Active Directory®

Client Profile

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Foreword

The Active Directory® Client Profile (DCIM1007) was prepared by the Dell CIM Review Board.

Introduction

This specification identifies the necessary classes, properties, methods, and values to be instantiated and manipulated to represent and manage an Active Directory client modeled using the DMTF Common Information Model (CIM) core and extended model definitions.

This document is intended for implementers who write CIM-based providers or consumers of management interfaces representing the component described herein.

Active Directory® Client Profile

1 Scope

The Active Directory® Client Profile extends the management capabilities of referencing profiles by adding the capability to represent the configuration of Active Directory client service and the groups managed by the service. The Active Directory client service and groups are modeled as referencing the security principals and profile versioning for the schema implementation version information.

2 Normative References

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

2.1 Approved References

DMTF DSP1033, *Profile Registration Profile 1.0.0*

DMTF DSP0200, *CIM Operations over HTTP 1.2.0*

DMTF DSP0004, *CIM Infrastructure Specification 2.3.0*

DMTF DSP1000, *Management Profile Specification Template*

DMTF DSP1001, *Management Profile Specification Usage Guide*

2.2 Other References

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

Unified Modeling Language (UML) from the Open Management Group (OMG), http://www.uml.org

SM Managed Element Addressing Specification (SM ME Addressing) DSP0215, http://www.dmtf.org/standards/mgmt/smash/

3 Terms and Definitions

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

3.1
can
used for statements of possibility and capability, whether material, physical, or causal

3.2
cannot
used for statements of possibility and capability, whether material, physical, or causal

3.3
conditional
indicates requirements to be followed strictly in order to conform to the document when the specified conditions are met

3.4
mandatory

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

3.5
may

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

3.6
need not

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

3.7
optional

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

3.8
referencing profile

indicates a profile that owns the definition of this class and can include a reference to this profile in its "Related Profiles" table

3.9
shall

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

3.10
shall not

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

3.11
should

indicates that among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required

3.12
should not

indicates that a certain possibility or course of action is deprecated but not prohibited

4   Symbols and Abbreviated Terms

4.1
CIM
Common Information Model

5   Synopsis

Profile Name: Active Directory Client

Version: 2.0.0

Organization: Dell

CIM Schema Version: 2.15.0

Central Class: DCIM_OEMActiveDirectoryService

Scoping Class: CIM_ComputerSystem

The Active Directory® Client Profile extends the management capability of the referencing profiles by adding the capability to describe the Active Directory client configuration. DCIM_OEMActiveDirectory shall be the Central Class. CIM_ComputerSystem shall be the Scoping Class. DCIM_OEMActiveDirectoryService instance(s) shall be the Central Instance(s). The CIM_ComputerSystem instance with which the Central Instance is associated through the CIM_HostedService association shall be the Scoping Instance.

Table 1 identifies profiles that are related to this profile.

Table 1 – Related Profiles

Profile Name	Organization	Version	Relationship
Profile Registration Profile	DMTF	1.0	Mandatory
Simple Identity Management Profile	DMTF	1.0	Conditional. See Section 7.2.2

6 Description

The Active Directory® Client Profile describes the Active Directory client configuration service and groups that the service manages. The profile also describes the relationship of the Active Directory groups to the security principal and DMTF/DCIM profile version information.

Figure 1 represents the class schema for the Active Directory® Client Profile. For simplicity, the prefix CIM_ has been removed from the names of the classes.
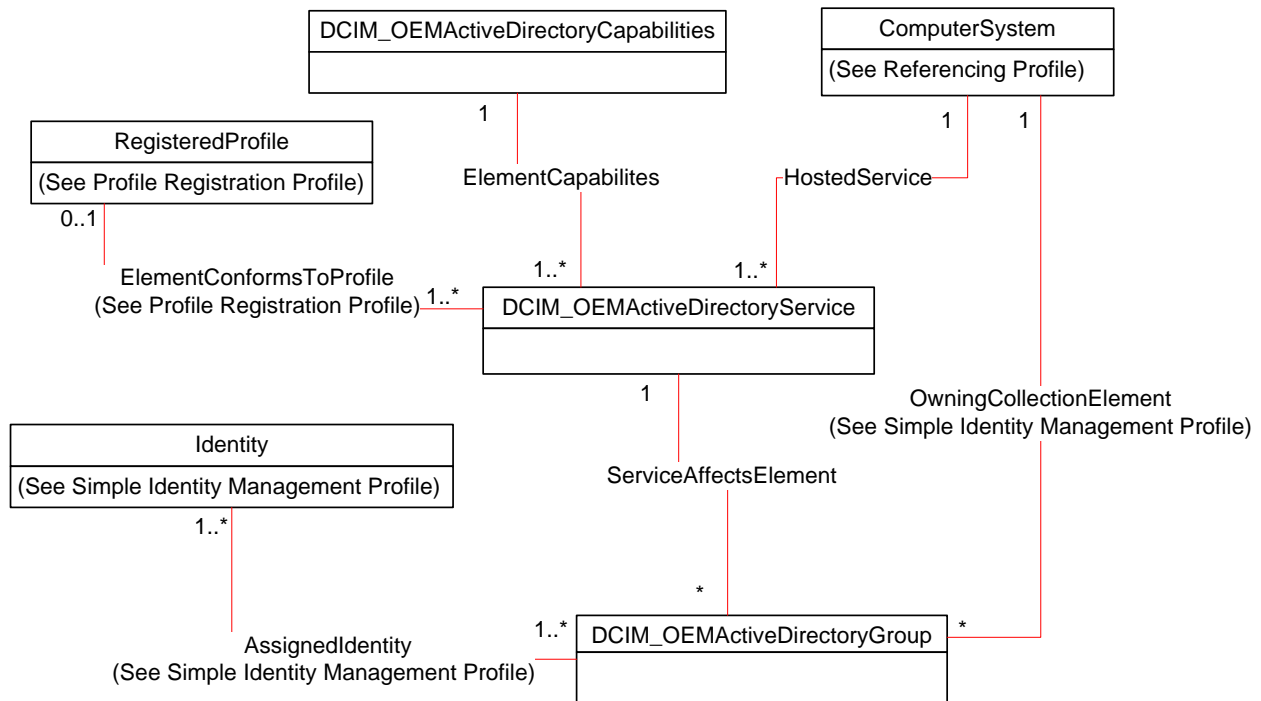
Figure 1 – Active Directory® Client Profile: Class Diagram

