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CONTENTS

Figures

Tables

Foreword

The *Allocation Capabilities Profile* (DSP1043) was prepared by the System Virtualization, Partitioning, and Clustering Work Group.

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

Acknowledgments

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Introduction

The information in this specification should be sufficient for a provider or consumer of this data to identify unambiguously the classes, properties, methods, and values that shall be instantiated and manipulated to represent and manage the allocation capabilities of host systems and resource pools modeled using the DMTF CIM core and extended model definitions.

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

Allocation Capabilities Profile

1 Scope

The *Allocation Capabilities Profile* extends the management capability of referencing profiles by adding the ability to represent the default, supported and range of property values for resource allocation requests for a given resource, and the mutability of properties in a Resource Allocation Setting Data instance.

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.

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

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

DMTF DSP0207, *WBEM URI Mapping Specification* 1.0,
http://www.dmtf.org/standards/published_documents/DSP0207_1.0.pdf

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

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

3 Terms and Definitions

For the purposes of this document, the following terms and definitions apply. For the purposes of this document, the terms and definitions in DSP1033 and DSP1001 also 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 if 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 "Referenced 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

3.13
unspecified
indicates that this profile does not define any constraints for the referenced CIM element or operation

3.14
host system
the scoping computer system in a virtualization environment that contains computing resources or system devices that are capable of being virtualized

3.15
virtual system
a virtualized computer system that is composed of partitioned or virtualized computing resources and system devices. Other common industry terms for such a system include virtual machine, hosted

computer, child partition, logical partition, domain, guest, and container. In some virtualization environments, a Virtual system may act as the host system to other nested virtual systems, for example, a logically partitioned system in which each partition runs an instance of a hypervisor.

3.16
host resource
system devices or computing resources contained by the host system that may be utilized — either exclusively or shared — through the virtualization platform to provide resources to a virtual system

3.17
virtual resource
system devices or computing resources that are given or allocated by the virtualization platform to the virtual system. Virtual resources are typically represented using the same CIM class as their respective host resource.

3.18
resource type
a generic type that can be used to categorize classes of host resources or virtualized host resources, for example, processor, memory, network adapter, and so on

3.19
resource pool
an abstract entity exposed by the Virtualization Platform for the purpose of allocation and assignment of Virtual Resources to Virtual Systems. In the case where host resources of the same resource type can be meaningfully separated, multiple mutually exclusive resource pools may exist.

3.20
current setting data
the virtual setting data associated with the current allocation state of a virtual resource or system.

3.21
capability set
a set of instances of class CIM_SettingData associated with the association CIM_SettingsDefineCapabilities to a CIM_Capabilities instance, and the associated CIM_Capabilities instance.

4 Symbols and Abbreviated Terms

4.1
CIM
Common Information Model

4.2
CPU
Central Processing Unit

5 Synopsis

Profile Name: Allocation Capabilities

Version: 1.0.0

Organization: DMTF

265 **CIM schema version:** 2.22

266 **Central Class:** CIM_AllocationCapabilities

267 **Scoping Class:** CIM_System
268
269 This abstract profile specification shall not be directly implemented; implementation shall be based on a
270 profile specification for the capabilities of a resource pool or virtualization system for a specific class of
271 resources, such as CPU and system memory. The scoping association paths between the central class
272 and the scoping class shall be specified by the incorporating concrete profiles.

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

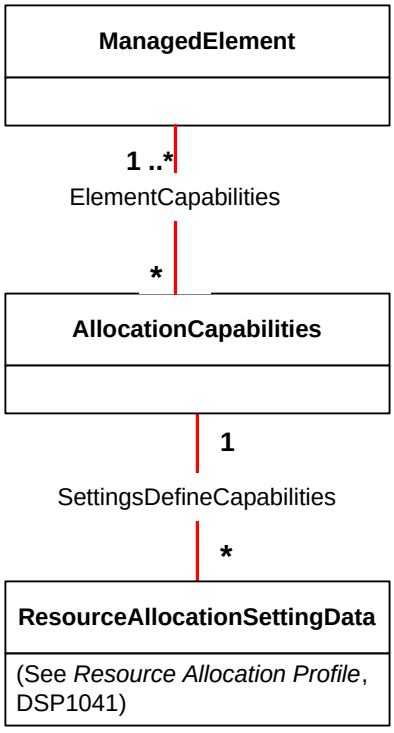
274 **Table 1 – Related Profiles**

Profile Name	Organization	Version	Requirement	Description
None.				

275 # 6 Description

276 The *Allocation Capabilities Profile* is an abstract profile that describes the use of the class
277 CIM_AllocationCapabilities and the use of association CIM_SettingsDefineCapabilities to a set of
278 CIM_ResourceAllocationSettingData instances to describe the default property values, supported
279 property values, and range of property values for a resource allocation request.

280 Figure 1 represents the class schema for the *Allocation Capabilities Profile*. For simplicity, the prefix CIM_
281 has been removed from the names of the classes.



