



## **Cisco UCS RAID Controller SMI-S Reference Guide**

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## Preface

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This preface describes the audience and organization of the *Cisco UCS RAID Controller SMI-S Reference Guide*. It also provides information on how to obtain related documentation. This preface contains the following topics:

- [Objectives, page v](#)
- [Audience, page v](#)
- [Organization, page v](#)
- [Related Documentation, page vi](#)
- [Obtaining Documentation and Submitting a Service Request, page vi](#)

## Objectives

This document describes the set of Storage Networking Industry Association (SNIA) Storage Management Initiative Specification (SMI-S) profiles supported in the Cisco UCS Servers.

This document does not provide detailed instructions on how to use the SMI-S management methods, such as the Web-Based Enterprise Management (WBEM). For usage instructions, see the Distributed Management Task Force (DMTF) documentation at:

<http://www.dmtf.org/standards/mgmt/smash>

and the SNIA documentation at:

<http://www.snia.org/home>

## Audience

This reference guide is designed for users who are responsible for the following:

- Implementing Cisco UCS Server instances
- Managing Cisco UCS instances

## Organization

This guide is organized into the following chapters:

- [Chapter 1, “Introduction”](#)
- [Chapter 2, “Supported Profiles”](#)

## Related Documentation

The documentation sets for the Cisco UCS B-Series and C-Series servers can be found at the following URLs:

- <http://www.cisco.com/go/unifiedcomputing/b-series-doc>
- <http://www.cisco.com/go/unifiedcomputing/c-series-doc>

Documentation for the Systems Management Architecture for Server Hardware (SMASH) can be found at the following URL:

<http://www.dmtf.org/standards/mgmt/smash>

Documentation for the SMI-S can be found at the following URL:

[http://www.snia.org/tech\\_activities/standards/curr\\_standards/smi](http://www.snia.org/tech_activities/standards/curr_standards/smi)

## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.



# CHAPTER 1

## Introduction

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This chapter provides an overview of SMI-S support in the Cisco UCS Servers.

This chapter contains the following sections:

- [About the Cisco Unified Computing System, page 1-1](#)
- [About the DMTF, page 1-1](#)
- [About the CIM, page 1-1](#)
- [About the SNIA, page 1-2](#)
- [About SMI-S, page 1-2](#)

## About the Cisco Unified Computing System

Cisco Unified Computing System (Cisco UCS) fuses access layer networking and servers. This high-performance, next-generation server system provides a data center with a high degree of workload agility and scalability. The hardware and software components support Cisco's unified fabric, which runs multiple types of data center traffic over a single converged network adapter.

## About the DMTF

The Distributed Management Task Force (DMTF) is an industry organization that develops and promotes standards for the platform-independent management of enterprise servers and systems. Founded in 1992, the DMTF has a membership of more than 200 organizations and companies, including many universities and most major vendors of enterprise IT systems. The activities of the DMTF consist of several general initiatives, with multiple working groups addressing specific aspects of each initiative.

## About the CIM

The central concept at the core of most DMTF standards is the Common Information Model (CIM), an object-oriented framework for modeling the logical and physical components of an information system. The CIM describes a common set of managed elements and the relationships between them.

The CIM Schema defines a hierarchy of classes in which subclasses inherit general attributes from parent classes while adding more specialized attributes. Each class will have one or more instances. Each instance has a number of properties and each property has a value. For example, a 2 gigabyte DIMM memory module is an instance of the CIM\_PhysicalMemory class, which is a subclass of the CIM\_Chip class, and has a Capacity property whose value is 2147483648 bytes.

The CIM further defines profiles, which comprise the classes, properties, methods, and values that are required to represent and manage a particular management domain or functional area. For example, the Fan profile describes the properties and methods of fans and redundant fans in a managed system. This profile associates the physical fan instance with a sensor instance and requires the ability to sense and set properties such as fan speed and state. The DMTF publishes specifications for many standard profiles, with most system vendors implementing a subset of the available profiles.