The Active Directory client service in a managed system is represented by the DCIM_OEMActiveDirectoryService class. The capability to disable and enable the Active Directory client is advertised through the DCIM_OEMActiveDirectoryCapabilities instance. The Active Directory groups are represented by the DCIM_OEMActiveDirectoryGroup class.

The security principal of the Active Directory group associated with the DCIM_OEMActiveDirectoryGroup by CIM_AssignedIdentity is represented by CIM_Identity.

Profile information is represented with the CIM_RegisteredProfile instance.

6.1   Active Directory Schemas

Active Directory authentication can be configured using two different schemas. Depending on which type of schema is used for authentication, the configuration requirements of the classes, properties and methods in the profile may change. The DCIM_OEMActiveDirectoryService.SchemaType property represents the current type of schema used by the Active Directory.

6.1.1   Extended Schema

When the Active Directory extended schema is used, the role and privilege objects reside on the Active Directory. Authorization occurs on the Active Directory and not on the Active Directory client managed system. The configuration of the Active Directory client involves providing information about the managed system's object name and domain within the Active Directory.

6.1.2   Standard Schema

When the Active Directory standard schema is used, the role and privilege objects reside on the managed system, Authorization occurs on the managed system and not on the Active Directory server. Active Directory groups are represented by the DCIM_OEMActiveDirectoryGroup, and the associated security principal is represented by CIM_Identity.

6.2   Methodology

Active Directory client implementations may perform discovery and searches on the Active Directory server in different ways. Some use only the dhcp servers to retrieve domain controllers, with the root domain as a starting point. Others connect to pre-configured Domain Controllers, each containing a single domain. Search algorithms may use LDAP-enabled Access Control Subsystems (LACS), or only the extension objects. The DCIM_OEMActiveDirectoryCapabilities.Methodology property represents the methodology used. .

7   Implementation Requirements

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

7.1   DCIM_OEMActiveDirectoryService

At least one DCIM_OEMActiveDirectoryService instance shall be instantiated.

7.2   Extended and Standard Schema Support

The following section includes requirements for Active Directory client support extended and standard schemas. The DCIM_OEMActiveDirectoryService.SchemaType property shall indicate the current authentication schema used by the Active Directory client.

7.2.1   Extended Schema

If the extended schema is used for Active Directory authentication, the DCIM_OEMActiveDirectoryService.SchemaType property shall be set to 1 (Extended). If this property is set to 1(Extended), the requirements included in this section shall apply.

The DCIM_OEMActiveDirectoryService.DeviceObjectDomain and DCIM_OEMActiveDirectoryService.DeviceObjectName properties shall be mandatory.

7.2.2   Standard Schema

If the standard schema is used for Active Directory authentication, the DCIM_OEMActiveDirectoryService.SchemaType property shall be set to 2 (Standard). If the DCIM_OEMActiveDirectoryService.SchemaType property is set to 2 (Standard), the requirements detailed in this section shall apply.

The Simple Identity Management Profile shall be implemented where the requirements for CIM_Group class shall be applied to the DCIM_OEMActiveDirectoryGroup class derived from the CIM_Group class.

There shall be at least one DCIM_OEMActiveDirectoryGroup instance. The DCIM_OEMActiveDirectoryGroup instance(s) shall be associated with the CIM_Identity instance through CIM_AssignedIdenity association.

Instance(s) of DCIM_OEMActiveDirectoryGroup shall be associated with the Scoping Instance through CIM_OwningCollectionElement.

7.3   DCIM_OEMActiveDirectoryCapabilities

DCIM_OEMActiveDirectoryCapabilities shall be associated with the DCIM_OEMActiveDirectoryService instance(s) through CIM_ElementCapabilities instance and used for advertising the capabilities of the DCIM_OEMActiveDirectoryService instance.

There shall be at most one DCIM_OEMActiveDirectoryCapabilities instance associated with a given DCIM_OEMActiveDirectoryService instance.