282

283 **Figure 1 – Allocation Capabilities Profile: Class Diagram**

The CIM_ManagedElement class in Figure 1 represents a potential provider of resources such as a host system (CIM_ComputerSystem) or a resource pool (CIM_ResourcePool), or the CIM_ManagedElement class represents an instance of CIM_ResourceAllocationSettingData.

CIM_ElementCapabilities associates the CIM_AllocationCapabilities instance to a subclass of CIM_ManagedElement.

If a CIM_AllocationCapabilities instance associated using the CIM_ElementCapabilities association is used to define the allocation capabilities of the managed element, the set of CIM_ResourceAllocationSettingData instances together with properties of the CIM_AllocationCapabilities instance defines a supported set of default property values, supported property values, and range of supported property values required to form a valid allocation request for the resource type.

If a CIM_AllocationCapabilities instance is associated using the CIM_ElementCapabilities association to an instance of CIM_ResourceAllocationSettingData, the set of associated CIM_ResourceAllocationSettingData instances represents the supported changes or the range of valid changes for the properties in the CIM_ResourceAllocationSettingData instance.

CIM_SettingsDefineCapabilities associates instances of CIM_ResourceAllocationSettingData to a CIM_AllocationCapabilities instance and defines the type of capability the CIM_ResourceAllocationSettingData represents.

Note that the allocation capabilities do not reflect the current or dynamic state of any allocations. Rather they define valid allocation requests or valid settings modifications supported by the host system or resource pool without regard to the current availability of a host resource.

6.1 CIM_SettingsDefineCapabilities

The CIM_SettingsDefineCapabilities association indicates that the non-null, non-key set of properties of the component CIM_ResourceAllocationSettingData instance specifies some capabilities of the associated CIM_AllocationCapabilities instance. The interpretation of the set of properties in the associated CIM_ResourceAllocationSettingData is governed by the CIM_SettingsDefineCapabilities properties: PropertyPolicy, ValueRole, and ValueRange.

6.1.1 PropertyPolicy

The CIM Schema description of this property applies.

PropertyPolicy defines whether or not the non-null, non-key properties of the associated CIM_ResourceAllocationSettingData instance are treated independently or as a correlated set.

This profile assumes that the value of the PropertyPolicy property is 0 (“Independent”) if the ValueRange contains a value of 1 (“Minimums”), 2 (“Maximums”) or 3 (“Increments”). In these cases multiple instances of CIM_AllocationCapabilities with independent sets of capabilities are used to express correlated sets of capabilities.

PropertyPolicy can be set to 0 (“Independent”) or 1 (“Correlated”) if the property ValueRange is set to “Point” to express the independence or the dependence of the set of properties in the associated CIM_ResourceAllocationSettingData instance.

6.1.2 ValueRole

The CIM Schema description of this property applies.

The possible values for the ValueRole property are as follows:

- 0 (“Default“) indicates that property values of the component CIM_ResourceAllocationSettingData instance are the default values that are

used if a new CIM_ResourceAllocationSettingData instance is created for elements whose capabilities are defined by the associated CIM_AllocationCapabilities instance.

- 4 ("Supported") indicates that the component CIM_ResourceAllocationSettingData instance represents a set of supported property values or the increments within a supported range of values.

6.1.3 ValueRange

The CIM Schema description of this property applies.

The possible values for the ValueRange property are as follows:

- 0 ("Point") indicates that the component CIM_ResourceAllocationSettingData instance provides a single set of values.
- 1 ("Minimums") indicates that this CIM_ResourceAllocationSettingData instance provides minimum values for numeric properties with a linear range. Unless restricted by a "Maximums" value on the same set of properties, all values that collate higher than the specified values are also considered to be supported by the associated capabilities instance.
- 2 ("Maximums") indicates that this CIM_ResourceAllocationSettingData instance provides maximum values for numeric properties with a linear range. Unless restricted by a "Minimums" value on the same set of properties, all values that collate lower than the specified values are also considered to be supported by the associated capabilities instance.
- 3 ("Increments") indicates that this CIM_ResourceAllocationSettingData instance provides increment values for numeric properties. These values represent the respective increment between the maximum and minimum values of the supported numeric settings.

7 Implementation

This section details the requirements related to the arrangement of instances and properties of those instances for implementations of this profile.

Each instance of CIM_AllocationCapabilities shall be associated with one or more instances of CIM_ManagedElement through the CIM_ElementCapabilities association class.

Each instance of CIM_AllocationCapabilities shall be associated with zero or more instances of CIM_ResourceAllocationSettingData through the CIM_SettingsDefineCapabilities association class. The ResourceType property for each instance of CIM_ResourceAllocationSettingData associated with an instance of CIM_AllocationCapabilities through the CIM_SettingsDefineCapabilities association shall have the same value as the ResourceType property of the CIM_AllocationCapabilities instance.

If a CIM_ResourceAllocationSettingData instance has an associated CIM_AllocationCapabilities instance to represent the mutability of its properties and no non-null values are found for a property in the instance or instances of CIM_ResourceAllocationSettingData associated to the CIM_AllocationCapabilities instance with the CIM_SettingsDefineCapabilities association that property is not mutable.