## About the SNIA

The Storage Networking Industry Association (SNIA) is an industry organization that develops and promotes standards for the platform-independent management of information storage systems. For information about the SNIA, see:

<http://www.snia.org/home>

## About SMI-S

An initiative of the SNIA, the Storage Management Initiative Specification (SMI-S) defines profiles and methods for the vendor-independent management of a Storage Area Network (SAN) and its components using a WBEM client. For information about SMI-S, see:

[http://www.snia.org/tech\\_activities/standards/curr\\_standards/smi](http://www.snia.org/tech_activities/standards/curr_standards/smi)





## CHAPTER 2

# Supported Profiles

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This chapter describes the SMI-S profiles supported by the Cisco UCS Servers. Complete documentation for the SMI-S profiles can be found at the following URL:

[http://www.snia.org/tech\\_activities/standards/curr\\_standards/smi](http://www.snia.org/tech_activities/standards/curr_standards/smi)

This chapter contains the following topics:

- [Host Hardware RAID Controller Profile, page 2-2](#)
- [Alarm Profile, page 2-2](#)
- [Block Services Profile, page 2-3](#)
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# Host Hardware RAID Controller Profile

Cisco UCS supports the SMI-S 1.2 Host Hardware RAID Controller Profile as a top-level profile.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_MegaRAIDHBA	CIM_ComputerSystem
A single instance of the CCIM_MegaRAIDHBA class is instantiated for each MegaRAID device discovered by the Cisco UCS system. This class represents the top-level system context for the RAID Controller deployment. All associated logical devices are associated to this instance by the SystemDevice association.	
CCIM_PortController	CIM_PortController
A single instance of CCIM_PortController is instantiated for each MegaRAID controller under management by the Cisco UCS system.	
CCIM_EventLog	CIM_MessageLog
A single instance of CCIM_EventLog is instantiated for each MegaRAID controller under management by the Cisco UCS system. The EventLog provides access to the underlying log of AENs maintained by the MegaRAID controller.	
CCIM_ConfigLog	CIM_MessageLog
A single instance of CCIM_ConfigLog is instantiated for each MegaRAID controller under management by the Cisco UCS system. The ConfigLog contains a single record that represents the current configuration of the MegaRAID controller.	

## Alarm Profile

Cisco UCS supports the DMTF Alarm Profile as an extension to the SMI-S 1.2 Host Hardware RAID Controller Profile.

MegaRAID devices have an onboard audible alarm that is supported according to the DMTF Alarm Device Profile version 1.0.0a.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_AlarmDevice	CIM_AlarmDevice
An AlarmDevice is a type of Device that emits audible or indications related to a problem situation. A single instance of CCIM_AlarmDevice is instantiated for each MegaRAIDHBA controller under management by the Cisco UCS system. Instances of this class are only to be created if the alarm hardware is present.	
CCIM_AlarmDeviceCapabilities	CIM_AlarmDeviceCapabilities
Instances of this class are generated only if there is an instance of CCIM_AlarmDevice (the alarm hardware is present).	

# Block Services Profile

Cisco UCS supports the SMI-S 1.2 Block Services Package in the manner specified by the SMI-S 1.2 Host Hardware RAID Controller Profile.

The Block Services functionality encompasses the basic volume management actions and state representation for storage volumes and storage pools.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_StorageConfigurationCapabilities	CIM_StorageConfigurationCapabilities
A single instance of CCIM_StorageConfigurationCapabilities is enumerated for the Pool and Volume StorageConfigurationService.	
CCIM_StorageVolume	CIM_StorageVolume
An instance of CCIM_StorageVolume is enumerated for each Logical Disk that is present in MR_LD_LIST structure for each managed RAID controller.	
CCIM_DiskPartition	CIM_DiskPartition
The CIM management interface for Cisco UCS is expected to make available information on how logical disks are mapped to operating system partitions. This is not part of the SNIA SMI-S HHRC specification and is added as an LSI extension.	
CCIM_StorageConfigurationService	CIM_StorageConfigurationService
An instance of CCIM_StorageConfigurationService is enumerated for each RAID controller.	
CCIM_StoragePool	CIM_StoragePool
An instance of CCIM_StoragePool is enumerated for each Array (set of drives) configured on the MegaRAID device. Additionally, an instance of CCIM_StoragePool is enumerated for each virtual StoragePool (arrays configured in the Cisco UCS system, but from which no StorageVolumes have been allocated) that has been configured. The capacity values for StoragePools are calculated based on the RAID level associated with the StoragePool.	
CCIM_GeneratedStorageSetting	CIM_StorageSetting
This instance represents the quality of service that can be created from the StoragePool. The client can modify the instance before calling StorageConfigurationService.CreateOrModifyElementFromStoragePool. The client is responsible for deleting the instance if it is not used to create a volume.	
CCIM_StorageVolumeSetting	CIM_StorageVolumeSetting
An instance of CCIM_StorageVolumeSetting is instantiated for StorageVolume. Each instance of CCIM_StorageVolumeSetting contains the settings that apply to the associated StorageVolume. Most of the setting data is common for volumes of a particular RAID level.	
CCIM_EnabledLogicalElementCapabilities	CIM_EnabledLogicalElementCapabilities
An instance of CCIM_EnabledLogicalElementCapabilities is instantiated for the Storage Configuration Service, and Pool and Volume.	
CCIM_ParentStoragePoolCapabilities	CIM_StorageCapabilities
A single instance of CCIM_StoragePoolCapabilities is enumerated for Primordial StoragePool.	
CCIM_StoragePoolCapabilities	CIM_StorageCapabilities
An instance of CCIM_StoragePoolCapabilities is enumerated for each created StoragePool. The values for the capabilities are set for each individual Pool, but many of the hard-coded values are set based on the RAID level of the StoragePool.	