7.3.1 DCIM_OEMActiveDirectoryCapabilities.RequestedStatesSupported

DCIM_OEMActiveDirectoryCapabilities.RequestedStatesSupported is an array that contains the supported requested states for the DCIM_OEMActiveDirectoryService instance. This property shall be the superset of the values of the RequestedState parameter in the RequestStateChange( ) method (see section 8.1). The value of the DCIM_OEMActiveDirectoryCapabilities.RequestedStatesSupported property shall be either an empty array or contain any combination of the following values: 2 (Enabled), 3 (Disabled), 6 (Offline), or 11 (Reset).

7.3.2 DCIM_OEMActiveDirectoryCapabilities.ElementNameEditSupported

This property shall have a value of TRUE when the implementation supports client modification of the DCIM_OEMActiveDirectoryService.ElementName property.

7.3.3 DCIM_OEMActiveDirectoryCapabilities.MaxElementNameLen

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

7.4 Active Directory Client State Management (Optional)

Active Directory client state management consists of the DCIM_OEMActiveDirectoryService.RequestStateChange( ) method being supported (see section 8.1) and the value of DCIM_OEMActiveDirectoryService.RequestedState not matching 12 (Not Applicable).

7.4.1 Active Directory Client State Management Support

When no DCIM_OEMActiveDirectoryCapabilities instance is associated with the DCIM_OEMActiveDirectoryService instance, Active Directory client state management shall not be supported.

When a DCIM_OEMActiveDirectoryCapabilities instance is associated with the DCIM_OEMActiveDirectoryService instance and the value of the DCIM_OEMActiveDirectoryCapabilities.RequestedStatesSupported property is an empty array, Active Directory client state management shall not be supported.

When a DCIM_OEMActiveDirectoryCapabilities instance is associated with the DCIM_OEMActiveDirectoryService instance and the value of the DCIM_OEMActiveDirectoryCapabilities.RequestedStatesSupported property is not an empty array, Active Directory client state management shall be supported.

7.5 DCIM_OEMActiveDirectoryService.RequestedState

The DCIM_OEMActiveDirectoryService.RequestedState property shall have a value of 12 (Not Applicable), 5 (No Change), or a value contained in the DCIM_OEMActiveDirectoryCapabilities.RequestedStatesSupported property array of the associated DCIM_OEMActiveDirectoryCapabilities instance (see section 7.3.1).

When Active Directory client state management is supported and the RequestStateChange( ) method is successfully executed, the RequestedState property shall be set to the value of the parameter RequestedState of the RequestStateChange( ) method. After the RequestStateChange( ) method is successfully executed, RequestedState and EnabledState shall have equal values with the exception of the transitional requested state 11 (Reset). The value of the RequestedState property may change due to a request for change to the Active Directory client enabled state by non-CIM implementation.

7.5.1 RequestedState – 12 (Not Applicable) value

When Active Directory client state management is not supported, the value of the DCIM_OEMActiveDirectoryService.RequestedState property shall be 12 (Not Applicable).

7.5.2 RequestedState – 5 (No Change) value

When Active Directory client state management is supported, the initial value of the DCIM_OEMActiveDirectoryService.RequestedState property shall be 5 (No Change).

7.6 DCIM_OEMActiveDirectoryService.EnabledState

Table 2 relates the values of the DCIM_OEMActiveDirectoryService.EnabledState property to the state of the Active Directory client. The DCIM_OEMActiveDirectoryService.EnabledState property shall match the values that are specified in Table 2. When the RequestStateChange( ) method executes but does not complete successfully and the Active Directory client is in an indeterminate state, the DCIM_OEMActiveDirectoryService.EnabledState property shall have value of 5 (Not Applicable). The value of this property may also change as a result of a change to the Active Directory client enabled state by non-CIM implementation.

Table 2 – EnabledState Value Description

Value	Description	Extended Description
2	Enabled	Active Directory authentication shall be enabled.
3	Disabled	Active Directory authentication shall be disabled.
5	Not Applicable	Active Directory client state is indeterminate, or the Active Directory client state management is not supported.

8 Methods

This section includes requirements for support of the intrinsic operations and extrinsic methods of the CIM elements defined by this profile.

8.1 Method: DCIM_OEMActiveDirectoryService.RequestStateChange( )

Invoking the DCIM_OEMActiveDirectoryService.RequestStateChange( ) method changes the element's state to the value specified in the RequestedState parameter.

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

Table 3 – DCIM_OEMActiveDirectoryService.RequestStateChange( ) Method: Return Code Values

Value	Description
0	Request was successfully executed.
1	Method is not supported in the implementation.
2	Error occurred
4096	Job started

Table 4 – DCIM_OEMActiveDirectoryService.RequestStateChange( ) Method: Parameters

Qualifiers	Name	Type	Description/Values
IN, REQ	RequestedState	uint16	Valid state values: 2 (Enabled) 3 (Disabled)
OUT	Job	CIM_ConcreteJob REF	Returned if job started
IN, REQ	TimeoutPeriod	Datetime	Client specified maximum amount of time a transition to a new state should take: 0 or NULL – No time requirements <interval> – Maximum time allowed

When Active Directory client state management is supported, RequestStateChange( ) method shall be implemented and shall not return a value of 1 (Not Supported). See section 7.4.1.

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

No standard messages are defined for this method.

8.2   Profile Conventions for Operations

Support for operations for each profile class (including associations) is specified in the following subclauses. Each subclause includes either the statement "All operations in the default list in section 0 are supported as described by DSP0200 version 1.2" or a table listing all of the operations that are not supported by this profile or where the profile requires behavior other than that described by DSP0200.