If multiple CIM_AllocationCapabilities instances are associated through the CIM_ElementCapabilities association class to a single instance of CIM_ManagedElement, each instance of CIM_AllocationCapabilities and associated CIM_ResourceAllocationSettingData instances shall define one correlated set. A setting from one set shall not be combined with a setting from another set to define a valid allocation request for a given resource.

7.1 Default Class CIM_AllocationCapabilities – Optional

The default CIM_AllocationCapabilities instance of a given resource type associated with a managed element may be modeled. This section describes the behavioral requirements if a default CIM_AllocationCapabilities instance is modeled.

The CIM_ElementCapabilities instance that associates the CIM_AllocationCapabilities instance of a given resource type to a managed element that represents a default CIM_AllocationCapabilities instance shall be implemented as specified in section 10.3. Each instance of CIM_ManagedElement shall be referenced by at most one instance of CIM_ElementCapabilities as specified in section 10.3 for a given resource type. This implies that at most a single default CIM_AllocationCapabilities instance for a given resource type may be associated to a manage element.

7.2 Modeling Default Settings – Optional

The default resource allocation settings for a CIM_AllocationCapabilities instance associated with a managed element may be modeled. This section describes the behavioral requirements if the default allocation settings are modeled.

The CIM_SettingsDefineCapabilities instance that associates the CIM_ResourceAllocationSettingData representing the default settings with the CIM_AllocationCapabilities instance shall be implemented as specified in section 10.5. Each instance of CIM_AllocationCapabilities shall be referenced by at most one instance of CIM_SettingsDefineCapabilities implemented as specified in section 10.5. This implies that at most a single default resource allocation settings exists and is modeled with a single instance of CIM_ResourceAllocationSettingData.

7.3 Modeling Minimum Settings – Optional

The minimum resource allocation settings for a CIM_AllocationCapabilities instance associated with a managed element may be modeled. This section describes the behavioral requirements if the minimum allocation settings are modeled.

The CIM_SettingsDefineCapabilities instance that associates the CIM_ResourceAllocationSettingData representing the minimum settings with the CIM_AllocationCapabilities instance shall be implemented as specified in section 10.6. Each instance of CIM_AllocationCapabilities shall be referenced by at most one instance of CIM_SettingsDefineCapabilities implemented as specified in section 10.6. This implies that at most a single minimum resource allocation settings exists and is modeled with a single instance of CIM_ResourceAllocationSettingData.

7.4 Modeling Maximum Settings – Optional

The maximum resource allocation settings for a CIM_AllocationCapabilities instance associated with a managed element may be modeled. This section describes the behavioral requirements if the maximum allocation settings are modeled.

The CIM_SettingsDefineCapabilities instance that associates the CIM_ResourceAllocationSettingData representing the maximum settings with the CIM_AllocationCapabilities instance shall be implemented as specified in section 10.7. Each instance of CIM_AllocationCapabilities shall be referenced by at most one instance of CIM_SettingsDefineCapabilities implemented as specified in section 10.7. This implies that at most a single maximum resource allocation settings exists and is modeled with a single instance of CIM_ResourceAllocationSettingData.

7.5 Modeling Increment Settings – Optional

The increment resource allocation settings for a CIM_AllocationCapabilities instance associated with a managed element may be modeled. This section describes the behavioral requirements if the increment allocation settings are modeled.

The CIM_SettingsDefineCapabilities instance that associates the CIM_ResourceAllocationSettingData representing the increment settings with the CIM_AllocationCapabilities instance shall be implemented as specified in section 10.8. Each instance of CIM_AllocationCapabilities shall be referenced by at most one instance of CIM_SettingsDefineCapabilities implemented as specified in section 10.8.This implies that at most a single increment resource allocation settings exists and is modeled with a single instance of CIM_ResourceAllocationSettingData.

7.6 Modeling Supported Point Settings – Optional

The supported point resource allocation settings for a CIM_AllocationCapabilities instance associated with a managed element may be modeled. This section describes the behavioral requirements if the supported allocation settings for a managed element are modeled.

The CIM_SettingsDefineCapabilities instance that associated the CIM_ResourceAllocationSettingData representing the supported point settings with the CIM_AllocationCapabilities instance shall be implemented as specified in section 10.9.

8 Methods

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

8.1 Profile Conventions for Operations

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

The default list of operations for all classes is as follows:

- GetInstance( )
- EnumerateInstances( )
- EnumerateInstanceNames( )

For classes that are referenced by an association, the default list also includes

- Associators( )
- AssociatorNames( )
- References( )
- ReferenceNames( )

8.2 CIM_AllocationCapabilities

All operations in the default list in 8.1 shall be implemented as defined in DSP0200.

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

8.3 CIM_ResourceAllocationSettingData

All operations in the default list in 8.1 shall be implemented as defined in DSP0200.

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

8.4 CIM_SettingsDefineCapabilities

Table 2 lists implementation requirements for operations. If implemented, these operations shall be implemented as defined in DSP0200. In addition, and unless otherwise stated in Table 2, all operations in the default list in 8.1 shall be implemented as defined in DSP0200.