Cisco Class	CIM Class
CCIM_ParentStoragePool	CIM_StoragePool
A single instance of CCIM_ParentStoragePool is enumerated for each MegaRAID controller. This instance represents the usable storage (both allocated and unallocated) attached to the controller. This pool does not include the space on spare drives or the space on drives that are not in the optimal state. In SMI-S, this pool of storage is referred to as the "Primordial" pool.	
CCIM_PottedStorageSetting	CIM_StorageSetting
The Primordial StoragePool has an instance of CCIM_PottedStorageSetting for each supported RAID level. The ElementName is used to identify the RAID level. These instances cannot be modified or deleted by the client.	

## Diagnostics Profile

Cisco UCS supports the DMTF Diagnostics Profile for the execution of basic tests of the MegaRAID device.

The DMTF Diagnostics Profile exposes the diagnostic capabilities of a device by the CIM model. The MegaRAID firmware exports a single diagnostic command, known as the self-check test. The self-check is intended as an all-in-one type of test, verifying that various components and interfaces are functioning. This test is made available through the MegaRAID CIM provider by an implementation of the diagnostics profile.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_DiagnosticResultsLog	CIM_MessageLog
A single instance of CCIM_DiagnosticResultsLog is created each time a Diagnostics test is executed.	
CCIM_SelfCheckTest	CIM_DiagnosticsTest
An instance of CCIM_SelfCheckTest is enumerated for each RAID controller.	
CCIM_HelpService	CIM_HelpService
—	
CCIM_SelfCheckIdentity	CIM_SoftwareIdentity
An instance of CCIM_SelfCheckIdentity is enumerated for each MegaRAID controller discovered by the Cisco UCS system.	
CCIM_SelfCheckCapabilities	CIM_DiagnosticServiceCapabilities
A single instance of CCIM_SelfCheckCapabilities is enumerated for the SelfCheckTest diagnostics instance.	
CCIM_SelfCheckSettings	CIM_DiagnosticSettings
An instance of CCIM_SelfCheckSettings is enumerated for each RAID controller.	
(none)	CIM_SbmaSupportServiceProvider
Executes a support method.	

## Disk Drive Lite Profile

Cisco UCS supports the SMI-S 1.2 Disk Drive Lite in the manner specified by the SMI-S 1.2 Host Hardware RAID Controller Profile. The Disk Drive Lite modeling functionality encompasses the physical and logical aspects of the management of disk drives attached to a RAID device.

In CIM, disk drives are modeled for their logical and physical aspects. Logical aspects of a drive include attributes such as the range of storage blocks contained on the drive. Physical aspects include attributes such as the manufacturer of the device. The Disk Drive Lite profile supplies the linkage between these two views of the disk drives attached to a RAID device.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_DiskExtent	CIM_StorageExtent
An instance of CCIM_DiskExtent is enumerated for each drive (CCIM_DiskDrive). This extent represents the blocks on the drive. Each CCIM_DiskExtent instance is associated to a primordial StoragePool. This association is maintained even if the drive is allocated to a concrete StoragePool.	
CCIM_PhysicalDrive	CIM_PhysicalPackage
An instance of CCIM_PhysicalDrive is enumerated for each drive (CCIM_DiskDrive). This instance represents the physical element aspects of the drive.	
CCIM_DriveFirmwareIdentity	CIM_SoftwareIdentity
An instance of CCIM_DriveFirmwareIdentity is instantiated for each physical drive associated to a MegaRAID controller.	
CCIM_DiskDrive	CIM_DiskDrive
An instance of CCIM_DiskDrive is instantiated for each physical drive associated to a MegaRAID controller.	

