

Common Diagnostic Model: Cost-Effective System Health



November 2008

Copyright © 2008 Distributed Management Task Force, Inc. (DMTF). All rights reserved.

CIM Common Diagnostic Model Overview Document

1 Introduction

1.1 Overview

The CDM is an architecture and methodology for exposing system diagnostic instrumentation through the CIM standard interfaces. Standardization of these interfaces means that clients, providers, and tests gain a certain degree of portability and, in many cases, need only be written once to satisfy multiple environments and platforms. OEMs can differentiate their diagnostic offerings by how effectively their applications use the information and capabilities available through CIM to maintain and service their systems.

The purpose of this paper is to provide an overview of the model and its intended usage. The Common Diagnostic Model Profile should be referenced to obtain a detailed understanding of the model and its use cases.

1.2 Background Reference Material

DMTF DSP1002, Common Diagnostic Model Profile
DMTF DSP2000, CIM Diagnostic Model White Paper
CIM MOFs and Visios
DMTF Common Information Model (CIM) Specification V2.2

1.3 Terminology

Term	Definition
CDM	Common Diagnostic Model
CIM	Common Information Model
DMTF	Distributed Management Task Force
Use Case	A description of a client application goal and how the model can be used to accomplish that goal.
MOF	Managed Object Format, the “language defining the CIM object classes, properties, methods and associations.