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

Table 2 – Operations: CIM_SettingsDefineCapabilities

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

8.5 CIM_ElementCapabilities

Table 3 lists implementation requirements for operations. If implemented, these operations shall be implemented as defined in DSP0200. In addition, and unless otherwise stated in Table 3, all operations in the default list in 8.1 shall be implemented as defined in DSP0200.

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

Table 3 – Operations: CIM_ElementCapabilities

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

9 Use Cases

This section contains object diagrams and use cases for the DMTF Allocation Capabilities Profile. Use cases are informative and are not intended to define the requirements for conformance.

CIM_AllocationCapabilities and its associated set of CIM_ResourceAllocationSettingData instances define the allocation capability for a given resource type of a host system or resource pool, or describes the mutability and the valid ranges for change of a CIM_ResourceAllocationSettingData instance. Figure 2 demonstrates uses of CIM_AllocationCapabilities to represent the allocation capabilities of a virtualization system and one resource pool within the virtualization system. Figure 3 demonstrates the use of CIM_AllocationCapabilities to represent the mutability of a property within an associated Current CIM_ResourceAllocationSettingData.

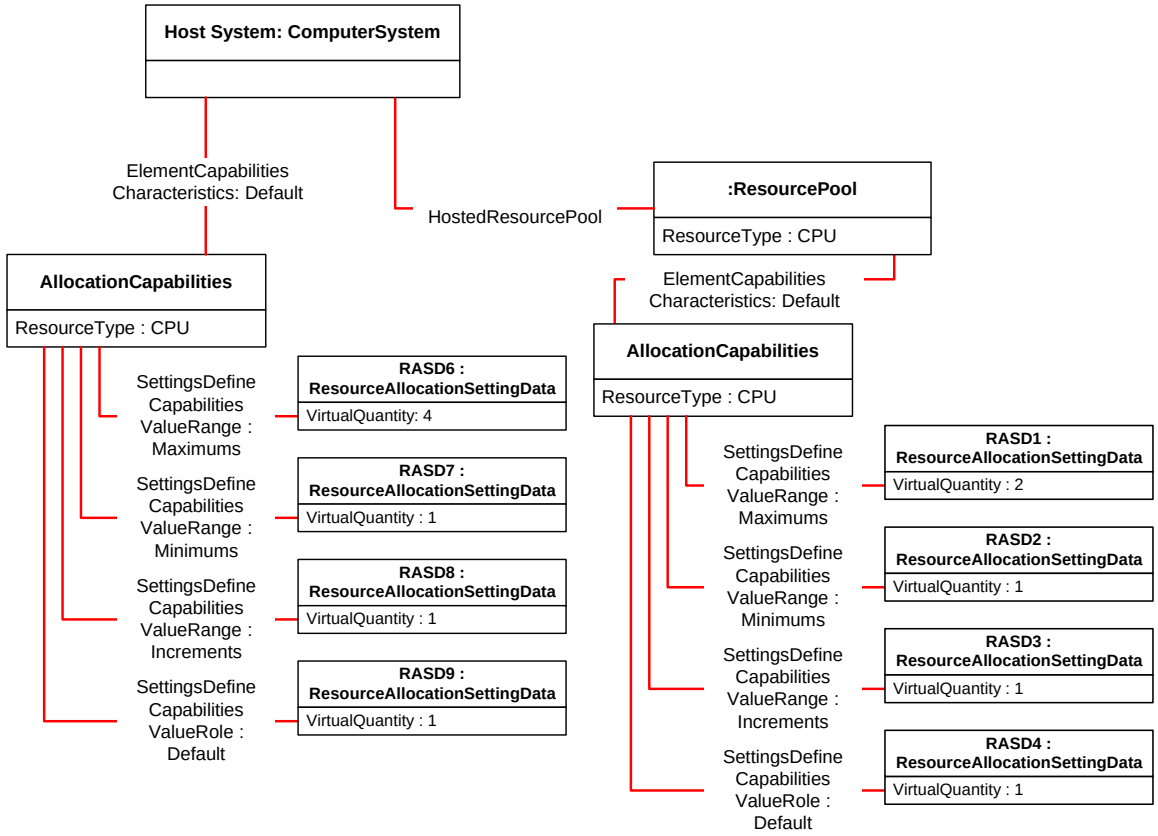


Figure 2 – Allocation Capabilities Associated to CIM_ComputerSystem and CIM_ResourcePool

9.1 Associating CIM_AllocationCapabilities with a Host System

The CIM_AllocationCapabilities instance associated to the host system defines the allocation capabilities of the host system for a resource type. In Figure 2 the host system is capable of accepting allocation requests for systems with up to 4 CPUs and a minimum of one CPU or if no value for CPU VirtualQuantity is specified in an allocation request the default value of 1 is used.