## Disk Sparing Profile

Cisco UCS supports the SMI-S 1.2 Disk Sparing in the manner specified by the SMI-S 1.2 Host Hardware RAID Controller Profile.

The MegaRAID controller provides automated failover of failed drives. A single set of global spares is utilized to facilitate the failover operation for all assigned drives in the system. Global spares are associated to the global redundancy set. A singleton StorageRedundancySet, aggregating all drives except unassigned spare drives, exists to represent the global sparing domain.

Spares can also be assigned as local to a particular underlying array. Each underlying array is represented as additional StorageRedundancySets. All drives (except assigned spares) are represented as a single StorageRedundancySet. The drives assigned as global spares are related to this set by the

CCIM\_IsSpare association. All assigned drives (drives assigned to storage pools) are also associated to a StorageRedundancySet that is based on the underlying array containing the drives. The drives assigned as local spares for the underlying array are related to these sets by the CCIM\_IsSpare association.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_SpareConfigurationCapabilities	CIM_SNIA_SpareConfigurationCapabilites
A single instance of the CCIM_SpareConfigurationCapabilities class is instantiated for each MegaRAID device. This instance provides information about the capabilities of the service interface for the management of drive sparing.	
CCIM_FailoverStorageExtentsCollection	CIM_SNIA_FailoverStorageExtentsCollection
A single instance of the CCIM_FailoverStorageExtentsCollection class is instantiated for each MegaRAID device. This instance collects the failed drives on the device.	
CCIM_SpareConfigurationService	CIM_SNIA_SpareConfigurationService
A single instance of the CCIM_SpareConfigurationService class is instantiated for each MegaRAID device. This instance provides the service interface for the management of drive sparing.	
CCIM_StorageRedundancySet	CIM_StorageRedundancySet
An instance of the CCIM_StorageRedundancySet class is instantiated for each MegaRAID device to represent the global redundancy set. This instance represents the set of drives available on the device. Drives that are participating in storage (drives that are used to create StorageVolumes) are associated to the Redundancy Set by the memberOfCollection association. Drives that are non-integrated global hot spares are related to the global redundancy set by the IsSpare association.	

## Erasure Profile

Cisco UCS supports the SMI-S 1.2 Erasure Profile in the manner specified by the SMI-S 1.2 Host Hardware RAID Controller Profile.

The Erasure Profile provides a service interface to initiate erasure actions on storage elements including Storage Volumes and Disk Drives.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_ErasureSetting	CIM_ErasureSetting
An instance of CCIM_ErasureSetting is instantiated for each erasable storage extent (volumes and disks).	
CCIM_ErasureCapabilities	CIM_ErasureCapabilities
A single instance of CCIM_ErasureCapabilities is enumerated for the Disk Drive and Volume ErasureService.	
CCIM_ErasureService	CIM_ErasureService
A single instance; erases the contents of a storage element by using one of the supported erasure methods.	

# Extent Composition Profile

Cisco UCS supports the SMI-S 1.2 Extent Composition Profile in the manner specified by the SMI-S 1.2 Host Hardware RAID Controller Profile.

The Extent Composition profile extends the information provided by the Block Services profile to include information about how Volumes are allocated from Storage Pools.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_StoragePoolCompositeExtent	CIM_CompositeExtent
An instance of CCIM_StoragePoolCompositeExtent is enumerated for each underlying span (MegaRAID array) that provides space to an allocated StorageVolume.	
CCIM_FreeExtent	CIM_StorageExtent
StorageExtent describes the capabilities and management of the various media that exist to store data and allow data retrieval, and which are not assigned or free.	
CCIM_ComponentExtent	CIM_StorageExtent
An instance of CCIM_ComponentExtent is enumerated for each drive allocated to a concrete (non-primordial) StoragePool.	