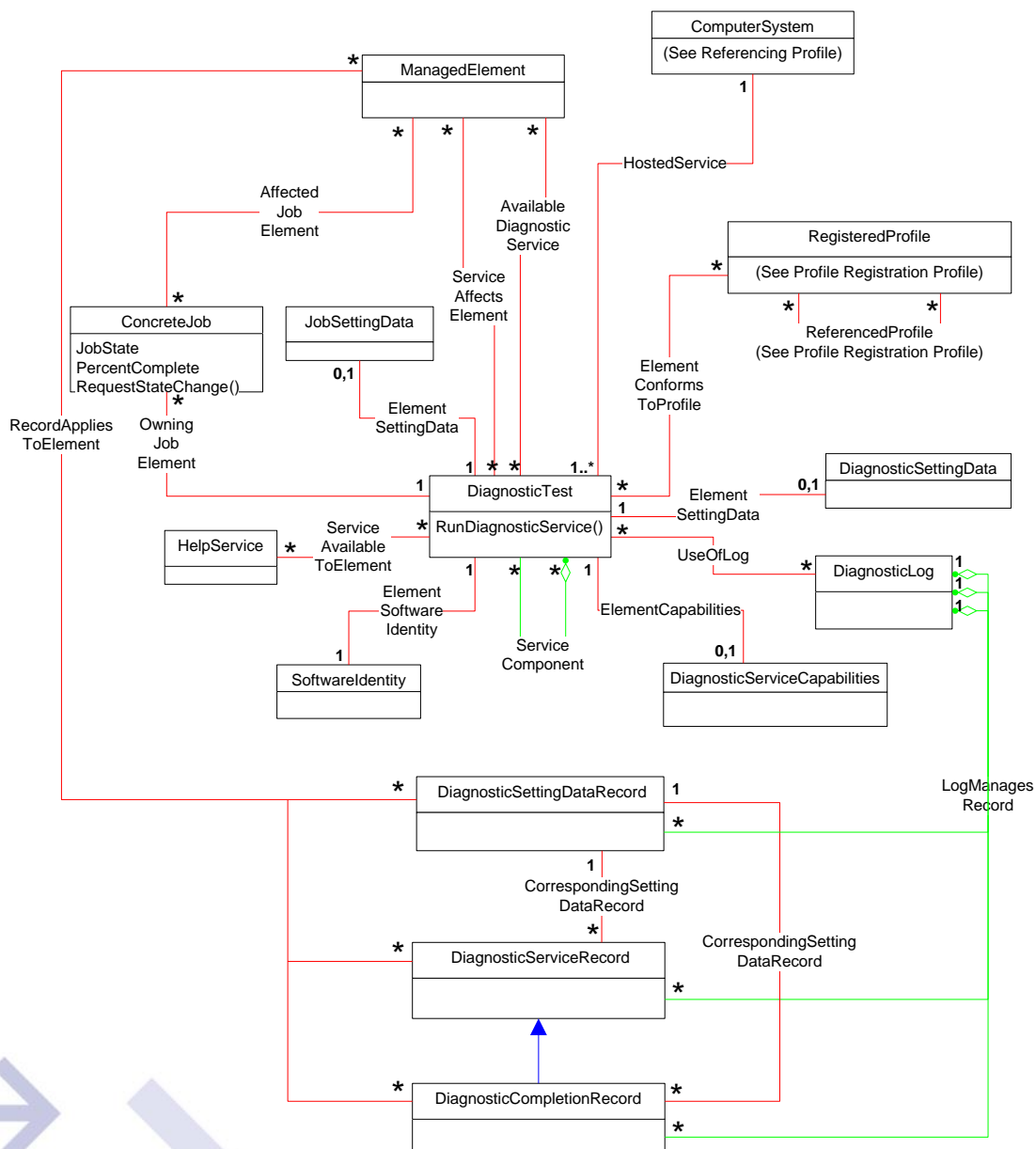
2 The Common Diagnostic Model

2.1 Conceptual Areas Addressed by the Model

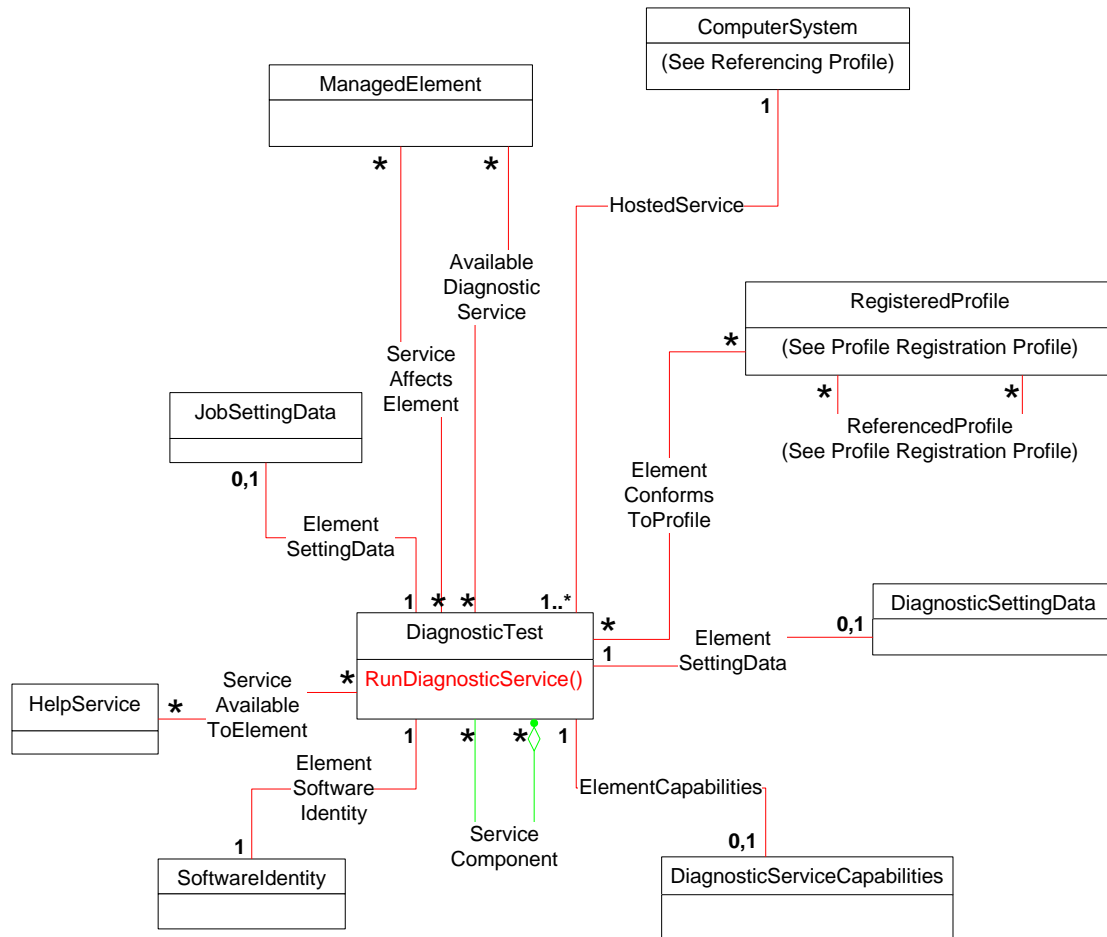
CDM allows Diagnostic Client applications to:

- discover, configure and execute diagnostic tests
- view progress and control test execution
- view and manage test execution results

The figure below shows the entire model. The description of the model will be broken into three sections, one for each of the client activities listed above. Each section will include a figure for the portion of the model related to that activity and provide a description of the classes, associations, properties and methods in the figure.