9.2 Associating CIM_AllocationCapabilities with a Resource Pool

The CIM_AllocationCapabilities instance associated to the resource pool defines the allocation capabilities of the resource pool. This usage allows a host system to present the capabilities of multiple resource pools for a resource type. As illustrated in Figure 2, the capability set for this specific CPU resource pool subsets the overall capabilities of the virtualization system. The specific resource pool instance in the figure limits the maximum CPUs in a virtual system to two.

9.3 Associating CIM_AllocationCapabilities with a CIM_ResourceAllocationSettingData Instance

As shown in Figure 3, the instance of CIM_AllocationCapabilities that is associated to the current CIM_ResourceAllocationSettingData instances specifies the mutability of the VirtualQuantity property in the associated Current CIM_ResourceAllocationSettingData instance. Figure 3 shows a capability set of a current CIM_ResourceAllocationSettingData associated to a single instance of CIM_Processor. This specifies that the VirtualQuantity property in the Current CIM_ResourceAllocationSettingData can be changed from 1 to 2.

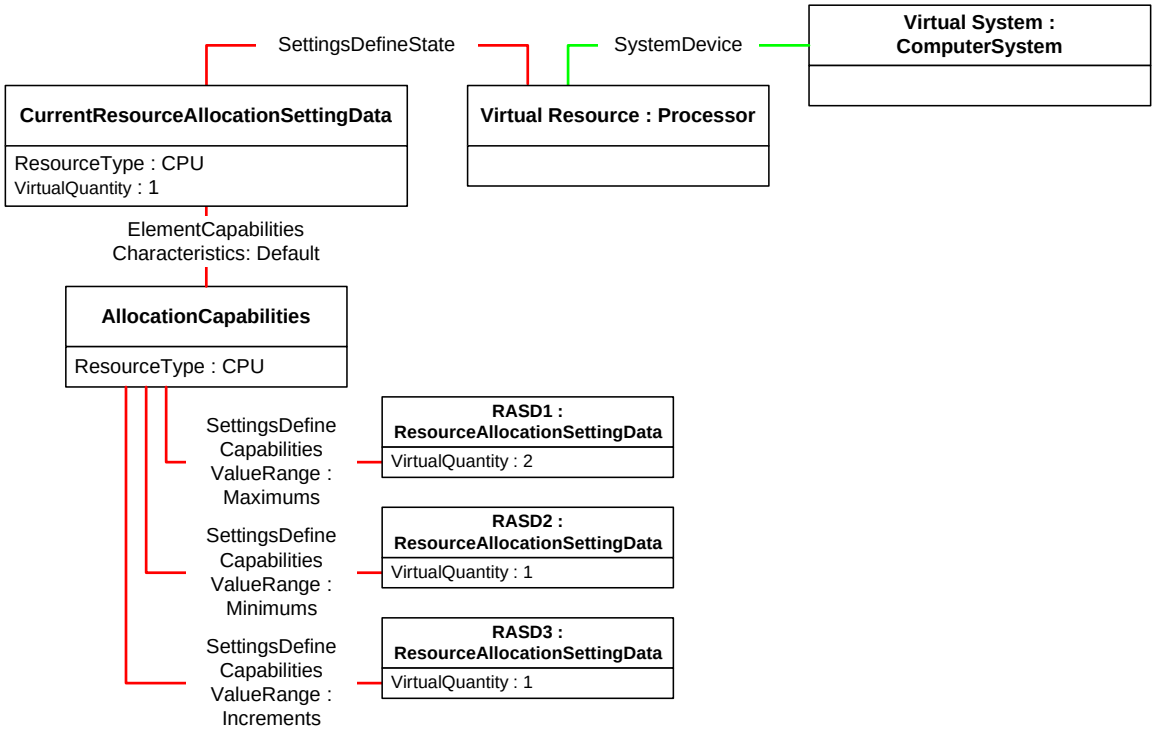


Figure 3 – Allocation Capabilities Associated to CIM_ResourceAllocationSettingData

9.4 Associating Multiple CIM_AllocationCapabilities with One Resource Pool Instance

Figure 4 shows an example in which multiple capability sets are used to express multiple capabilities of a single resource pool. This example shows a system that allows either shared or exclusive access of a resource. Based on the type of allocation selected the Default, Minimum and Increment CIM_ResourceAllocationSettingData instances reflect different property values. Each capability set defines one correlated set. A setting from one set may not be combined with a setting from another set to form a valid allocation request for a given resource.

While this example is based on the SharingMode property in CIM_AllocationCapabilities, other possibilities exist. For example, different capability sets may be based on the AllocationUnits property in CIM_ResourceAllocationSettingData.

The property CIM_ElementCapabilities.Characteristics set to 2 (“Default”) shows that the CIM_AllocationCapabilities instance AC0 represents the default capability set for this resource pool.

This same pattern applies to capability sets associated with a host system or CIM_ResourceAllocationSettingData, as well as to the example shown in Figure 4.