The default list of operations is as follows:

- GetInstance
- EnumerateInstances
- EnumerateInstanceNames
- Associators
- AssociatorNames
- References
- ReferenceNames

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

8.3   CIM_ElementCapabilities Operations

Table 5 lists operations that either have special requirements beyond those from DSP0200 or shall not be supported.

Table 5 – CIM_ElementCapabilities Operations

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

8.4   DCIM_OEMActiveDirectoryCapabilities Operations

All operations in the default list in section 0 are supported as described by DSP0200 version 1.2.

8.5   CIM_HostedService Operations

Table 6 lists operations that either have special requirements beyond those from DSP0200 or shall not be supported.

Table 6 – CIM_HostedService Operations

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

8.6   CIM_ServiceAffectsElement Operations

Table 7 lists operations that either have special requirements beyond those from DSP0200 or shall not be supported.

Table 7 – CIM_ServiceAffectsElement Operations

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

8.7 DCIM_OEMActiveDirectoryService Operations

Table 8 lists operations that either have special requirements beyond those from DSP0200 or shall not be supported.

Table 8 – DCIM_OEMActiveDirectoryService Operations

Operation	Requirement	Messages
ModifyInstance	Mandatory. See section 8.7.1.	None

8.7.1 DCIM_OEMActiveDirectoryService—ModifyInstance

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

The ModifyInstance operation shall be supported and DCIM_OEMActiveDirectoryService.ElementName shall be modifiable when the ElementNameEditSupported property of the DCIM_OEMActiveDirectoryCapabilities instance that is associated with the DCIM_OEMActiveDirectoryService instance has a value of TRUE. See section 8.7.1.1.

8.7.1.1 DCIM_OEMActiveDirectoryService.ElementName

When the ElementNameEditSupported property of the DCIM_OEMActiveDirectoryCapabilities instance that is associated with the DCIM_OEMActiveDirectoryService instance has a value of TRUE, the implementation shall allow the ModifyInstance operation to change the value of the ElementName property of the DCIM_OEMActiveDirectoryService instance. The ModifyInstance operation shall enforce the length restriction specified in the MaxElementNameLen property of the DCIM_OEMActiveDirectoryCapabilities instance.

When the ElementNameEditSupported property of the DCIM_OEMActiveDirectoryCapabilities instance has a value of FALSE, the implementation shall not allow the ModifyInstance operation to change the value of the ElementName property of the DCIM_OEMActiveDirectoryService instance.

8.8 CIM_OEMActiveDirectoryGroup Operations

Table 8 lists operations that either have special requirements beyond those from DSP0200 or shall not be supported.

Table 9 – DCIM_OEMActiveDirectoryService Operations

Operation	Requirement	Messages
ModifyInstance	Mandatory	None

9   Use Cases

This section contains object diagrams and use cases for the Active Directory Client Profile.

9.1   Object Diagrams

Figure 2 represents a possible instantiation of the Active Directory® Client Profile. In this instantiation, the managed system, chassismgr1, has management of Active Directory client, adservice1.

chassismgr1 is the scoping instance for adservice1. Following the CIM_ElementConformsToProfile association to profile1 and the referenced CIM_ReferencedProfile association to a CIM_RegisteredProfile

instance with the RegisteredName property set to "Active Directory Client", the client can retrieve profile2. profile2 shows the version of the current Active Directory® Client Profile implementation.

The prefix CIM_ has been removed from the names of the classes in the figure.
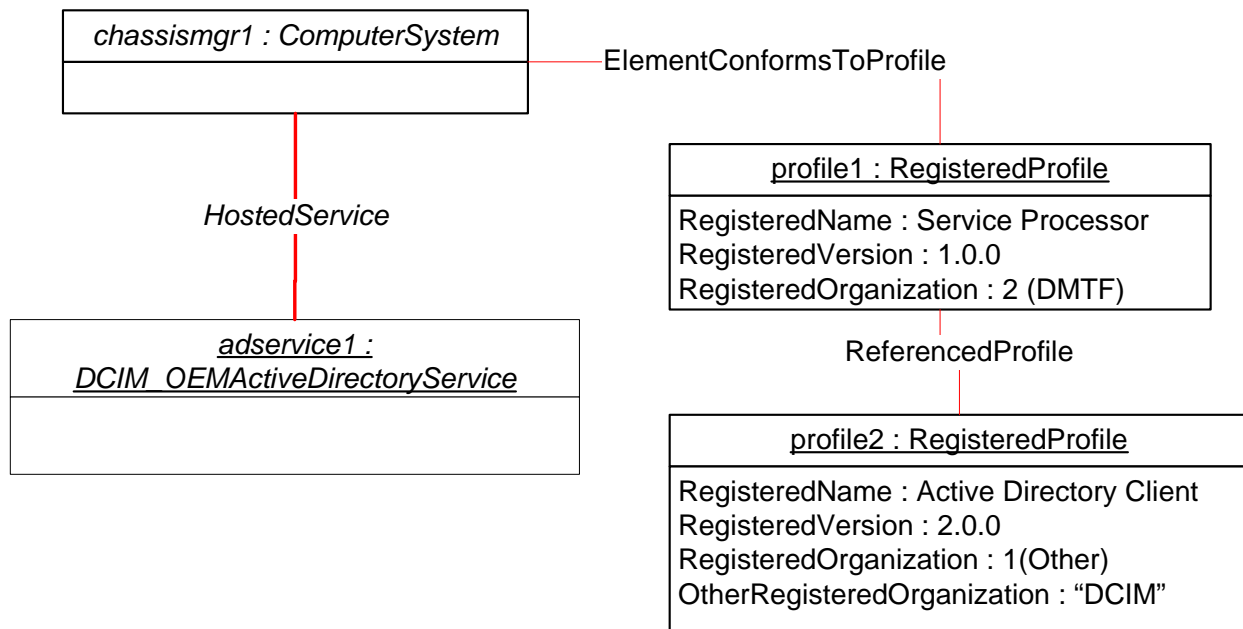
Figure 2 – Active Directory® Client Profile: Object Diagram

