of that diagnostic service.

1160 **9.7.4 GetSpecificDiagnosticExecutionsForME**

1161 The client can find all of the executions of a specific diagnostic for a particular managed element using
1162 either of the following methods:

1163 starting at the known ManagedElement instance

1164 starting at the known DiagnosticTest instance

1165 **9.7.4.1 Starting at the Managed Element**

1166 NOTE: This use case depends on the optional AffectedJobElement association. If that association does not exist, this
1167 use case is invalid.

1168 Assume that the client starts at the known ManagedElement instance and knows the particular
1169 DiagnosticTest instance.

1170 1) From the ManagedElement instance, the client calls the Associators operation
1171 using AffectedJobElement as the association class and ConcreteJob as the result class. The
1172 operation returns the ConcreteJob instances that are running against this ManagedElement.

1173 1) For each ConcreteJob instance, the client calls the AssociatorNames operation using
1174 OwningJobElement as the association class and DiagnosticTest as the result class. The
1175 operation returns the instance paths to the DiagnosticTest instances that launched the
1176 ConcreteJob instances against this ManagedElement.

1177 2) For each DiagnosticTest instance path returned, the client determines if it is the instance
1178 path of the known DiagnosticTest instance. If the instance path matches, the ConcreteJob
1179 instance represents an execution of that diagnostic service on that ManagedElement.

1180 **9.7.4.2 Starting at the DiagnosticTest**

1181 NOTE: This use case depends on the optional AffectedJobElement association. If that association does not exist, this
1182 use case is invalid.

1183 Assume that the client starts at the known DiagnosticTest instance and knows the particular
1184 ManagedElement instance.

1185 1) From the DiagnosticTest instance, the client calls the Associators operation using
1186 OwningJobElement as the association class and ConcreteJob as the result class. The operation
1187 returns the ConcreteJob instances launched by the DiagnosticTest.

1188 1) For each ConcreteJob instance, the client calls the AssociatorNames operation using
1189 AffectedJobElement as the association class and ManagedElement as the result class.
1190 The operation returns the instance paths to the ManagedElement instances against which
1191 this DiagnosticTest launched the ConcreteJob instances.

1192 2) For each ManagedElement instance path returned, the client determines if it is the instance
1193 path of the known ManagedElement instance. If the instance path matches, the

1194 ConcreteJob instance represents an execution of that diagnostic service on that
 1195 ManagedElement.

1196 **9.8 Discover Diagnostic Results (In Progress and Final)**

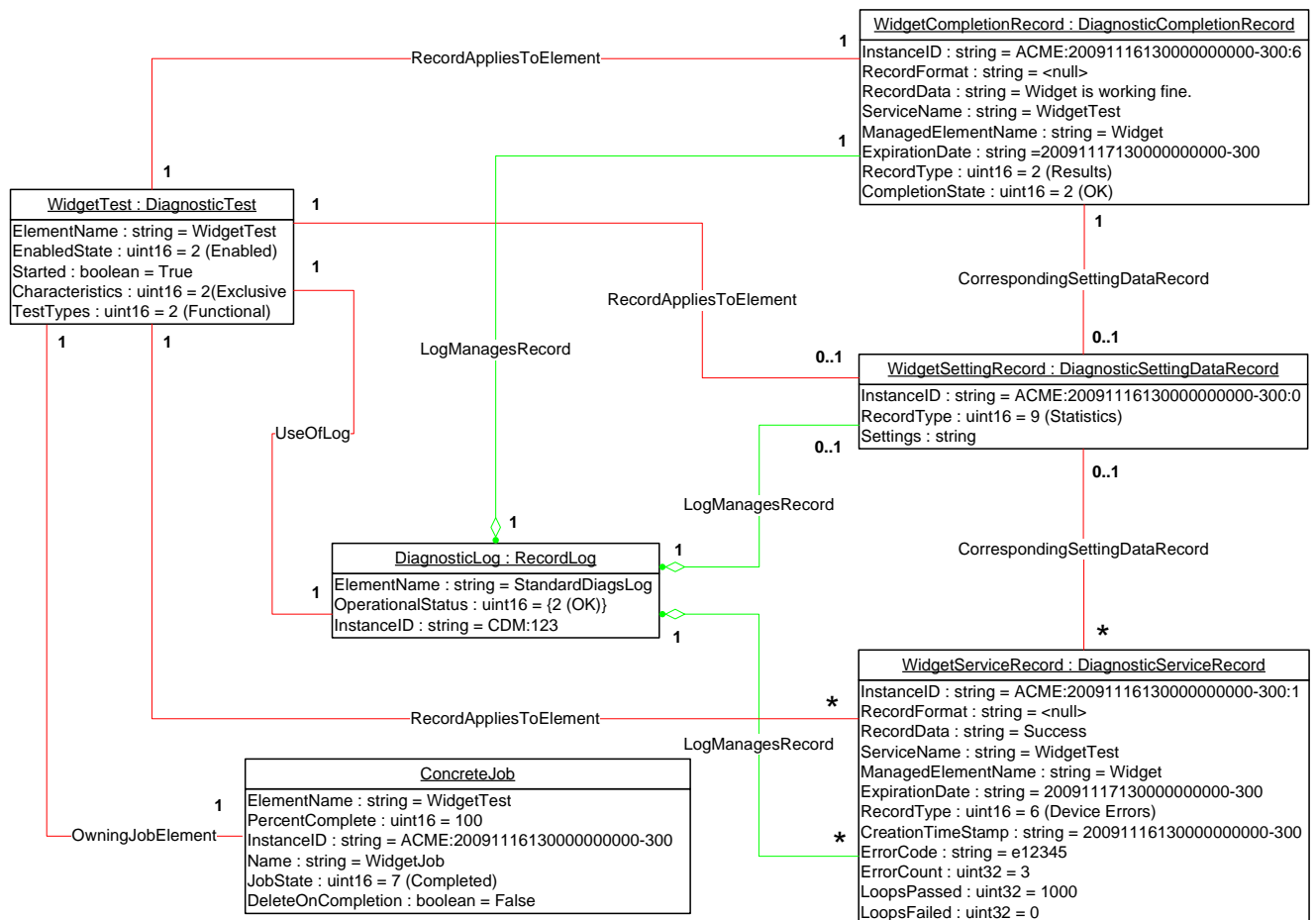
1197 In the following use cases, the term *execution* refers to an instance of the ConcreteJob class created to
 1198 control a diagnostic service that was started on a managed element. The job may be in any of the states
 1199 represented by the JobState property value, not necessarily active and running.

1200 Figure 5 is an object diagram that represents the results logging process for a diagnostic service on a
 1201 fictitious device called “Widget”. Only classes, properties, and methods that are of particular interest for
 1202 the diagnostic model are shown.

1203 Figure 5 shows the required logging implementation, using the DiagnosticLog class. DiagnosticLog is a
 1204 special subclass of RecordLog that supports a standard mechanism for organizing and retrieving (using
 1205 ExecQuery) the records that diagnostics services generate. Use of this common logging mechanism can
 1206 substantially increase interoperability and simplify client design.