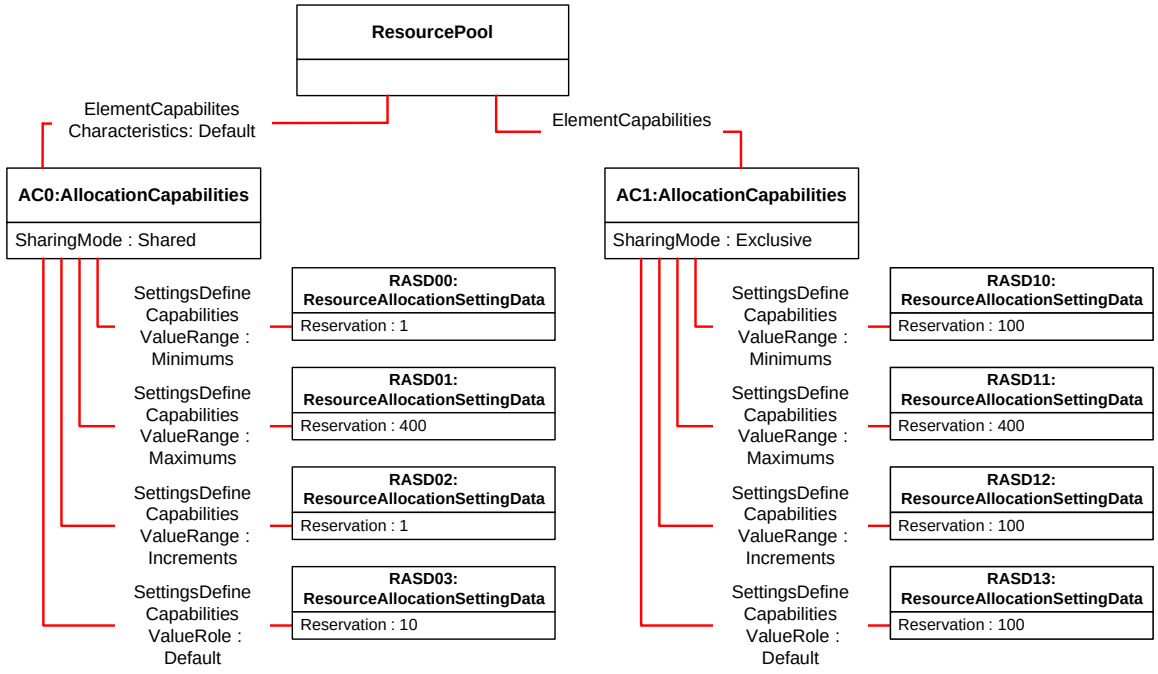


Figure 4 – Multiple CIM_AllocationCapabilities Instances

9.5 Discovering a Host System's Allocation Capability for a Given Resource Type

The client can enumerate the CIM_AllocationCapabilities instances associated to the target CIM_ComputerSystem (host system) with the CIM_ElementCapabilities association, filtering on the CIM_AllocationCapabilities.ResourceType property to select only the CIM_AllocationCapabilities instances of the desired resource type.

9.6 Discovering the Allocation Capability for a Given Resource Type for a Specific Resource Pool

The client enumerates the CIM_ResourcePool instances by filtering on the CIM_ResourcePool.ResourceType property to select only the CIM_ResourcePool instances of the desired resource type. For each of the target instances of CIM_ResourcePool select all of the instances of CIM_AllocationCapabilities associated with the CIM_ElementCapabilities association.

9.7 Determining the Default Instance of CIM_AllocationCapabilities for a Given Resource Type

From the selected CIM_AllocationCapabilities instance(s) (see sections 9.5 and 9.6) the client selects the CIM_AllocationCapabilities instance associated through the CIM_ElementCapabilities association where the value of the CIM_ElementCapabilities.Characteristics property is 2 ("Default").

9.8 Determining the Default, Supported Point and Valid Ranges of Property Values Representing the Allocation Capability from a Selected Instance of CIM_AllocationCapabilities

The client finds the CIM_ResourceAllocationSettingData instance associated with a selected instance of CIM_AllocationCapabilities (see sections 9.5 and 9.6) through the CIM_SettingsDefineCapabilities association where the value of the CIM_SettingsDefineCapabilities.ValueRole property is 0 (“Default”). The values within the selected CIM_ResourceAllocationSettingData instance represent the default values for the host system or the selected resource pool. A null value specifies that the property is not relevant for the resource type.

After determining that there is a non-null default property value, the client finds the CIM_ResourceAllocationSettingData instances associated with a selected instance of CIM_AllocationCapabilities (see sections 9.5 and 9.6) through the CIM_SettingsDefineCapabilities association where the value of the CIM_SettingsDefineCapabilities.ValueRole property is 3 (“Supported”) and the value of the CIM_SettingsDefineCapabilities.ValueRange property is 0 (“Point”). The set of non-null values for a given property within the selected set of CIM_ResourceAllocationSettingData represents supported values for that property.

