

**Applications Working Group  
Dated September 2003 (Version 2.0)**

**The information provided below is subject to change and  
reflects the current knowledge of the Working Group.**

<p style="text-align: center;"><b>Management Problem(s) and Environment</b></p>	<p>One of the key goals in the management of IT environments is the management of the characteristics and quality of the services they deliver. Today much of the effort of management is concentrated on management of the infrastructure that delivers these services and particularly the lower level components of the infrastructure.</p> <p>Integrated management of the applications components of the delivery infrastructure has proven elusive to-date, for a number of reasons. In effect, we do not really have the ability to manage a key component of the infrastructure that controls the delivery of IT services, the applications themselves.</p> <p>There are a number of historical reasons including a) complexity of applications, b) lack of a common management environment, c) lack of a broad interest because management of the lower levels of the infrastructure was more important d) lack of standards for management instrumentation of applications, e) lack of a common vision for managing applications and common objectives for managing applications, f) and certainly the fact that managing applications is often an afterthought, not part of the core application development activity.</p> <p>However, without clear management capabilities for the application components of the environment it is difficult to manage the services delivered.</p> <p>While the CIM Schema for systems, networks, etc. and the WBEM interoperability initiative open the door to open management information, they do not provide a model for the management of applications themselves. An integrated model for the management of applications - their deployment, configuration, and management of their execution - is required to provide the ability to manage applications in a consistent manner.</p>
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<p><b>WG Charter</b></p>	<p>To develop a model and corresponding CIM Schema for Web-based and networked application services including the deployment, configuration, and runtime management of these services.</p> <p>The work of this group includes:</p> <ol style="list-style-type: none"> <li>1. The continued maintenance of the existing model for application deployment.</li> <li>2. Development of an extended model for application deployment (specifically installation) reusing the existing model wherever possible.</li> <li>3. The development of an overall model for the management of running applications, and the development and definition of the objectives of management that these models satisfy.</li> <li>4. The continued growth of support models for managing applications including metrics. This includes growth of the Unit-of-Work metrics model to match the growing functionality of the Open Group ARM (Application Response Measurement) specifications with the ARM 4.0 specification.</li> <li>5. The development of particular models for specialized applications such as application servers.</li> <li>6. The development of clear interfaces with application management instrumentation standards.</li> <li>7. The development of a model to incorporate management of Web Services into the application runtime model.</li> </ol> <p>Establishment of mapping between the application MIBS defined under the auspices of IETF and the application runtime model as that model develops.</p>
<p><b>Alliance Partnerships</b></p>	<p>The following are the current working relationships maintained or being developed by this work group:</p> <ol style="list-style-type: none"> <li>1. The Open Group Enterprise Management Forum – The Runtime component of the Application Model was started as a joint work group between The Open Group and DMTF (With the model work being released through the DMTF).</li> <li>2. The Open Group AQRM (Application Quality and Resource Management) Forum – This is today an informal relationship to establish the requirements that AQRM will place on future application model work.</li> <li>3. The Open Group ARM (Application Response Measurement) Work Group – This is an informal relationship to establish the ARM requirements for future changes to the Metrics Unit-of-Work model to match the growing functionality of the ARM interface and functionality specifications.</li> </ol>

	<ol style="list-style-type: none"> <li>4. The SUN JCP JSR 77 Expert Group (Managing J2EE environments) – The objective is to develop effective CIM Schema for managing J2EE application servers, in accordance with the existing J2EE V1 Specification. NOTE: Today this is an informal relationship but is supported by the JSR 77 Expert Group.</li> <li>5. W3C Web Services Management Group – Today this is an informal relationship and still being developed. The need for the relationship was defined when the Application Work Group determined that Web Services must be included in the overall application model.</li> <li>6. Oasis WSDM (Web Services Distributed Management) Technical Committee – Today this is an informal relationship and is still being developed. Since this group is working on the development of the management of Web Services there is a common goal in defining the modeling of Web Services.</li> </ol> <p>Potential but undeveloped relationships:</p> <ol style="list-style-type: none"> <li>1. Various Sun JCP JMX Expert Groups</li> <li>2. Global Grid Forum</li> <li>3. IETF Application Conformance Group and IRTF</li> <li>4. ITSMF – Development of a relationship between the process models of this group and the schemas for management of applications.</li> </ol>
<p><b>Reliance/Coordination with other WG Models</b></p>	<p>The Application Working Group is actively involved with the following CIM teams:</p> <ol style="list-style-type: none"> <li>1. The Policy WG to incorporate the usage of Policy into the next phases of the Application model</li> <li>2. Policy WG to establish the relationship between SLA/SLO schemas being developed by this group and the model for managing applications and application components.</li> <li>3. Interop/Events WG for events for application management</li> </ol>

## Prior Work

The Application Management Working Group (Established January, 1997) merged efforts with the original DMI Software Working Committee, building on version 1.0 and 2.0 of the Software Standard Groups definitions for management of Web-based and networked application services. This group created the content for the Common Information Model (CIM) Application Model (beginning in CIM V2.0) and defined extensions to the Software Standard Groups to support distributed applications. The CIM Schema models an application, application system, and movement of an application component through the lifecycle states: deployable, installable, executable, and running. Modeling of management of the 'running' application was out of the scope of this original working group.

At the same time, the Metrics Work Group (Originally called DAP) created the Metrics model based on the work of the ARM standard for Transaction Response Time Measurement and generalized it to be called UnitOfWork metrics.