1207 NOTE: A separate DiagnosticLog instance shall be created each time the RunDiagnosticService method of
 1208 DiagnosticTest is invoked.

1209 The CIM_ prefix has been omitted from the class names in the diagram and use cases for readability.



1210
 1211

1212

Figure 5 – Diagnostic Logging Object Diagram

1213 9.8.1 GetLogRecordsForDiagnostic

1214 The client can find all of the diagnostic log records for a particular diagnostic as follows. Assume that the
 1215 client starts at the known DiagnosticTest instance and that the DiagnosticRecord.ServiceName property
 1216 is implemented according to this profile.

1217 1) The client calls the ExecQuery operation as follows:

```
1218     SELECT * FROM CIM_DiagnosticRecord
1219     WHERE ServiceName = '<DiagnosticTest.Name>'
```

1220 1) The operation returns the DiagnosticRecord instances created for the specific
 1221 DiagnosticTest, independently if they are related to different managed elements or
 1222 executions.

1223 An alternate method without using ExecQuery is as follows:

1224 Assume that the client starts at the known DiagnosticTest instance.

1225 1) From the DiagnosticTest instance, the client calls the Associators operation using UseOfLog as
 1226 the association class and DiagnosticsLog as the result class. The operation returns the
 1227 DiagnosticLog instances that contain records for the DiagnosticTest.

1228 1) For each DiagnosticLog instance, the client calls the Associators operation using
 1229 LogManagesRecord as the association class and DiagnosticRecord as the result class.
 1230 The operation returns the DiagnosticRecord instances in the Log.

1231 2) For each returned instance, the client compares DiagnosticRecord.ServiceName with
 1232 DiagnosticTest.Name to determine whether the instance is one created for the specific
 1233 DiagnosticTest.

1234 9.8.2 GetLogRecordsForME

1235 The client can find all of the diagnostic log records for a particular managed element as follows. Assume
 1236 that the client starts at the known ManagedElement instance and that the
 1237 DiagnosticRecord.ManagedElementName property is implemented according to this profile.

1238 1) The client calls the ExecQuery operation as follows:

```
1239     SELECT * FROM CIM_DiagnosticRecord
1240     WHERE ManagedElementName = '<ManagedElement.ElementName>'
```

1241 2) The operation returns the DiagnosticRecord instances created for the specific
 1242 ManagedElement, independently if they are related to different diagnostics or executions.

1243 An alternate method without using ExecQuery is as follows:

1244 Assume that the client starts at the known ManagedElement instance.

1245 1) From the ManagedElement instance, the client calls the Associators operation using
 1246 ServiceAvailableToElement as the association class and DiagnosticTest as the result class. The
 1247 operation returns the DiagnosticTest instances for the ManagedElement.

1248 1) For each DiagnosticTest instance, the client calls the Associators operation using
 1249 UseOfLog as the association class and DiagnosticLog as the result class. The operation
 1250 returns the DiagnosticLog instances that contain records for the DiagnosticTest.

1251 2) For each DiagnosticLog instance, the client calls the Associators operation using
 1252 LogManagesRecord as the association class and DiagnosticRecord as the result class.
 1253 The operation returns the DiagnosticRecord instances in the Log.

1254 3) For each returned instance, the client compares DiagnosticRecord.ManagedElementName
 1255 with ManagedElement.ElementName to determine whether the instance is one created for
 1256 the specific ManagedElement.

1257 9.8.3 GetLogRecordsForMEAndDiagnostic

1258 The client can find all of the diagnostic log records for a particular diagnostic run on a particular managed
1259 element as follows.

1260 Assume that the client starts at the known DiagnosticTest and ManagedElement instances and that the
1261 DiagnosticRecord.ServiceName and DiagnosticRecord.ManagedElementName properties are
1262 implemented according to this profile.

1263 1) The client calls the ExecQuery operation as follows:

```
1264 SELECT * FROM CIM_DiagnosticRecord  
1265 WHERE ManagedElementName = '<ManagedElement.ElementName>' and ServiceName =  
1266 '<DiagnosticTest.Name>'
```

1267 2) The operation returns the DiagnosticRecord instances created for the specific ManagedElement
1268 and DiagnosticTest, independently if they were created in different executions.

1269 An alternate method without using ExecQuery is as follows:

1270 Assume that the client starts at the known DiagnosticTest instance.

1271 1) From the DiagnosticTest instance, the client calls the Associators operation using UseOfLog as
1272 the association class and DiagnosticLog as the result class. The operation returns the
1273 DiagnosticLog instances that contain records for the DiagnosticTest.

1274 1) For each DiagnosticLog instance, the client calls the Associators operation using
1275 LogManagesRecord as the association class and DiagnosticRecord as the result class.
1276 The operation returns the DiagnosticRecord instances in the Log.

1277 For each returned instance, the client compares DiagnosticRecord.ServiceName with
1278 DiagnosticTest.Name and DiagnosticRecord.ManagedElementName with
1279 ManagedElement.ElementName to determine whether the instance is one created for the specific
1280 DiagnosticTest and ManagedElement.

1281 9.8.4 GetDiagnosticExecutionFinalResults

1282 The client can determine the final result of a diagnostic as follows. Assume that the client starts at the
1283 known ConcreteJob instance and that the DiagnosticRecord.InstanceID property follows the format
1284 defined in this profile (CIM_DiagnosticRecord.InstanceID *should* be <ConcreteJob.InstanceID>:<n>).
1285 This use case is also applicable after the job completes and is removed if the client knows the original
1286 ConcreteJob.InstanceID.

1287 1) The client calls the ExecQuery operation as follows:

```
1288 SELECT * FROM CIM_DiagnosticCompletionRecord  
1289 WHERE InstanceID LIKE '<ConcreteJob.InstanceID>%'
```

1290 2) The operation returns the DiagnosticCompletionRecord instance created for the specific
1291 ConcreteJob.

1292 NOTE: Only one DiagnosticCompletionRecord shall be returned.

1293 1) The client reads the DiagnosticCompletionRecord.CompletionState property, which shows
1294 the final result (Passed, Warning, Failed, Aborted, Incomplete, and so on) of the diagnostic
1295 execution.

1296 An alternate method without using ExecQuery is as follows:

1297 Assume that the client starts at the known DiagnosticTest instance.

1298 1) From the DiagnosticTest instance, the client calls the Associators operation using UseOfLog as
 1299 the association class and DiagnosticLog as the result class. The operation returns the
 1300 DiagnosticLog instances that contain records for the DiagnosticTest.

1301 1) For each DiagnosticLog instance, the client calls the Associators operation using
 1302 LogManagesRecord as the association class and DiagnosticCompletionRecord as the
 1303 result class. The operation returns the DiagnosticCompletionRecord instances in the Log.