For numeric properties the client finds the CIM_ResourceAllocationSettingData instances associated with a selected instance of CIM_AllocationCapabilities (see sections 9.5 and 9.6) through the CIM_SettingsDefineCapabilities associations where the value of the CIM_SettingsDefineCapabilities.ValueRole property is 1 (“Minimums”), 2 (“Maximums”), or 3 (“Increments”). The minimum and maximum values define the range of valid parameters. The increment values describe the valid steps within a specified range. Each of these instances represents a limitation on the range of supported values. For example, if a property has a minimum value but no maximum value specified, the maximum is not limited. If the property has a maximum value but no minimum value there is no minimum value.

9.9 Discovering the Supported Changes of a Property Value in an Instance of a CIM_ResourceAllocationSettingData

The client enumerates the set of CIM_AllocationCapabilities instances associated with the association CIM_ElementCapabilities to the target CIM_ResourceAllocationSettingData instance.

The client finds the CIM_ResourceAllocationSettingData instance associated with a selected instance of CIM_AllocationCapabilities through the CIM_SettingsDefineCapabilities association where the value of the CIM_SettingsDefineCapabilities.ValueRole property is 3 (“Supported”) and the value of the ValueRange property is 0 (“Point”). The set of non-null values for a given property within the selected set of CIM_ResourceAllocationSettingData represents supported point values for that property.

For numeric properties the client finds the CIM_ResourceAllocationSettingData instances associated with a selected instance of CIM_AllocationCapabilities through the CIM_SettingsDefineCapabilities associations where the value of the CIM_SettingsDefineCapabilities.ValueRole property is 1 (“Minimums”), 2 (“Maximums”), or 3 (“Increments”). The minimum and maximum values define a range of supported values for numeric properties. The increments value describes the valid steps within a specified range. Each of these instances represents a limitation on the range of supported values. For example, if a property has a minimum value but no maximum value specified, the maximum is not limited. If the property has a maximum value but no minimum value specified, the minimum is not constrained.

10 CIM Elements

Table 4 shows the instances of CIM Elements for this profile. Instances of the CIM Elements shall be implemented as described in Table 4. Sections 7 ("Implementation") and 8 ("Methods") may impose additional requirements on these elements.

Table 4 – CIM Elements: Allocation Capabilities Profile

Element Name	Requirement	Description
Classes		
CIM_AllocationCapabilities	Mandatory	See section 10.1.
CIM_ElementCapabilities	Mandatory	See section 10.2.
CIM_SettingsDefineCapabilities	Mandatory	See sections 10.3, 10.5, 10.6, 10.7, 10.8, and 10.9.
Indications		
None defined in this profile		

10.1 CIM_AllocationCapabilities

CIM_AllocationCapabilities represents the allocation capabilities of a host system or resource pool or represents the mutability a CIM_ResourceAllocationSettingData instance.

Table 5 provides information about the properties of CIM_AllocationCapabilities.

Table 5 – Class: CIM_AllocationCapabilities

Elements	Requirement	Notes
InstanceID	Mandatory	**Key**
ResourceType	Mandatory	None
OtherResourceType	Conditional	Shall be used if ResourceType matches 1 ("Other")
RequestTypesSupported	Mandatory	None
SharingMode	Mandatory	None
SupportedAddStates	Optional	None
SupportedRemoveStates	Optional	None

10.2 CIM_ElementCapabilities

CIM_ElementCapabilities associates an instance of CIM_AllocationCapabilities with a subclass of CIM_ManagedElement assumed to be CIM_System, CIM_ResourcePool, or CIM_ResourceAllocationSettingData.

580 Table 6 defines the properties of CIM_ElementCapabilities.

581 **Table 6 – Class: CIM_ElementCapabilities**

Properties	Requirement	Notes
ManagedElement	Mandatory	**Key** Cardinality 1..*
Capabilities	Mandatory	**Key** Shall be a reference to the CIM_AllocationCapabilities instance Cardinality *
Characteristics	Mandatory	

582 10.3 CIM_ElementCapabilities – Default

583 CIM_ElementCapabilities associates an instance of CIM_AllocationCapabilities with a subclass of
584 CIM_ManagedElement assumed to be CIM_System, CIM_ResourcePool, or
585 CIM_ResourceAllocationSettingData representing the default capabilities.

586 Table 6 defines the properties of CIM_ElementCapabilities.

587 **Table 7 – Class: CIM_ElementCapabilities (Default)**

Properties	Requirement	Notes
ManagedElement	Mandatory	**Key** Cardinality 1
Capabilities	Mandatory	**Key** Shall be a reference to a default CIM_AllocationCapabilities instance Cardinality 1
Characteristics	Mandatory	**Matches 2 “Default”**

588 10.4 CIM_SettingsDefineCapabilities

589 CIM_SettingsDefineCapabilities associates a CIM_ResourceAllocationSettingData instance, representing
590 the settable or mutable allocation settings for a resource, with a CIM_AllocationCapabilities instance.