The Application Management Runtime Sub-Team (established March, 2000) is developing models for defining and managing the aspects of a 'running' application. Early in this work, it became obvious that Metrics and runtime applications management were on a parallel course and the groups were merged. Runtime application management was initiated with the idea of modeling the configuration, operations, metrics, and status of complex, traditional, client-server, distributed, and web-based applications. The sub-team is developing MOF, Visio, and white papers for the new schema. The results of this team have been submitted as part of the CIM Application Model, beginning with Version 2.5. To-date, the results have concentrated on the extension of metrics beyond the original definition of UnitOfWork metrics.

Other Industry Groups working in this domain include the following:

1. The Open Group Enterprise Management Forum Application Management APIs including
  - ARM – Application Response Time Measurement which formed the basis for the UnitOfWork Metrics Schema
  - AIC – Application Instrumentation and Control which initiated the work on a) business level management, b) the Runtime application model
  - AQRM and QOS groups – Developing definitions and specifications for application quality of service management.
2. The SUN JCP Process and specifically JMX which provide a clear object based API for management objects in the Java world

	<ol style="list-style-type: none"> <li>3. IETF Application MIB</li> <li>4. Oasis development of Web Services management (WSDM Technical Committee)</li> </ol>
<p style="text-align: center;"><b>Current Work – Overview, Deliverables and Timeline</b></p>	<p>Application Runtime Model development – Develop the strategy, the basic management objectives, and the basic features of an application management model to integrate runtime and lifecycle aspects. Implement the high priority components of the model. This work was started with the idea of developing the basic components (metrics, operations, state, and configuration) and then integrating them into a more comprehensive model. Today the group is concentrating on a general model that consists of a set of sub-models for various functions and incorporates the concepts of performance, QoS, SLA/SLO, and fault management. The work today is at a very high level, and the models themselves are in the conceptual stage. The first components of the model were delivered for CIM 2.8 Preliminary. Delivery of the second submodels expected in the CIM release following V2.8 (4Q-3Q2003).</p> <p>CIM Metric extensions – Extend the usability of the CIM Metrics model with features such as a) correlation of unit of work metrics, b) event driven metrics, c) aggregation of metrics, and d) additional semantic information on metrics. Some aspects of this work will be delivered in CIM V2.9 (4Q2003) and in subsequent releases.</p> <p>Application Server Model – Create an effective/complete CIM model for J2EE application servers based on the work of the SUN JCP JSR 77 Expert Group and the V1 JSR 77 specification</p> <p>Web Services – Incorporate web services into the application model as the application model develops in our group and the definition of the management of web services advances in the WSDM TC. This would include incorporating the thinking and standards of the OASIS WSDM TC into the applications model. The object of our work is the management of web services as a component of our application model, not a standalone effort to manage web services. The DMTF and OASIS work is complementary, and must be synchronized</p> <p>Application management and Application Management APIs – This group has expressed interest but not started formal work on mapping the major application management APIs (JMX, AIC, etc.) to components of the Application Model so that these APIs could be used as CIM instrumentation.</p> <p>The Application deliverables include the following:</p> <ol style="list-style-type: none"> <li>1. Updated Application White Paper for CIM 2.7 – Clean up of the paper is in process today – Due September 2003</li> <li>2. Application Runtime Strategy and Direction Working Paper – This paper will set the basic direction for the next work on a runtime model – Due End of</li> </ol>

	<p>September 2003</p> <ol style="list-style-type: none"> <li>3. Metrics Extensions – For CIM v2.9 (1\4Q2003), an updated Schema will be delivered addressing: a) UnitofWork correlation, and b) monitoring of events. Integration with future version os ARM</li> <li>4. Application Server Sub-Team – Continued work on the app server model (original model delivered in CIM 2.8 preliminary) to validate the model and extend it in conjunction with the work of the JCP JSR 77 group.</li> <li>5. Application Runtime Model – Delivery of stage 2 of this model for which willCIM 2.9 preliminary (delivery November 2003). Validation of the classes defined in CIM 2.8 preliminary for CIM 2.8 final.</li> </ol>
<p><b>DMTF Contacts</b></p>	<p>WG-Chair – Karl Schopmeyer, wg-apps-chair@dmtof.org  Application Server Team Leader – appsvr-chair@dmtof.org  Metrics Extension Team Leader – metricextensions-chair@dmtof.org</p>
<p><b>Subteam Charter(s)</b></p>	<p>There are currently 2 Sub-Teams in the Application Working Group:</p> <ul style="list-style-type: none"> <li>• Application Server Sub-Team – Responsible for producing the model for managing application servers (today the team is focused on J2EE based application servers). This group is working closely with the SUN JCP JSR 77 Expert Group to ensure that all deliverables are consistent with the JSR 77 work and with the general development of the Application Model.</li> <li>• Metrics Extensions Sub-Team – This team is extending the existing metrics model in several areas to make metrics more useful to the entire CIM Schema.</li> </ul> <p>These groups work independently and bring their results back to the Application Working Group for approval. Note that the Application Work Group agreed that the sub-teams will not maintain separate charters, so that the definition of these sub-teams is part of this charter.</p>

**To join the DMTF and/or the Working Group, see**  
<http://www.dmtf.org/join> or  
<http://www.dmtf.org/apps/org/workgroup/applications>.