1304 For each returned instance, the client compares DiagnosticCompletionRecord.ServiceName with
 1305 DiagnosticTest.Name and DiagnosticRecord.ManagedElementName with
 1306 ManagedElement.ElementName to determine whether the instance is one created for the specific
 1307 DiagnosticTest and ManagedElement.

1308 9.8.5 GetDiagnosticExecutionResults

1309 The client can find all diagnostic log records for a particular execution (job) as follows.

1310 The diagnostic implementation will store the results of running the diagnostic in the manner selected
 1311 through the LogStorage setting. The most common mechanism is for the implementation to create
 1312 instances of DiagnosticRecord to record the results and status of running diagnostic services.
 1313 DiagnosticRecord has two subclasses: DiagnosticServiceRecord for recording test results, and
 1314 DiagnosticSettingDataRecord for preserving the test settings. The implementations for these classes will
 1315 implement ExecQuery to simplify the retrieval of records.

1316 The records are aggregated to a log by the LogManagesRecord association.

1317 Assume that the client starts at the known ConcreteJob instance and that the
 1318 DiagnosticRecord.InstanceID property follows the format defined in this profile
 1319 (CIM_DiagnosticRecord.InstanceID *should* be <ConcreteJob.InstanceID>:<n>). This use case is also
 1320 applicable after the job completes and is removed if the client knows the original ConcreteJob.InstanceID.

1321 1) The client calls the ExecQuery operation as follows:

```
1322 SELECT * FROM CIM_DiagnosticRecord
1323 WHERE InstanceID LIKE '<ConcreteJob.InstanceID>%'
```

1324 2) The operation returns the DiagnosticRecord instances created for the specific ConcreteJob
 1325 which may either be DiagnosticServiceRecord or DiagnosticSettingDataRecord instances.

1326 NOTE: Only one DiagnosticSettingDataRecord shall be returned, while one or more DiagnosticServiceRecord
 1327 instances may be returned.

1328 9.8.6 GetDiagnosticExecutionSettings

1329 The client can find the settings used to execute a diagnostic as follows.

1330 Assume that the client starts at the known ConcreteJob instance and that the
 1331 DiagnosticRecord.InstanceID property follows the format defined in this profile
 1332 (CIM_DiagnosticRecord.InstanceID *should* be <ConcreteJob.InstanceID>:<n>). This use case is also
 1333 applicable after the job completes and is removed if the client knows the original ConcreteJob.InstanceID.

1334 1) The client calls the ExecQuery operation as follows:

```
1335 SELECT * FROM CIM_DiagnosticSettingDataRecord
1336 WHERE InstanceID LIKE '<ConcreteJob.InstanceID>%'
```

1337 2) The operation returns the DiagnosticSettingDataRecord instance created for the specific
 1338 ConcreteJob.

1339 NOTE: Only one DiagnosticSettingDataRecord instance shall be returned.

1340 1) The client reads the DiagnosticSettingDataRecord.Settings property, which is a
1341 DiagnosticSettingData embedded instance that contains the settings of the diagnostic
1342 execution.

1343 An alternate method without using ExecQuery is as follows:

1344 Assume that the client starts at the known DiagnosticTest instance.

1345 1) From the DiagnosticTest instance, the client calls the Associators operation using UseOfLog as
1346 the association class and DiagnosticsLog as the result class. The operation returns the
1347 DiagnosticsLog instances that contain records for the DiagnosticTest.

1348 2) For each DiagnosticsLog instance, the client calls the Associators operation using
1349 LogManagesRecord as the association class and DiagnosticSettingDataRecord as the result
1350 class. The operation returns the DiagnosticSettingDataRecord instances in the Log.

1351 3) For each returned instance, the client compares portion of DiagnosticRecord.InstanceID that
1352 contains the ConcreteJob.InstanceID with ConcreteJob.InstanceID to determine whether the
1353 instance is one created for the specific execution of the DiagnosticTest.

1354 1) The client reads the DiagnosticSettingDataRecord.Settings property, which is a
1355 DiagnosticSettingData embedded instance that contains the settings of the diagnostic
1356 execution.

1357 Another alternate method without using ExecQuery is as follows:

1358 NOTE: This alternative use case depends on the implementation of DiagnosticSettingRecord and
1359 CorrespondingSettingsRecord.

1360 Assume that the client starts at the known DiagnosticTest instance.

1361 1) From the DiagnosticTest instance, the client calls the Associators operation using UseOfLog as
1362 the association class and DiagnosticLog as the result class. The operation returns the
1363 DiagnosticLog instances that contain records for the DiagnosticTest.

1364 2) For each DiagnosticLog instance, the client calls the Associators operation using
1365 LogManagesRecord as the association class and DiagnosticSettingDataRecord as the result
1366 class. The operation returns the DiagnosticSettingRecord instances in the Log.

1367 3) For each returned instance, the client compares portion of
1368 DiagnosticSettingDataRecord.InstanceID with ConcreteJob.InstanceID to determine whether
1369 the instance is the one created for the specific execution of the DiagnosticTest.

1370 4) From the DiagnosticSettingDataRecord instance, the client calls the Associators operation using
1371 CorrespondingSettingsRecord as the association class and DiagnosticServiceRecord as the
1372 result class. The operation returns the DiagnosticServiceRecord instances created for the
1373 specific execution of the DiagnosticTest

1374 **9.8.7 GetDiagnosticProgress**

1375 The client can get the progress of a running diagnostic as follows.

1376 The client may poll the ConcreteJob.PercentComplete property to determine test progress or register for
1377 an indication that this property has changed. The value of this property shall be kept current to be useful.
1378 Service implementations should update this property within one second of becoming aware of a progress
1379 change.

1380 1) The client may use any of the Discover Diagnostic Execution use cases (see 9.7) to find the
1381 desired ConcreteJob instances.

1382 1) The client reads the ConcreteJob.PercentComplete property to determine test progress.

1383 Assuming CIM_InstModification indications are supported, the client may register to receive indications
1384 when the particular ConcreteJob.PercentComplete property changes value.

- 1385 1) The client can use any of the Discover Diagnostic Execution use cases (see 9.7) to find the
 1386 desired ConcreteJob instances.
- 1387 1) The client can register to receive a CIM_InstModification indication by creating an
 1388 indication subscription using the following CIM_IndicationFilter.Query:
- 1389 SELECT * FROM CIM_InstModification
 1390 WHERE "SourceInstance.ISA("CIM_ConcreteJob") and SourceInstance.InstanceID =
 1391 <ConcreteJob.InstanceID> and PreviousInstance.PercentComplete <>
 1392 SourceInstance.PercentComplete
- 1393 2) The indication received will notify the client that the PercentComplete property for the
 1394 specific ConcreteJob has changed. The client can use the SourceInstance property in the
 1395 indication to see the actual PercentComplete value to determine test progress.
- 1396

1397 **10 CIM Elements**

1398 Table 34 shows the instances of CIM Elements for this profile. Instances of the CIM Elements shall be
 1399 implemented as described in Table 34. Clauses 7 ("Implementation") and 8 ("Methods") may impose
 1400 additional requirements on these elements.