## Import Profile

A MegaRAID controller has the ability to import and clear configurations created by other controllers. The ability to import these "foreign" configurations is crucial to the end-user use case where a MegaRAID card must be replaced. The replacement card imports the existing configurations as foreign configurations.

This feature adds support for importing foreign configurations. There is no official profile that supports importing storage; what follows is an LSI vendor extension.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_ImportableStorageService	CIM_Service
A service class defining extrinsic methods that acts upon CCIM_DriveExtents (members of a CCIM_ForeignExtentsCollection) and CCIM_ImportableConfigurations.	
CCIM_ForeignExtentsCollection	CIM_SystemSpecificCollection
This class is used to aggregate all foreign drives. This includes associations to both drives that are importable and those that are not.	
CCIM_ImportableStorageCapabilities	CIM_Capabilities
This capabilities class defines the operations available to users of the ImportableStorageService.	

# Indications Profile

Cisco UCS supports the SMI-S 1.2 Indications Profile in the manner specified by the SMI-S 1.2 Host Hardware RAID Controller Profile.

The Cisco UCS system emits two distinct classes of indications. Device events (AENs) are dispatched to registered clients as instances of the CIM\_AlertIndication class. The Cisco UCS system also emits lifecycle indications (subclasses of CIM\_InstIndication) to meet the requirements of the supported component profiles. See the individual profile sections for the identity of the lifecycle indications associated with each component profile.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_AlertIndication	CIM_AlertIndication
A CIM_AlertIndication is emitted by the Cisco UCS system for each device event generated by a MegaRAID controller.	
CCIM_LSIESG_PortController_Created	CIM_AlertIndication
CCIM_LSIESG_PortController_Deleted	CIM_AlertIndication
CCIM_LSIESG_PortController_Modified	CIM_AlertIndication
CCIM_LSIESG_DiskDrive_Created	CIM_AlertIndication
CCIM_LSIESG_DiskDrive_Deleted	CIM_AlertIndication
CCIM_LSIESG_DiskDrive_Modified	CIM_AlertIndication
CCIM_LSIESG_StorageVolume_Created	CIM_AlertIndication
CCIM_LSIESG_StorageVolume_Deleted	CIM_AlertIndication
CCIM_LSIESG_StorageVolume_Modified	CIM_AlertIndication
CCIM_LSIESG_StoragePool_Created	CIM_AlertIndication
CCIM_LSIESG_StoragePool_Deleted	CIM_AlertIndication
CCIM_LSIESG_StoragePool_Modified	CIM_AlertIndication

# Job Control Profile

Cisco UCS supports the SMI-S 1.2 Job Control Profile in the manner specified by the SMI-S 1.2 Host Hardware RAID Controller Profile.

The Job Control Profile provides a representation of executing and completed background jobs that have been instigated on the MegaRAID device by an interaction with the Cisco UCS system.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_LdInitializeJob	CIM_ConcreteJob
An instance of CCIM_LdInitializeJob is instantiated for each request to initialize a volume.	
CCIM_ForegroundInitializationJob	CIM_ConcreteJob
An instance of CCIM_ForegroundInitializationJob is created when foreground initialization is started.	
CCIM_LdReConstructionJob	CIM_ConcreteJob



Cisco Class	CIM Class
An instance of CCIM_LdReConstructionJob is instantiated for each request to perform a reconstruction operation on a volume.	
CCIM_BadBlockScanJob	CIM_ConcreteJob
An instance of CCIM_BadBlockScanJob This job is created when check consistency is fired on a volume.	
CCIM_CheckConsistencyJob	CIM_ConcreteJob
An instance of CCIM_CheckConsistencyJob created when check consistency is fired on a volume.	
CCIM_PdRebuildJob	CIM_ConcreteJob
An instance of CCIM_PdRebuildJob is created when rebuild operation is started on a physical disk.	
CCIM_SelfCheckJobProvider	
An instance of CCIM_SelfCheckJob is created each time the SelfCheckTest is executed.	

## Physical Package Profile

Cisco UCS supports the SMI-S Physical Package Profile in the manner specified by the SMI-S 1.2 Host Hardware RAID Controller Profile.