2.1.1 Discover, Configure and Execute Diagnostic Tests



Diagnostic Test is the central class of the model. This class represents the tests available on a system. This class contains the Run Diagnostic Service method used to initiate a diagnostic test. The method takes as input a Managed Element to execute against and optionally a Job Setting Data and Diagnostic Setting Data to control the execution of the test. It returns a reference to a Concrete Job to be used to view progress and control the execution of the test. See section 2.1.2

Registered Profile contains the information about the profile the diagnostic conforms to.

Element Conforms To Profile associates the diagnostic to the conforming profile. Compliant diagnostics are discovered by following this association from the diagnostic to the profile.

Available Diagnostic Service associates the diagnostic to the Managed Element it tests. Diagnostics for Managed Elements are discovered by following this association from the Managed Element to the diagnostics.

Hosted Service associates the diagnostic to the Computer System where the diagnostic is hosted. Diagnostics available on a system are discovered by following this association to the diagnostics.

Diagnostic Service Capabilities contains information about the capabilities of a diagnostic test, such as the level of logging available, the type of execution control available, etc.

Diagnostic Setting Data contains the settings that are available for the diagnostic to be used when the diagnostic is initiated. This can either be the default settings, or a new setting created by the client and passed into the Run Diagnostic Service method.

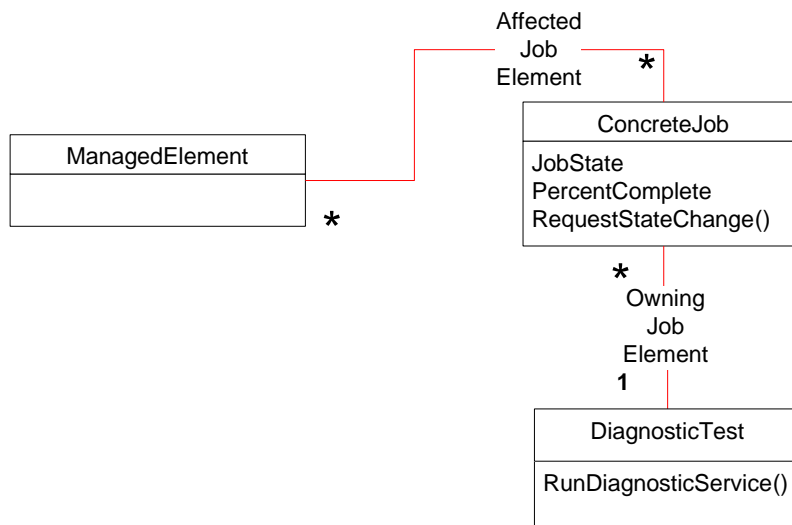
Job Setting Data contains the settings to be used for Job creation when the diagnostic test is initiated. This can either be the default settings, or a new setting created by the client and passed into the Run Diagnostic Service method.

Element Setting Data associates the settings to the diagnostic test. When Element Setting Data. Is Default is TRUE, the setting is the default setting that will be used when a diagnostic test is initiated and no other setting is provided.

Help Service describes the nature of the available help documents and a method to request needed documents.

Service Available To Element associates the diagnostic to its help information.