1401 **Table 34 – CIM Elements: Diagnostics Profile**

Element Name	Requirement	Description
Classes		
CIM_AffectedJobElement	Optional	Association to link a job to a managed element See 10.1.
CIM_AvailableDiagnosticService	Mandatory	Association to link diagnostic services that can be launched against managed elements See 10.2.
CIM_ConcreteJob	Mandatory	Used by the client to monitor and control the execution of a diagnostic service See 10.3.
CIM_CorrespondingSettingDataRecord (DiagnosticServiceRecord)	Optional	Association to link a settings record to its corresponding service records. If CIM_DiagnosticSettingDataRecord is implemented, this class is Mandatory. See 10.4.
CIM_CorrespondingSettingDataRecord (DiagnosticCompletionRecord)	Optional	Association to link a settings record to its corresponding completion records. If CIM_DiagnosticSettingDataRecord is implemented, this class is Mandatory. See 10.5.
CIM_DiagnosticCompletionRecord	Mandatory	Records that contain serviced completion information See 7.7 and 10.6.
CIM_DiagnosticLog	Mandatory	Although several legitimate mechanisms for logging results exist (see CIM_DiagnosticSettingData.LogStorage), aggregation of diagnostic records to a diagnostic log is Mandatory. See 7.6 and 10.7.

Element Name	Requirement	Description
CIM_DiagnosticServiceCapabilities	Optional	See 7.3 and 10.8.
CIM_DiagnosticServiceRecord	Mandatory	See 7.7 and 10.9.
CIM_DiagnosticSettingData (Default)	Optional	See 7.4 and 10.10.
CIM_DiagnosticSettingData (Client)	Optional	See 7.4 and 10.11.
CIM_DiagnosticSettingDataRecord	Optional	See 7.7 and 10.12.
CIM_DiagnosticTest	Mandatory	See 7.1 and 10.13.
CIM_ElementCapabilities	Optional	See 10.14.
CIM_ElementSettingData (JobSettingData)	Optional	See 10.15.
CIM_ElementSettingData (DiagnosticSettingData)	Optional	See 10.16.
CIM_ElementSoftwareIdentity	Mandatory	See 10.17.
CIM_HelpService	Optional	See 10.18.
CIM_HostedService	Mandatory	See 10.19 and 9.1.
CIM_JobSettingData (Default)	Optional	See 10.20.
CIM_JobSettingData (Client)	Optional	See 10.21.
CIM_LogManagesRecord	Mandatory	See 10.22.
CIM_OwningJobElement	Mandatory	See 10.23.
CIM_RecordAppliesToElement	Optional	See 10.24.
CIM_RegisteredProfile	Mandatory	See 10.25.
CIM_ServiceAffectsElement	Mandatory	See 10.26.
CIM_ServiceAvailableToElement	Mandatory	See 10.27.
CIM_ServiceComponent	Optional	See 10.28.
CIM_SoftwareIdentity	Mandatory	See 10.29.
CIM_UseOfLog	Mandatory	See 10.30.
Indications		
None defined in this profile		

1402 10.1 CIM_AffectedJobElement

1403 CIM_AffectedJobElement is used to associate a job with its affected managed elements (devices). Table
1404 35 provides information about the properties of CIM_AffectedJobElement.

1405 **Table 35 – Class: CIM_AffectedJobElement**

Properties	Requirement	Notes
AffectedElement	Mandatory	Key This property shall be a reference to an instance of CIM_ManagedElement.
AffectingElement	Mandatory	Key This property shall be a reference to an instance of CIM_ConcreteJob.

1406 **10.2 CIM_AvailableDiagnosticService**

1407 CIM_AvailableDiagnosticService is used to discover the diagnostic services that are installed for a
 1408 particular managed element. Table 36 provides information about the properties of
 1409 CIM_AvailableDiagnosticService.

1410 **Table 36 – Class: CIM_AvailableDiagnosticService**

Properties	Requirement	Notes
ServiceProvided	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticService.
UserOfService	Mandatory	Key This property shall be a reference to an instance of CIM_ManagedElement.
EstimatedDurationOfService	Mandatory	See 7.2.1.
EstimatedDurationQualifier	Optional	See 7.2.2.

1411 **10.3 CIM_ConcreteJob**

1412 Each successful RunDiagnosticService() call will return a CIM_ConcreteJob instance. Each
 1413 CIM_ConcreteJob instance represents a diagnostic execution. Table 37 provides information about the
 1414 properties of CIM_ConcreteJob.

1415 **Table 37 – Class: CIM_ConcreteJob**

Properties	Requirement	Notes
InstanceID	Mandatory	Key InstanceID should be constructed using the following preferred algorithm: <OrgID>:<LocalID> (See the MOF file for more detail.) (pattern "^.*[:].*\$")
Name	Mandatory	The property will be formatted as a free-form string of variable length. (pattern ".**")
JobState	Mandatory	None
TimeBeforeRemoval	Mandatory	See 7.5.1.
StartTime	Mandatory	None
ElapsedTime	Mandatory	This property should be updated periodically so as to be useful as a "heartbeat."
PercentComplete	Mandatory	See 7.5.2.
DeleteOnCompletion	Optional	The default value for this property is TRUE.
ErrorDescription	Conditional	If ErrorCode is implemented, ErrorDescription should be filled in to explain the error.

Properties	Requirement	Notes
RequestedState	Mandatory	None
RequestStateChange()	Mandatory	See 8.2.

1416 10.4 CIM_CorrespondingSettingDataRecord (DiagnosticServiceRecord)

1417 CIM_CorrespondingSettingDataRecord is used to associate a service record with the corresponding
 1418 setting data record. Table 38 provides information about the properties of
 1419 CIM_CorrespondingSettingDataRecord.

1420 **Table 38 – Class: CIM_CorrespondingSettingDataRecord**

Properties	Requirement	Notes
DataRecord	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticServiceRecord
SettingsRecord	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticSettingDataRecord. Cardinality 1

1421 10.5 CIM_CorrespondingSettingDataRecord (DiagnosticCompletionRecord)

1422 CIM_CorrespondingSettingDataRecord is used to associate a completion record with the corresponding
 1423 setting data record. Table 39 provides information about the properties of
 1424 CIM_CorrespondingSettingDataRecord.

1425 **Table 39 – Class: CIM_CorrespondingSettingDataRecord**

Properties	Requirement	Notes
DataRecord	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticCompletionRecord
SettingsRecord	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticSettingDataRecord. Cardinality 1

1426 **10.6 CIM_DiagnosticCompletionRecord**

1427 CIM_DiagnosticCompletionRecord is used to report the final state of diagnostic execution (OK, Failed,
 1428 Incomplete, Aborted, and so on). Table 40 provides information about the properties of
 1429 CIM_DiagnosticCompletionRecord.