The scope for the application of the Physical Package Profile to the MegaRAID product is limited to the RAID controller itself, and it does not include the physical deployment of the MegaRAID card within the server chassis. In addition, the scope of this profile does not extend to the physical aspects of the attached enclosures. Physical Package aspects of the attached enclosures are modeled as part of the Storage Enclosure Profile.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_MegaRAIDProduct	CIM_Product
A single instance of the CCIM_MegaRAIDProduct class is instantiated for each MegaRAID controller discovered by the Cisco UCS system.	
CCIM_EnclosureProduct	CIM_Product
An instance of the CCIM_EnclosureProduct class is instantiated for each enclosure discovered by the Cisco UCS system.	
CCIM_DiskDriveProduct	CIM_Product
An instance of the CCIM_DiskDriveProduct class is instantiated for each disk drive discovered by the Cisco UCS system.	
CCIM_BatteryPackage	CIM_PhysicalPackage
A single instance of the CCIM_BatteryPackage class is instantiated for each MegaRAID controller managed by the Cisco UCS system. The instance exists only when the battery package is present on the MegaRAID Device.	
CCIM_PhysicalCard	CIM_Card
A single instance of CCIM_PhysicalCard is enumerated for each deployed MegaRAID card discovered by the Cisco UCS system.	
CCIM_BatteryCapabilities	CIM_EnabledLogicalElementCapabilities

Cisco Class	CIM Class
	A single instance of the CCIM_BatteryCapabilities class is instantiated for each MegaRAID controller managed by the Cisco UCS system. The instance exists even when the physical battery package is not present on the MegaRAID device. Instead of removing the instance from the model, the missing condition is modeled as a device state of the associated Battery.
CCIM_Battery	CIM_Battery
	A single instance of the CCIM_Battery class is instantiated for each MegaRAID controller managed by the Cisco UCS system. The instance exists even when the physical battery package is not present on the MegaRAID device. Instead of removing the instance from the model, the missing condition is modeled as a device state.
CCIM_PhysicalAssetCapabilities	CIM_PhysicalAssetCapabilities
	An instance of CCIM_PhysicalAssetCapabilities is enumerated for each deployed MegaRAID controller discovered by the Cisco UCS system.

## Storage Enclosure Profile

Cisco UCS supports SMI-S 1.2 Storage Enclosure Profile to represent the physical and logical aspects of storage enclosures.

The Storage Enclosure Profile models the fans, power supplies, and alarms that are present in storage enclosures attached to MegaRAID controllers. In addition, the profile supports a representation of the Enclosure Service Module as a subtype of the PortController class. Finally, the profile models the deployment of the physical drive devices in the enclosures, including the slot location for each drive.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_DriveSlot	CIM_Slot
	An instance of CCIM_DriveSlot is instantiated for each drive slot reported as contained in all discovered enclosures.
CCIM_EnclosureChassis	CIM_Chassis
	An instance of CCIM_EnclosureChassis is instantiated for each Enclosure discovered by MegaRAID controllers under management by the Cisco UCS system.
CCIM_PhysicalFan	CIM_PhysicalPackage
	An instance of CCIM_PhysicalFan is instantiated for each fan reported as present in all discovered enclosures. This class represents the physical package for the fan device.
CCIM_PowerSupply	CIM_PowerSupply
	An instance of CCIM_PowerSupply is instantiated for each power supply reported as present in all discovered enclosures.
CCIM_EnclosureAlarm	CIM_AlarmDevice
	An instance of CCIM_EnclosureAlrm is instantiated for each alarm reported as present in all discovered enclosures.
CCIM_ESMController	CIM_PortController
	An instance of CCIM_ESMController is instantiated for each ESM component reported as present in all discovered enclosures.

<b>Cisco Class</b>	<b>CIM Class</b>
CCIM_PowerSupplyPackage	CIM_PhysicalPackage
An instance of CCIM_PowerSupply is instantiated for each power supply reported as present in all discovered enclosures.	
CCIM_EnclosureFan	CIM_Fan
An instance of CCIM_Fan is instantiated for each fan reported as present in all discovered enclosures.	
CCIM_ESMComponent	CIM_Card
An instance of CCIM_ESMComponent is instantiated for each ESM component reported as present in all discovered enclosures.	

## Direct Attached Port Profile

Cisco UCS supports the SMI-S 1.2 Direct Attached Port Profile in the manner specified by the SMI-S 1.2 Host Hardware RAID Controller Profile.