Figure 3 represents a possible instantiation of the Active Directory® Client Profile representing an Active Directory client configured to use the standard schema represented by the adservice1.SchemaType property value. adgroup1 through adgroup5 represent Active Directory groups that can have local authorization. Adgroup1 through adgroup5 are associated to the security principals of ADGroup_id1 through ADGroup5 respectively. adgroup1 through adgroup5 privileges can be represented using the Role Based Authorization Profile by associating ADGroup_id1 through ADGroup_id5 to CIM_Role instances.
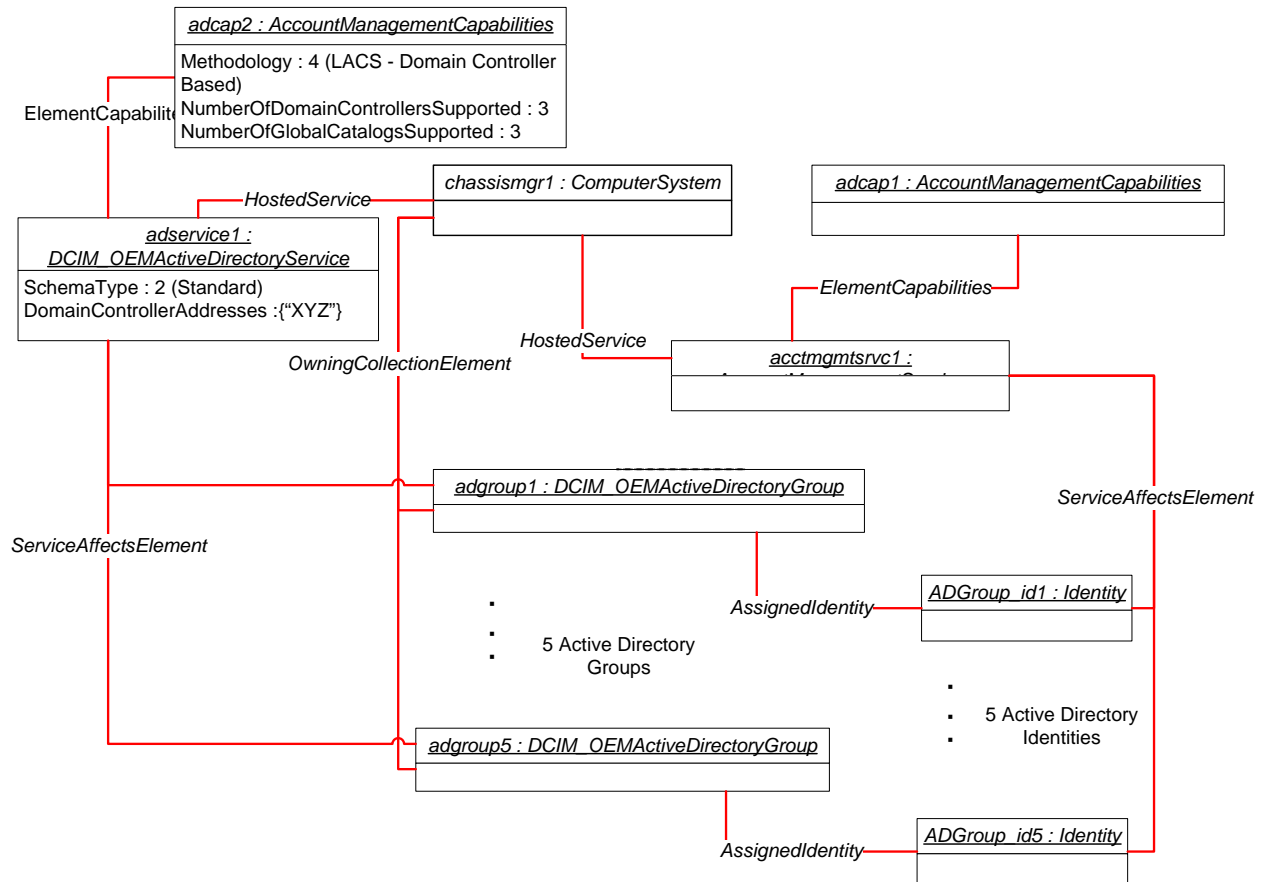
Figure 3 – Active Directory® Client Profile: Standard Schema Object Diagram

9.2   Enable the Active Directory Authentication

A client can enable the Active Directory client as follows:

1) For the given DCIM_OEMActiveDirectoryService instance, find the associated DCIM_OEMActiveDirectoryCapabilities instance.