1430 **Table 40 – Class: CIM_DiagnosticCompletionRecord**

Properties	Requirement	Notes
InstanceID	Mandatory	<p>Key</p> <p>InstanceID should be constructed using the following preferred algorithm:</p> <p><ConcreteJob.InstanceID>:<n></p> <p>< ConcreteJob.InstanceID> is <OrgID>:<LocalID> as described in CIM_ConcreteJob, and <n> is an increment value that provides uniqueness. <n> should be set to \"0\" for the first record created by the job, and incremented for each subsequent record.</p> <p>(pattern "^.*[:].*[:][0123456789]*\$")</p>
CreationTimeStamp	Mandatory	None
RecordData	Mandatory	None
RecordFormat	Mandatory	None
ServiceName	Mandatory	<p>The ServiceName property shall be constructed as follows: <OrgID>:<TestName>.</p> <p>(pattern "^.*[:].*\$")</p>
ManagedElementName	Mandatory	<p>This property will be formatted as a free-form string of variable length.</p> <p>(pattern ".*")</p>
RecordType	Mandatory	<p>The record type shall be "2 (Results).</p> <p>Matches 2 (Results)</p>
ExpirationDate	Mandatory	See 7.7.1.
CompletionState	Mandatory	None
OtherCompletionStateDescription	Conditional	If CompletionState has the value 1 (Other), this property is Mandatory.
LoopsPassed	Optional	If looping is supported, this property is Mandatory.
LoopsFailed	Optional	If looping is supported, this property is Mandatory.
ErrorCode	Mandatory	<p>This property shall be an array that contains the error codes of all errors generated by the diagnostic service execution.</p> <p>If there are no errors this property may have the value NULL.</p>

Properties	Requirement	Notes
ErrorCount	Mandatory	This property shall be an array where each position should contain the number of times that an error (which can be identified by the same position of the ErrorCode array) happened. If there are no errors this property may have the value NULL.

1431 10.7 CIM_DiagnosticLog

1432 CIM_DiagnosticLog represents a log that aggregates all of the results (records) that the execution of a
1433 diagnostic generates. Table 41 provides information about the properties of CIM_DiagnosticLog.

1434 **Table 41 – Class: CIM_DiagnosticLog**

Properties	Requirement	Notes
InstanceID	Mandatory	Key InstanceID should be constructed using the following preferred algorithm: <OrgID>:<LocalID> (See the MOF file for more detail.) (pattern "^.*[:].*\$")
ClearLog()	Mandatory	See 8.3.

1435 10.8 CIM_DiagnosticServiceCapabilities

1436 CIM_DiagnosticServiceCapabilities publishes the diagnostic service's capabilities, such as settings and
1437 execution controls that are supported. Table 42 provides information about the properties of
1438 CIM_DiagnosticServiceCapabilities.

1439 **Table 42 – Class: CIM_DiagnosticServiceCapabilities**

Properties	Requirement	Notes
InstanceID	Mandatory	Key InstanceID shall be unique and should be constructed using the following preferred algorithm: <OrgID>:<LocalID> (See the MOF file for more detail.) <LocalID> should be set to the Name property value of the Service to which these capabilities apply. (pattern "^.*[:].*\$")
ElementName	Mandatory	This property shall contain the value of the Service's ElementName property. The property will be formatted as a free-form string of variable length. (pattern ".*")

Properties	Requirement	Notes
SupportedServiceModes	Optional	If service modes are supported, they shall be published using this property.
OtherSupportedServiceModesDescriptions	Conditional	If SupportedServiceModes includes the value of 1 (Other) this property is Mandatory.
SupportedLoopControl	Optional	If looping is supported, its controls shall be published using this property.
OtherSupportedLoopControlDescriptions	Conditional	If SupportedLoopControl includes the value 1 (Other), this property is Mandatory.
SupportedLogOptions	Optional	If any log options are supported, they shall be published using this property.
OtherSupportedLogOptionsDescriptions	Conditional	If SupportedLogOptions includes the value 1 (Other), this property is Mandatory.
SupportedLogStorage	Optional	If any log storage options are supported, they shall be published using this property.
OtherSupportedLogStorageDescriptions	Conditional	If SupportedLogStorage includes the value 1 (Other), this property is Mandatory.
SupportedExecutionControls	Optional	If any execution controls are supported, they shall be published using this property.
OtherSupportedExecutionControls Descriptions	Conditional	If SupportedExecutionControls includes the value 1 (Other), this property is Mandatory.

1440 **10.9 CIM_DiagnosticServiceRecord**

1441 CIM_DiagnosticServiceRecord is used to report diagnostic service messages such as results, errors,
 1442 warnings, and status. Table 43 provides information about the properties of
 1443 CIM_DiagnosticServiceRecord.

1444 **Table 43 – Class: CIM_DiagnosticServiceRecord**

Properties	Requirement	Notes
InstanceID	Mandatory	Key InstanceID should be constructed using the following preferred algorithm: <ConcreteJob.InstanceID>:<n> Where < ConcreteJob.InstanceID> is <OrgID>:<LocalID> as described in ConcreteJob and <n> is an increment value that provides uniqueness. <n> should be set to \"0\" for the first record created by the job, and incremented for each subsequent record. (pattern "^.*[:].*[:][0123456789]*\$")
CreationTimeStamp	Mandatory	None
RecordData	Mandatory	None
RecordFormat	Mandatory	None
LoopsPassed	Mandatory	None
LoopsFailed	Mandatory	None

Properties	Requirement	Notes
ErrorCode	Conditional	<p>If the RecordType value is 7(Device Errors) or 8 (Service Errors), this property shall be an array that contains only one error code number.</p> <p>If the RecordType value is 2 (Results), this property shall be an array that contains the error codes of all errors generated by the diagnostic service or subtest execution at the time when the record was logged.</p> <p>If the RecordType value is not 2 (Results) or 7(Device Errors) or 8 (Service Errors), this this property may be NULL.</p> <p>The property will be formatted as a free-form string of variable length. (pattern ".*")</p>
ErrorCount	Conditional	<p>If the RecordType value is 7(Device Errors) or 8 (Service Errors), this property shall be an array that has just one element whose value is 1.</p> <p>If the RecordType value is 2 (Results), this property should be an array where each position should contain the number of times that an error occurred which can be identified by the same position in the ErrorCode array.</p> <p>If the RecordType value is not 2 (Results) or 7(Device Errors) or 8 (Service Errors), this this property may be NULL.</p>
ServiceName	Mandatory	<p>This property shall be constructed as follows: <OrgID>:<TestName>. (pattern "^[:]*.*\$")</p>
ManagedElementName	Mandatory	<p>This property shall be formatted as a free-form string of variable length. (pattern ".*")</p>
RecordType	Mandatory	<p>A RecordType value of 2 (Results) shall be used to log interim results from the diagnostic service or subtest execution.</p> <p>In contrast, final results shall use the DiagnosticCompletionRecord class.</p>
OtherRecordTypeDescription	Conditional	<p>If RecordType has the value 1 (Other), this property is Mandatory.</p>
ExpirationDate	Mandatory	See 7.7.1.