591 Table 8 provides information about the properties of CIM_SettingsDefineCapabilities.

592 **Table 8 – Class: CIM_SettingsDefineCapabilities**

Elements	Requirement	Notes
GroupComponent	Mandatory	Shall be a reference to an instance of CIM_AllocationCapabilities Cardinality 1
PartComponent	Mandatory	Shall be a reference to an instance of CIM_ResourceAllocationSettingData Cardinality 1..*
PropertyPolicy	Mandatory	
ValueRole	Mandatory	
ValueRange	Mandatory	

593 10.5 CIM_SettingsDefineCapabilities – Default

594 CIM_SettingsDefineCapabilities associates a CIM_ResourceAllocationSettingData instance, representing
595 default allocation settings for a resource, with a CIM_AllocationCapabilities instance.

596 Table 9 provides information about the properties of CIM_SettingsDefineCapabilities (Default).

597 **Table 9 – Class: CIM_SettingsDefineCapabilities (Default)**

Elements	Requirement	Notes
GroupComponent	Mandatory	Shall be a reference to an instance of CIM_AllocationCapabilities Cardinality 1
PartComponent	Mandatory	Shall be a reference to an instance of CIM_ResourceAllocationSettingData Cardinality 1
PropertyPolicy	Mandatory	Matches 0 (“Independent”)
ValueRole	Mandatory	Matches 0 (“Default”)
ValueRange	Mandatory	Matches 0 (“Point”)

10.6 CIM_SettingsDefineCapabilities – Minimums

CIM_SettingsDefineCapabilities associates a CIM_ResourceAllocationSettingData instance representing the minimum values of valid numeric settings to a CIM_AllocationCapabilities instance.

Table 10 provides information about the properties of CIM_SettingsDefineCapabilities (Minimums).

Table 10 – Class: CIM_SettingsDefineCapabilities (Minimums)

Elements	Requirement	Notes
GroupComponent	Mandatory	Shall be a reference to an instance of CIM_AllocationCapabilities Cardinality 1
PartComponent	Mandatory	Shall be a reference to an instance of CIM_ResourceAllocationSettingData Cardinality 1
PropertyPolicy	Mandatory	Matches 0 (“Independent”)
ValueRole	Mandatory	Matches 3 (“Supported”)
ValueRange	Mandatory	Matches 1 (“Minimums”)

10.7 CIM_SettingsDefineCapabilities – Maximums

CIM_SettingsDefineCapabilities associates a CIM_ResourceAllocationSettingData instance representing the maximum values of valid numeric settings to a CIM_AllocationCapabilities instance.

Table 11 provides information about the properties of CIM_SettingsDefineCapabilities (Maximums).

Table 11 – Class: CIM_SettingsDefineCapabilities (Maximums)

Elements	Requirement	Notes
GroupComponent	Mandatory	Shall be a reference to an instance of CIM_AllocationCapabilities Cardinality 1
PartComponent	Mandatory	Shall be a reference to an instance of CIM_ResourceAllocationSettingData Cardinality 1
PropertyPolicy	Mandatory	Matches 0 (“Independent”)
ValueRole	Mandatory	Matches 3 (“Supported”)
ValueRange	Mandatory	Matches 2 (“Maximums”)

10.8 CIM_SettingsDefineCapabilities – Increments

CIM_SettingsDefineCapabilities associates a CIM_ResourceAllocationSettingData instance, representing the increment between the maximum and minimum values of supported numeric settings, to a CIM_AllocationCapabilities instance.

Table 12 provides information about the properties of CIM_SettingsDefineCapabilities (Increments).

Table 12 – Class: CIM_SettingsDefineCapabilities (Increments)

Elements	Requirement	Notes
GroupComponent	Mandatory	Shall be a reference to an instance of CIM_AllocationCapabilities Cardinality 1
PartComponent	Mandatory	Shall be a reference to an instance of CIM_ResourceAllocationSettingData Cardinality 1
PropertyPolicy	Mandatory	Matches 0 (“Independent”)
ValueRole	Mandatory	Matches 3 (“Supported”)
ValueRange	Mandatory	Matches 3 (“Increments”)

10.9 CIM_SettingsDefineCapabilities – Supported Point

CIM_SettingsDefineCapabilities associates a CIM_ResourceAllocationSettingData instance, representing the settable or mutable allocation settings for a resource, with a CIM_AllocationCapabilities instance.

Table 13 provides information about the properties of CIM_SettingsDefineCapabilities (Independent Supported Point).

Table 13 – Class: CIM_SettingsDefineCapabilities (Independent Supported Point)

Elements	Requirement	Notes
GroupComponent	Mandatory	Shall be a reference to an instance of CIM_AllocationCapabilities Cardinality 1
PartComponent	Mandatory	Shall be a reference to an instance of CIM_ResourceAllocationSettingData Cardinality 1..*
PropertyPolicy	Mandatory	Matches 0 (“Independent”) or 1 (“Correlated”)
ValueRole	Mandatory	Matches 3 (“Supported”)
ValueRange	Mandatory	Matches 0 (“Point”)

ANNEX A
(informative)

Change Log

Version	Date	Author	Description
1.0.0a	2007/10/16	John Parchem	Preliminary Standard
1.0.0b	2009/04/30	Larry Lamers	DMTF Standard
1.0.0c	2009/05/27	Larry Lamers	Updated clause 8 per TC directive
1.0.0	2009/06/22		DMTF Standard Release