2) If the DCIM_OEMActiveDirectoryCapabilities.RequestedStatesSupported property is an array that contains the value 2 (Enabled), execute the RequestStateChange( ) method with the value of the RequestedState parameter set to 2 (Enable) to enable the Active Directory authentication of Active Directory client represented by this instance.

9.3   Determine Whether the DCIM_OEMActiveDirectoryService.ElementName Is Modifiable

A client can determine if it can modify the DCIM_OEMActiveDirectoryService.ElementName property as follows:

1) Find the DCIM_OEMActiveDirectoryCapabilities instance associated with the DCIM_OEMActiveDirectoryService instance.

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

10 CIM Elements

Table 10 shows the instances of CIM Elements for this profile. Instances of the CIM Elements shall be implemented as described in Table 10. Sections 7 ("Implementation Requirements") and 8 ("Methods") may impose additional requirements on these elements.

Table 10 – CIM Elements: Active Directory® Client Profile

Element Name	Requirement	Description
Classes		
CIM_ElementCapabilities	Conditional	See section 10.1.
DCIM_OEMActiveDirectoryCapabilities	Mandatory	See sections 7.3 and 10.2.
CIM_HostedService	Mandatory	See section 10.3.
CIM_ServiceAffectsElement	Conditional	See section 10.4 and 7.2.2.
DCIM_OEMActiveDirectoryGroup	Conditional	See section 10.5 and 7.2.2.
DCIM_OEMActiveDirectoryService	Mandatory	See sections 10.6.
CIM_RegisteredProfile	Mandatory	See section 10.7.
Indications		
None defined in this profile		

10.1 CIM_ElementCapabilities

CIM_ElementCapabilities associates a DCIM_OEMActiveDirectoryService instance with a DCIM_OEMActiveDirectoryCapabilities instance. DCIM_OEMActiveDirectoryCapabilities describes the capabilities of the DCIM_OEMActiveDirectoryService instance. CIM_ElementCapabilities is mandatory when the DCIM_OEMActiveDirectoryCapabilities instance is instantiated.

Table 11 – CIM_ElementCapabilities

Properties	Requirement	Notes
ManagedElement	Mandatory	**Key**: Shall reference the DCIM_OEMActiveDirectoryService instance Cardinality 1..* indicating one or more references
Capabilities	Mandatory	**Key**: Shall reference the DCIM_OEMActiveDirectoryCapabilities instance Cardinality 1 indicating one and only one reference

10.2 DCIM_OEMActiveDirectoryCapabilities

DCIM_OEMActiveDirectoryCapabilities represents the capabilities of the Active Directory client.

Table 12 – DCIM_OEMActiveDirectoryCapabilities

Properties	Requirement	Notes
InstanceID	Mandatory	**Key**
RequestedStatesSupported	Mandatory	See section 7.3.1.
ElementNameEditSupported	Mandatory	See section 7.3.2.
MaxElementNameLen	Conditional	See section 7.3.3.
Methodology	Mandatory	

Properties	Requirement	Notes
NumberOfDomainControllersSupported	Mandatory	
NumberOfGlobalCatalogsSupported	Mandatory	

10.3   CIM_HostedService

CIM_HostedService associates a DCIM_OEMActiveDirectoryService instance with the CIM_RedundancySet instance.

Table 13 – Class: CIM_HostedService

Properties	Notes	Description
Antecedent	Mandatory	**Key:** Shall reference the Scoping Instance. Cardinality 1 indicating one and only one reference
Dependent	Mandatory	**Key:** Shall reference the Central Instance. Cardinality 1..* indicating one or more references

10.4   CIM_ServiceAffectsElement

Table 14 shows the requirements for a CIM_ServiceAffectsElement instance.

Table 14 – Class: CIM_ServiceAffectsElement

Elements	Requirement	Notes
ServiceProvided	Mandatory	**Key** This property shall be a reference to the Central Instance of the profile. Cardinality 1
UserOfService	Mandatory	**Key** This property shall be a reference to DCIM_OEMActiveDirectoryGroup. Cardinality *
ElementAffects	Mandatory	Matches 5 (Manages)

10.5   DCIM_OEMActiveDirectoryGroup

Table 15 shows the requirements for a CIM_Group instance.

Table 15 – Class: DCIM_OEMActiveDirectoryGroup

Elements	Requirement	Notes
CreationClassName	Mandatory	**Key**
Name	Mandatory	**Key**
ElementName	Mandatory	Shall match "Active Directory Service"
DeviceObjectDomain	Mandatory	

10.6 DCIM_OEMActiveDirectoryService

DCIM_OEMActiveDirectoryService is represents the Active Directory client.

Table 16 – Class: DCIM_OEMActiveDirectoryService

Properties and Methods	Requirement	Description
SystemCreationClassName	Mandatory	**Key**
CreationClassName	Mandatory	**Key**
SystemName	Mandatory	**Key**
Name	Mandatory	**Key**
RequestedState	Mandatory	
EnabledState	Mandatory	
ElementName	Mandatory	This property shall have value of "Active Directory Service".
SchemaType	Mandatory	
RootDomain	Conditional	If the Methodology property of the associated DCIM_OEMActiveDirectoryCapabilities property has value of 2 (non-LACS - Domain Name Based), this property shall be implemented.
DeviceObjectDomain	Mandatory	See section 7.2.
DeviceObjectName	Mandatory	See section 7.2.
AuthTimeout	Mandatory	
DomainControllerAddresses	Conditional	If the Methodology property of the associated DCIM_OEMActiveDirectoryCapabilities property has value of 4 (LACS - Domain Controller Based), this property shall be implemented.
GlobalCatalogAddresses	Optional	
AutomaticTrustEnabled	Conditional	If the Methodology property of the associated DCIM_OEMActiveDirectoryCapabilities property has value of 4 (LACS - Domain Controller Based), this property shall be implemented.
RequestStateChange( )	Conditional	See section 8.1.