2.1.2 View Progress and Control Test Execution

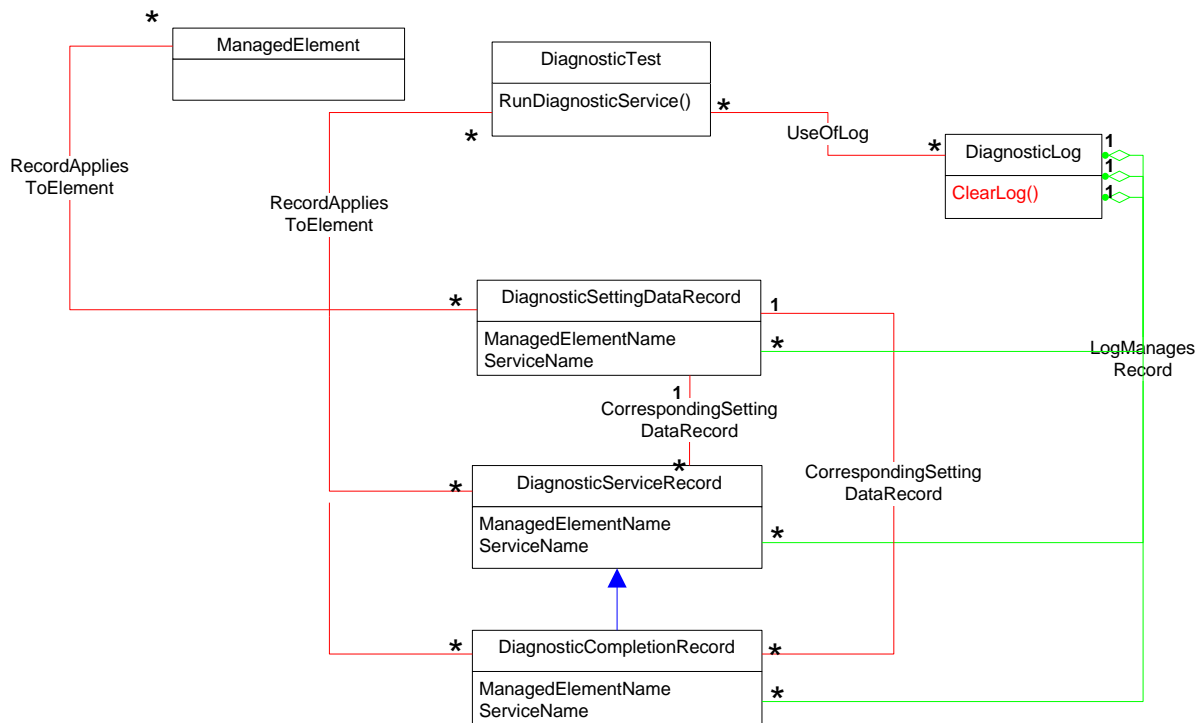


Concrete Job represents the diagnostic execution. It contains information about the progress of the test execution, such as Job State and Percent Complete. Concrete Job. Request State Change method changes the state of the Concrete Job. This method is used to suspend, resume and abort a diagnostic execution.

Affected Job Element associates the job to the Managed Element affected by the diagnostic execution. Diagnostics executing on Managed Elements can be discovered by following this association from the Managed Element to the job.

Owing Job Element associates the Job to the diagnostic execution represented by the job. Diagnostic executions can be discovered by following this association from the diagnostic to the job.

2.1.3 View and Manage Test Execution Results



Diagnostic Log represent the log of the information logged by the diagnostic. Diagnostic Log. Clear Log method clears the log of all records.

Use Of Log associates the log to the diagnostic. Logged information for a diagnostic can be discovered by following this association from the diagnostic to the log.

Diagnostic Setting Data Record contains the settings used to initiate the diagnostic. Settings used for a previous execution of a diagnostic can be discovered by finding the Diagnostic Setting Data Record in the log with the desired Service Name and Managed Element Name.

Diagnostic Completion Record contains the final results of the diagnostic execution. The final results of a previous execution of a diagnostic can be discovered by finding the Diagnostic Completion Record in the log with the desired Service Name and Managed Element Name.

Diagnostic Service Record contains all other logged information, progress, errors, warnings, etc. The information for a previous execution of a diagnostic can be discovered by finding the Diagnostic Completion Record in the log with the desired Service Name and Managed Element Name.

Log Manages Record aggregates each record in the log. Information about the previous execution of a diagnostic and the final results can be discovered by following this association to the records in the log.

Record Applies To Element associates each record to the Managed Element and the Diagnostic Test. Information about diagnostics that have been executed against a Managed Element can be discovered by following this association to the records in a log. Information about diagnostics that have been executed can be discovered by following this association to the records in a log.

Corresponding Setting Data Record associates each non-setting record to the setting record for that execution of the diagnostic. Settings used for an execution of a diagnostic that generated a particular record can be discovered by following this association to the setting record.