1445 **10.10 CIM_DiagnosticSettingData (Default)**

1446 Diagnostic services use CIM_DiagnosticSettingData to publish default settings using
 1447 CIM_ElementSettingData where the IsDefault property has the value of TRUE. Table 44 provides
 1448 information about the properties of CIM_DiagnosticSettingData.

1449 **Table 44 – Class: CIM_DiagnosticSettingData**

Properties	Requirement	Notes
InstanceID	Mandatory	<p>Key</p> <p>InstanceID should be constructed using the following preferred algorithm:</p> <p><OrgID>:<LocalID></p> <p>(See the MOF file for more detail.)</p> <p><LocalID> should be set to a time stamp (CIM DateTime).</p> <p>For example:</p> <p>ACME:19980525133015.0000000-300</p> <p>(pattern "^.*[:].*\$")</p>
ElementName	Mandatory	This property shall be formatted as a free-form string of variable length. (pattern ".*")
HaltOnError	Optional	<p>If the DiagnosticServiceCapabilities.SupportedServiceModes includes a value of 4 (HaltOnError), this property can be used to affect test behavior.</p> <p>When this property is TRUE, the service should halt after finding the first error.</p>
QuickMode	Optional	<p>If the DiagnosticServiceCapabilities.SupportedServiceModes includes a value of 3 (QuickMode), this property can be used to affect test behavior.</p> <p>When this property is TRUE, the service should attempt to run in an accelerated fashion either by reducing the coverage or number of tests performed.</p>
PercentOfTestCoverage	Optional	<p>If the DiagnosticServiceCapabilities.SupportedServiceModes includes a value of 2 (PercentOfTestCoverage), this property can be used to affect test behavior.</p> <p>This property requests the service to reduce test coverage to the specified percentage.</p>
LoopControl	Optional	This property is used in combination with LoopControlParameter to set one or more loop control mechanisms that limit the number of times that a test should be repeated.

Properties	Requirement	Notes
LoopControlParameter	Conditional	<p>If a LoopControl includes the value of 3 (Count) or 5 (ErrorCount), the corresponding LoopControlParameter array element shall represent a uint32 numeric value.</p> <p>If a LoopControl includes the value of 4 (Timer), the corresponding LoopControlParameter array element shall represent a datetime value.</p> <p>(pattern "^[01]* ^d[0123456789]* ^x[0123456789ABCDEFabcdef]* ^[0123456789]*")</p>
OtherLoopControlDescriptions	Conditional	If LoopControl includes the value 1 (Other), this property is Mandatory.
ResultPersistence	Mandatory	<p>If the DiagnosticServiceCapabilities.SupportedServiceModes includes a value of 5 (ResultPersistence), this property can be used to affect test behavior.</p> <p>This property specifies how many seconds the records should persist after service execution finishes. 0 (zero) indicates "no persistence" and 0xFFFFFFFF indicates "persist forever".</p> <p>See 7.7.1.</p>
LogOptions	Optional	This property specifies the types of data that should be logged by the diagnostic service.
OtherLogOptionsDescriptions	Conditional	If LogOptions includes the value 1 (Other), this property is Mandatory.
LogStorage	Optional	<p>This property specifies the logging mechanism to store the diagnostic results.</p> <p>This property must be one of the values in DiagnosticServiceCapabilities.LogStorage</p>
OtherLogStorageDescriptions	Conditional	If LogStorage includes the value 1 (Other), this property is Mandatory.
VerbosityLevel	Optional	This property specifies the desired volume or detail logged by a diagnostic service.

1450 **10.11 CIM_DiagnosticSettingData (Client)**

1451 A client uses CIM_DiagnosticSettingData to override the defaults settings and run a diagnostic service
 1452 using specific settings. Such settings are passed as the DiagSetting argument when the
 1453 RunDiagnosticService() extrinsic method of CIM_DiagnosticTest is invoked. Table 45 provides
 1454 information about the properties of CIM_DiagnosticSettingData.

1455 **Table 45 – Class: CIM_DiagnosticSettingData**

Properties	Requirement	Notes
InstanceID	Mandatory	<p>Key</p> <p>InstanceID should be constructed using the following preferred algorithm:</p> <p><OrgID>:<LocalID></p> <p>(See the MOF file for more detail.)</p> <p><LocalID> should be set to a time stamp (CIM DateTime).</p> <p>For example:</p> <p>ACME:19980525133015.0000000-300</p> <p>(pattern "^.*[:].*\$")</p>
ElementName	Mandatory	This property shall be formatted as a free-form string of variable length. (pattern ".*")
HaltOnError	Optional	<p>If the DiagnosticServiceCapabilities.SupportedServiceModes includes a value of 4 (HaltOnError), this property can be used to affect test behavior.</p> <p>When this property is TRUE, the service should halt after finding the first error.</p>
QuickMode	Optional	<p>If the DiagnosticServiceCapabilities.SupportedServiceModes includes a value of 3 (QuickMode), this property can be used to affect test behavior.</p> <p>When this property is TRUE, the service should attempt to run in an accelerated fashion either by reducing the coverage or number of tests performed.</p>
PercentOfTestCoverage	Optional	<p>If the DiagnosticServiceCapabilities.SupportedServiceModes includes a value of 2 (PercentOfTestCoverage), this property can be used to affect test behavior.</p> <p>This property requests the service to reduce test coverage to the specified percentage.</p>
LoopControl	Optional	This property is used in combination with LoopControlParameter to set one or more loop control mechanisms that limit the number of times that a test should be repeated.

Properties	Requirement	Notes
LoopControlParameter	Conditional	<p>If a LoopControl includes the value of 3 (Count) or 5 (ErrorCount), the corresponding LoopControlParameter array element shall represent a uint32 numeric value.</p> <p>If a LoopControl includes the value of 4 (Timer), the corresponding LoopControlParameter array element shall represent a datetime value.</p> <p>(pattern "<code>^b[01]* ^d[0123456789]* ^x[0123456789ABCDEFabcdef]* ^[0123456789]*</code>")</p>
OtherLoopControlDescriptions	Conditional	If LoopControl includes the value 1 (Other), this property is Mandatory.
ResultPersistence	Mandatory	<p>If the DiagnosticServiceCapabilities.SupportedServiceModes array contains a value of 5 (ResultPersistence), this property can be used to affect test behavior.</p> <p>This property specifies how many seconds the records should persist after service execution finishes. 0 (zero) indicates "no persistence" and 0xFFFFFFFF indicates "persist forever". See 7.7.1.</p>
LogOptions	Optional	This property specifies the types of data that should be logged by the diagnostic service.
OtherLogOptionsDescriptions	Conditional	If LogOptions includes the value 1 (Other), this property is Mandatory.
LogStorage	Optional	<p>This property specifies the logging mechanism to store the diagnostic results.</p> <p>This property must be one of the values in DiagnosticServiceCapabilities.LogStorage</p>
OtherLogStorageDescriptions	Conditional	If LogStorage includes the value 1 (Other), this property is Mandatory.
VerbosityLevel	Optional	This property specifies the desired volume or detail logged by a diagnostic service.