10.7 CIM_RegisteredProfile

The CIM_RegisteredProfile class is defined by the Profile Registration Profile. The requirements shown in Table 17 are additional to those mandated by the Profile Registration Profile.

Table 17 – Class: CIM_RegisteredProfile

Properties	Requirement	Description
RegisteredName	Mandatory	This property shall have a value of "Active Directory Client".
RegisteredVersion	Mandatory	This property shall have a value of "2.0.0".
RegisteredOrganization	Mandatory	This property shall have a value of 1 (Other).
OtherRegisteredOrganization	Mandatory	This property shall match "DCIM"

ANNEX A
(informative)

Change Log

Version	Date	Description
1.0.0	2/12/2009	Initial version.
2.0.0	2/12/2009	Added configuration interfaces for the new authorization methodology on the Active Directory.

ANNEX B
(informative)

DCIM Extension MOF

NOTE: This may not be the most up-to-date MOF. Please, for implementation purposes refer to the MOF published separately from the profiles.

// Copyright (c) 2008 Dell Inc. All rights reserved.

// ===

// DCIM_OEMActiveDirectoryService

// ===

  [Experimental, Version ("1.0.0"), Description (

    "This class extends CIM_Service to provide interface to manage "

    "the third party authentication and authorization management "

    "through Active Directory services.")]

class DCIM_OEMActiveDirectoryService : CIM_Service {

    [Override, Description (

      "EnabledState is an integer enumeration that indicates the "

      "enabled and disabled states of Active Directory "

      "authentication and authorization service. "

      "Enabled (2) indicates that the Active Directory service "

      "authentication and authorization service is enabled and the "

      "managed system can utilize third party authentication and "

      "authorization with Active Directory service. "

      "Disabled (3) indicates that the Active Directory service "

      "authentication and authorization service is disabled and the "

      "managed system cannot utilize third party authentication and "

      "authorization with Active Directory service. "

      "Not Applicable (5) indicates the authentication and "

      "authorization with Active Directory service is not "

```
      "supported."),
    ValueMap { "1", "2", "3", "5", "6..32767", "32768..65535" },
    Values { "Other", "Enabled", "Disabled", "Not Applicable",
      "DMTF Reserved", "Vendor Reserved" },
    ModelCorrespondence {
      "CIM_EnabledLogicalElement.OtherEnabledState" }]
  uint16 EnabledState = 5;


    [Override, Description (
      "A user-friendly name for the object. This property allows "
      "each instance to define a user-friendly name in addition to "
      "its key properties, identity data, and description "
      "information. \n"
      "Note that the Name property of ManagedSystemElement is also "
      "defined as a user-friendly name. But, it is often "
      "subclassed to be a Key. It is not reasonable that the same "
      "property can convey both identity and a user-friendly name, "
      "without inconsistencies. Where Name exists and is not a Key "
      "(such as for instances of LogicalDevice), the same "
      "information can be present in both the Name and ElementName "
      "properties.")]
  string ElementName = "Active Directory Service";


    [Description (
      "Schema type used by the third party authentication and "
      "authorization service to authenticate and authorize with "
      "Active Directory service. \n"
      "1 (\"Extended\") value shall denote that Active Directory "
      "service schema contains vendor schema extension including DCIM "
      "extended objects to represent the the managed system and its "
      "associationas. \n"
      "If SchemaType property has value 1(\"Extended\") and the "
```

"EnabledState property has value 2(\"Enabled\"), then the "

"RootDomain, DeviceObjectDomain, DeviceObjectName properties "

"shall not be NULL. \n"

"2 (\"Standard\") value shall denote that Active Directory "

"service schema contains no vendor schema extension. \n"

"If SchemaType property has value 2(\"Standard\") and the "

"EnabledState property has value 2(\"Enabled\"), then the "

"RootDomain shall not be NULL, as well as, the ElementName "

"and RoleGroupDomain properties of all the associated "

"instances of DCIM_OEMActiveDirectoryGroup through "

"CIM_ServiceAffectsElement associations shall not be NULL."),

ValueMap { "1", "2"},

Values { "Extended", "Standard"}]

uint16 SchemaType;

[Description (

"Active Directory service root domain. \n"

"If the EnabledState property has value 2(\"Enabled\") and the "

"Methodology property of the associated "

"DCIM_OEMActiveDirectoryCapabilities property has value of 2 "

"(non-LACS - Domain Name Based), then the RootDomain shall be "

"non-NULL, non-blank value. ")]

string RootDomain;

[Experimental, Description (

"Domain of the Active Directory object representing the "

"managed system. This property is relevant when "

"SchemaType property has value 1 (\"Extended\").")]

string DeviceObjectDomain;

[Description (

"Active Directory object name for the managed system. This "

          "property allows the third party authentication service on "

          "the manged system to find the corresponding Active Directory "

          "object within the domain specified by the DeviceObjectDomain "

          "property. This property is relevant when SchemaType "

          "property has value 1 (\"Extended\").")]

   string DeviceObjectName;

      [Description (

          "Time out period represents the maximum time period that is "

          "allowed for the managed system to try to authenticate with "

          "Active Directory service before timing out. ")]

   datetime AuthTimeout;

      [Description (

          "DomainControllerAddress represents the IPv4 or "

          "host name of the domain controller.\n "

          "The maximum length of this property array shall be the value of "

          "the NumberOfDomainControllersSupported of the associated "

          "DCIM_OEMActiveDirectoryCapabilities instance, if the "

          "NumberOfDomainControllersSupported is not equal to 0.\n "

          "If the EnabledState property has value 2(\"Enabled\") and the "

          "Methodology property of the associated "

          "DCIM_OEMActiveDirectoryCapabilities property has value 4 "

          "(LACS - Domain Controller Based), then "

          "DomainControllerAddresses shall contain at least one non-NULL, "

          "non-blank value. "),

          ModelCorrespondence {

          "DCIM_OEMActiveDirectoryCapabilities.NumberOfDomainControllersSupported"}]

   string DomainControllerAddresses[];

      [Description (

          "GlobalCatalogAddress represents the IPv4 address or "

    "the host name of the server on which the Global Catalog of the "

    "domain resides.\n "

    "The maximum length of this property array shall be the value of "

    "the NumberOfGlobalCatalogsSupported of the associated "

    "DCIM_OEMActiveDirectoryCapabilities instance, if the "

    "NumberOfGlobalCatalogsSupported is not equal to 0.\n "),

    ModelCorrespondence {

    "DCIM_OEMActiveDirectoryCapabilities.NumberOfGlobalCatalogsSupported"}]

  string GlobalCatalogAddresses[];

   [Description (

    "If TRUE, Active Directory client automatically trusts the "

    "certificate presented to it by the Active Directory. ")]

  boolean AutomaticTrustEnabled = FALSE;

};

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// ==

// DCIM_OEMActiveDirectoryCapabilities

// ==

  [Experimental, Version ("1.0.0"), Description (

    "This class provides capabilties forDCIM_OEMActiveDirectoryService "

    "class. ")]

class DCIM_OEMActiveDirectorycCapabilities : CIM_EnabledLogicalElementCapabilties {

   [Description (

    "Methodology represents the methodology used to search for the "

    "necessary objects on the Active Directory.\n "

    "2 (\"non-LACS - Domain Name Based\") value identifies that the "

    "Active Directory client is going to utilize search mechanism "

```
        "based solely on the domain and object name information, and "
        "does not utilize LACS - LDAP-enabled Access Control Subsystem.\n "
        "3 (\"non-LACS - Domain Controller Based\") value identifies "
        "that the Active Directory client is going to utilize search "
        "mechanism based on the domain and object name information as "
        "well as Domain Controller information, and does not utilize "
        "LACS - LDAP-enabled Access Control Subsystem.\n "
        "4 (\"LACS - Domain Controller Based\") value identifies that "
        "the Active Directory client is going to utilize search "
        "mechanism based on the domain and object name information as "
        "well as Domain Controller information, and also utilizes LACS - "
        "LDAP-enabled Access Control Subsystem. "),
    ValueMap { "2", "3", "4" },
    Values { "Non-LACS - Domain Name Based",
        "Non-LACS - Domain Name/Controller Based",
        "LACS - Domain Controller Based"}]
uint16 Methodology;


  [Description (
      "NumberOfDomainControllersSupported shall represent the number "
      "of Domain Controller servers allowed to specified for Active "
      "Directory client. This property represents maximum length of the "
      "DCIM_OEMActiveDirectoryService.DomainControllerAddresses "
      "property array. The value 0 shall mean \"Unknown\"."),
      ModelCorrespondence {
      "DCIM_OEMActiveDirectoryService.DomainControllerAddresses"}]
uint16 NumberOfDomainControllersSupported;


  [Description (
      "NumberOfGlobalCatalogsSupported shall represent the number "
      "of Domain Controller servers allowed to specified for Active "
      "Directory client. This property represents maximum length of the "
```

```
      "DCIM_OEMActiveDirectoryService.GlobalCatalogAddresses "

      "property array. The value 0 shall mean \"Unknown\"."),

      ModelCorrespondence {

      "DCIM_OEMActiveDirectoryService.GlobalCatalogAddresses"}]
  uint16 NumberOfGlobalCatalogsSupported;

};


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// ===================================================================

// DCIM_OEMActiveDirectoryGroup

// ===================================================================
  [Experimental, Version ( "1.0.0" ), Description (

      "This class extends CIM_Group to represent Active Directory role "

      "groups used for the third party authentication and "

      "authorization management through Active Directory services.")]
class DCIM_OEMActiveDirectoryGroup : CIM_Group {


    [Override, Description (

      "The name of the Active Directory role group which has "

      "priviliges on the managed system.")]
  string ElementName;


    [Experimental, Description (

      "Domain of the Active Directory role group which has privileges on the managed system. ")]
  string DeviceObjectDomain;


};
```

ANNEX C
(informative)

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