1456 **10.12 CIM_DiagnosticSettingDataRecord**

1457 CIM_DiagnosticSettingDataRecord stores the settings used in a specific diagnostic service execution.

1458 Table 46 provides information about the properties of CIM_DiagnosticSettingDataRecord.

1459 **Table 46 – Class: CIM_DiagnosticSettingDataRecord**

Properties	Requirement	Notes
InstanceID	Mandatory	<p>Key</p> <p>InstanceID should be constructed using the following preferred algorithm:</p> <p><ConcreteJob.InstanceID>:<n></p> <p>< ConcreteJob.InstanceID> is <OrgID>:<LocalID> as described in CIM_ConcreteJob, and <n> is an increment value that provides uniqueness. <n> should be set to \"0\" for the first record created by the job, and incremented for each subsequent record.</p> <p>(pattern "^.*[:].*:[0123456789]*\$")</p>
CreationTimeStamp	Mandatory	None
ServiceName	Mandatory	<p>This property shall be constructed as follows:</p> <p><OrgID>:<TestName>.</p> <p>(pattern "^.*[:].*\$")</p>
ManagedElementName	Mandatory	<p>This property will be formatted as a free-form string of variable length.</p> <p>(pattern ".*")</p>
ExpirationDate	Mandatory	See 7.7.1.
Settings	Conditional	<p>This property is set to a string that encodes a DiagnosticSettingData instance.</p> <p>If an instance of CIM_DiagnosticSettingData is associated through CIM_ElementSettingData to the instance of CIM_DiagnosticTest at the time the Diagnostic Service is run, this property is Mandatory.</p>

1460 **10.13 CIM_DiagnosticTest**

1461 CIM_DiagnosticTest is a class that represents a diagnostic service developed to exercise and observe
 1462 the behavior of a device that is implicated in some level of system malfunction. It contains properties
 1463 useful in test configuration and the RunDiagnosticService() method, a standard mechanism for invoking
 1464 the test.

1465 Table 47 provides information about the properties of CIM_DiagnosticTest.

1466 **Table 47 – Class: CIM_DiagnosticTest**

Properties	Requirement	Notes
SystemCreationClassName	Mandatory	Key
SystemName	Mandatory	Key

Properties	Requirement	Notes
CreationClassName	Mandatory	Key
Name	Mandatory	Key The Name property shall be constructed as follows: <OrgID>.<TestName>. (pattern "^.*[:].*\$")
ElementName	Mandatory	The property will be formatted as a free-form string of variable length. (pattern ".*")
Characteristics	Mandatory	See 7.1.3.
OtherCharacteristicsDescriptions	Conditional	If Characteristics includes the value of 1 (Other) this property is Mandatory.
RunDiagnosticService()	Mandatory	See 8.1.

1467 10.14 CIM_ElementCapabilities

1468 CIM_ElementCapabilities associates a diagnostic service with its capabilities. Table 48 provides
1469 information about the properties of CIM_ElementCapabilities.

1470

Table 48 – Class: CIM_ElementCapabilities

Properties	Requirement	Notes
ManagedElement	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticService.
Capabilities	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticServiceCapabilities. Cardinality 0..1

1471 10.15 CIM_ElementSettingData (JobSettingData)

1472 CIM_ElementSettingData associates the job settings with the job used to run a diagnostic test. Table 49
1473 provides information about the properties of CIM_ElementSettingData.

1474

Table 49 – Class: CIM_ElementSettingData

Properties	Requirement	Notes
ManagedElement	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticService. Cardinality 1
SettingData	Mandatory	Key This property shall be a reference to an instance of CIM_JobSettingData. Cardinality 0..1
IsDefault	Mandatory	If the instance of CIM_JobSettingData is the default setting, this property shall have the value of TRUE. Otherwise, this property shall have the value of FALSE.

1475 **10.16 CIM_ElementSettingData (DiagnosticSettingData)**

1476 CIM_ElementSettingData associates the diagnostic service with its default. Table 50 provides information
1477 about the properties of CIM_ElementSettingData.

1478

Table 50 – Class: CIM_ElementSettingData

Properties	Requirement	Notes
ManagedElement	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticService. Cardinality 1
SettingData	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticSettingData. Cardinality 0..1
IsDefault	Mandatory	If the instance of CIM_DiagnosticSettingData is the default setting, this property shall have the value of TRUE. Otherwise, this property shall have the value of FALSE.

1479 **10.17 CIM_ElementSoftwareIdentity**

1480 CIM_ElementSoftwareIdentity associates the diagnostic service with its version information. Table 51
1481 provides information about the properties of CIM_ElementSoftwareIdentity.

1482

Table 51 – Class: CIM_ElementSoftwareIdentity

Properties	Requirement	Notes
Antecedent	Mandatory	Key This property shall be a reference to an instance of CIM_SoftwareIdentity. Cardinality 1.

Properties	Requirement	Notes
Dependent	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticService. Cardinality 1.

1483 **10.18 CIM_HelpService**

1484 CIM_HelpService is the preferred way for a service to publish online help information. Table 52 provides
1485 information about the properties of CIM_HelpService.

1486

Table 52 – Class: CIM_HelpService

Properties	Requirement	Notes
SystemCreationClassName	Mandatory	Key
SystemName	Mandatory	Key
CreationClassName	Mandatory	Key
Name	Mandatory	Key This property will be formatted as a free-form string of variable length. (pattern ".*")
ElementName	Mandatory	This property will be formatted as a free-form string of variable length. (pattern ".*")
DeliveryOptions	Mandatory	None
OtherDeliveryOptionDescription	Conditional	If DeliveryOptions has the value of 1 (Other), this property is Mandatory.
DocumentsAvailable	Mandatory	This property will be formatted as a free-form string of variable length. (pattern ".*")
DocumentDescriptions	Mandatory	None
DocumentFormat	Mandatory	None
OtherDocumentFormatDescription	Conditional	If DocumentFormat has the value of 1 (Other), this property is Mandatory.
GetHelp()	Mandatory	See 8.4.

1487 **10.19 CIM_HostedService**

1488 CIM_HostedService is used to associate an instance of CIM_DiagnosticTest with an instance of
 1489 CIM_ComputerSystem to which the CIM_DiagnosticTest is scoped and to associate an instance of
 1490 CIM_HelpService with an instance of CIM_ComputerSystem to which the CIM_HelpService is scoped.
 1491 Table 53 provides information about the properties of CIM_HostedService.

1492 **Table 53 – Class: CIM_HostedService**

Properties	Requirement	Notes
Antecedent	Mandatory	Key This property shall be a reference to an instance of CIM_ComputerSystem. Cardinality 1
Dependent	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticTest. Cardinality 1..*

1493 **10.20 CIM_JobSettingData (Default)**

1494 Diagnostic services use CIM_JobSettingData to publish default settings using CIM_ElementSettingData
 1495 where the IsDefault property has the value of TRUE. Table 54 provides information about the properties
 1496 of CIM_JobSettingData.

1497 **Table 54 – Class: CIM_JobSettingData**

Properties	Requirement	Notes
InstanceID	Mandatory	Key
ElementName	Mandatory	This property shall be formatted as a free-form string of variable length. (pattern ".**")
DeleteOnCompletion	Conditional	This property indicates whether the job should be automatically deleted upon completion. The CIM_ConcreteJob.TimeBeforeRemoval property overrides this property. If CIM_JobSettingData is supported, this property is Mandatory.

1498 **10.21 CIM_JobSettingData (Client)**

1499 A client uses CIM_JobSettingData to override the defaults settings and run a diagnostic service using
 1500 specific job settings. Such settings are passed as the JobSetting argument when the
 1501 RunDiagnosticService() extrinsic method of CIM_DiagnosticTest is invoked. Table 55 provides
 1502 information about the properties of CIM_JobSettingData.

1503 **Table 55 – Class: CIM_JobSettingData**

Properties	Requirement	Notes
InstanceID	Mandatory	Key

Properties	Requirement	Notes
ElementName	Mandatory	This property shall be formatted as a free-form string of variable length. (pattern ".**")
DeleteOnCompletion	Conditional	This property indicates whether the job should be automatically deleted upon completion. The CIM_ConcreteJob.TimeBeforeRemoval property overrides this property. If CIM_JobSettingData is supported, this property is Mandatory.

1504 10.22 CIM_LogManagesRecord

1505 CIM_LogManagesRecord associates a log with its records (service records, setting records, or
1506 completion records). Table 56 provides information about the properties of CIM_LogManagesRecord.

1507 **Table 56 – Class: CIM_LogManagesRecord**

Properties	Requirement	Notes
Log	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticLog.
Record	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticRecord.

1508 10.23 CIM_OwningJobElement

1509 CIM_OwningJobElement associate a diagnostic service with its jobs (jobs that are launched by this
1510 diagnostic). Table 57 provides information about the properties of CIM_OwningJobElement.

1511 **Table 57 – Class: CIM_OwningJobElement**

Properties	Requirement	Notes
OwningElement	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticService. Cardinality 1
OwnedElement	Mandatory	Key This property shall be a reference to an instance of CIM_ConcreteJob.

1512 **10.24 CIM_RecordAppliesToElement**

1513 CIM_RecordAppliesToElement associates a record with the managed elements (diagnostic service and
 1514 device) that have a relationship with this record. Table 58 provides information about the properties of
 1515 CIM_RecordAppliesToElement.

1516 **Table 58 – Class: CIM_RecordAppliesToElement**

Properties	Requirement	Notes
Antecedent	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticRecord.
Dependent	Mandatory	Key This property shall be a reference to an instance of CIM_ManagedElement.

1517 **10.25 CIM_RegisteredProfile**

1518 CIM_RegisteredProfile identifies the *Diagnostics Profile* in order for a client to determine whether an
 1519 instance of CIM_DiagnosticService is conformant with this profile. The CIM_RegisteredProfile class is
 1520 defined by the [Profile Registration Profile](#). With the exception of the mandatory values specified in Table
 1521 59, the behavior of the CIM_RegisteredProfile instance is in accordance with the [Profile Registration](#)
 1522 [Profile](#).

1523 **Table 59 – Class: CIM_RegisteredProfile**

Properties	Requirement	Notes
RegisteredName	Mandatory	This property shall have a value of "Diagnostics".
RegisteredVersion	Mandatory	This property shall have a value of "2.0.0".
RegisteredOrganization	Mandatory	This property shall have a value of 2 (DMTF).

1524 **10.26 CIM_ServiceAffectsElement**

1525 CIM_ServiceAffectsElement is used to associate to the diagnostic service any managed elements that
 1526 are affected by the running of the service. Table 60 provides information about the properties of
 1527 CIM_ServiceAffectsElement.

1528 **Table 60 – Class: CIM_ServiceAffectsElement**

Properties	Requirement	Notes
AffectedElement	Mandatory	Key This property shall be a reference to an instance of CIM_ManagedElement.
AffectingElement	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticService.

1529 **10.27 CIM_ServiceAvailableToElement**

1530 CIM_ServiceAvailableToElement associates the diagnostic service with its help service information. Table
 1531 61 provides information about the properties of CIM_ServiceAvailableToElement.

1532 **Table 61 – Class: CIM_ServiceAvailableToElement**

Properties	Requirement	Notes
ServiceProvided	Mandatory	Key This property shall be a reference to an instance of CIM_HelpService. Cardinality 1
UserOfService	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticService. Cardinality 1

1533 **10.28 CIM_ServiceComponent**

1534 CIM_ServiceComponent associates a test that is also part of another test. This class is used when
 1535 DiagnosticTest.Characteristics includes the value 6 (Is Package) and subtests are implemented as
 1536 separate instances of DiagnosticTest. Table 62 provides information about the properties of
 1537 CIM_ServiceComponent.

1538 **Table 62 – Class: CIM_ServiceComponent**

Properties	Requirement	Notes
GroupComponent	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticService.
PartComponent	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticService.

1539 **10.29 CIM_SoftwareIdentity**

1540 CIM_SoftwareIdentity is used to publish version information about the diagnostic service. Table 63
 1541 provides information about the properties of CIM_SoftwareIdentity.

1542 **Table 63 – Class: CIM_SoftwareIdentity**

Properties	Requirement	Notes
InstanceID	Mandatory	Key InstanceID should be constructed using the following preferred algorithm: <OrgID>:<LocalID> (See the MOF file for more detail.) (pattern "^.*[:].*\$")
MajorVersion	Mandatory	None
MinorVersion	Mandatory	None
RevisionNumber	Mandatory	None
VersionString	Mandatory	None
Manufacturer	Mandatory	This property will be formatted as a free-form string of variable length. (pattern ".*")

1543 **10.30 CIM_UseOfLog**

1544 CIM_UseOfLog associates a log with a managed element (a device or diagnostic service) whose
 1545 information is stored in the log. Table 64 provides information about the properties of CIM_UseOfLog.

1546 **Table 64 – Class: CIM_UseOfLog**

Properties	Requirement	Notes
Antecedent	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticLog.
Dependent	Mandatory	Key This property shall be a reference to an instance of CIM_DiagnosticService.

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ANNEX A (informative)

Change Log

Version	Date	Description
1.0.0a	2006-04-17	Preliminary
1.0.1	2009-09-23	Final Standard
2.0.0	2010-10-21	DMTF Standard

1551

3.3 Bibliography

1552 DMTF DSP2000, *CIM Diagnostic Model White Paper 1.0*,
1553 http://www.dmtf.org/standards/published_documents/DSP2000.pdf

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