The Direct Attached Port Profile models the interface between the MegaRAID controller and the host system.

This profile supports the following classes:

<b>Cisco Class</b>	<b>CIM Class</b>
CCIM_DAPort	CIM_DAPort
A single instance of CCIM_DAPort is instantiated for each MegaRAID controller managed by the Cisco UCS system.	
CCIM_SCSIProtocolEndpoint	CIM_SCSIProtocolEndpoint
A single instance of CCIM_SCSIProtocolEndpoint is instantiated for each MegaRAID controller managed by the Cisco UCS system.	
CCIM_SCSIProtocolController	CIM_SCSIProtocolController
A single instance of CCIM_SCSIProtocolController is instantiated for each MegaRAID controller managed by the Cisco UCS system.	
CCIM_PCIDevice	CIM_PCIDevice
The CCIM_PCIDevice class supplies detailed information on the PCI controller.	

# Generic Initiator Port Profile

Cisco UCS supports the SMI-S 1.2 Generic Initiator Port Profile in the manner specified by the SMI-S 1.2 Host Hardware RAID Controller Profile.

The Generic Initiator Port Profile supports two methods for representing drive-side connectivity. Cisco UCS uses the Connectivity Collection method. Cisco UCS enumerates a `CCIM_ConnectivityCollection` for each SASPort configured on the MegaRAID controller. In Serial Attached SCSI (SAS), a Port is a set of Physical Interfaces that share the same SAS address. The initiator port on the controller and all target ports on drives that are connected to the controller's port are included in the `CCIM_ConnectivityCollection`.

This profile supports the following classes:

Cisco Class	CIM Class
<code>CCIM_InitiatorProtocolEndpoint</code>	<code>CIM_SCSIProtocolEndpoint</code>
An instance of <code>CCIM_InitiatorProtocolEndpoint</code> is instantiated for each port configured in the <code>deviceInterface</code> structure.	
<code>CCIM_ATAProtocolEndpoint</code>	<code>CIM_ATAProtocolEndpoint</code>
An instance of <code>CCIM_ATAProtocolEndpoint</code> is instantiated for each port configured in the <code>deviceInterface</code> structure.	
<code>CCIM_TargetProtocolEndpoint</code>	<code>CIM_SCSIProtocolEndpoint</code>
An instance of <code>CCIM_TargetProtocolEndpoint</code> is instantiated for each connected port, on each Disk Drive configured in the MegaRAID firmware. A connection is indicated by a bit being set in the <code>MR_PD_Address.connectedPortBitmap</code> structure.	
<code>CCIM_TargetATAProtocolEndpoint</code>	<code>CIM_ATAProtocolEndpoint</code>
An instance of <code>CCIM_TargetProtocolEndpoint</code> is instantiated for each connected port, on each Disk Drive configured in the MegaRAID firmware. A connection is indicated by a bit being set in the <code>MR_PD_Address.connectedPortBitmap</code> structure.	
<code>CCIM_SASSATAPort</code>	<code>CIM_SASSATAPort</code>
An instance of <code>CCIM_TargetProtocolEndpoint</code> is instantiated for each connected port, on each Disk Drive configured in the MegaRAID firmware. A connection is indicated by a bit being set in the <code>MR_PD_Address.connectedPortBitmap</code> structure.	
<code>CCIM_ConnectivityCollection</code>	<code>CIM_ConnectivityCollection</code>
An instance of <code>CCIM_ConnectivityCollection</code> is instantiated for each port configured in the <code>deviceInterface</code> structure.	

## Software Inventory Profile

The Software Inventory Profile provides a representation of the firmware deployed on the MegaRAID controller. In addition to the base firmware version, information about the Controller BIOS and the device driver software are also provided.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_ControllerBIOSIdentity	CIM_SoftwareIdentity
An instance of CCIM_ControllerBIOSIdentity is enumerated for each MegaRAID controller discovered by Cisco UCS system.	
CCIM_FirmwarePackageIdentity	CIM_SoftwareIdentity
In the context of a single instance representing the "current" firmware package instance, that instance remains unchanged. The model given above identifies a second instance, an "available" instance that has different properties.	
CCIM_DriverIdentity	CIM_SoftwareIdentity
An instance of CCIM_DriverIdentity is enumerated for each MegaRAID controller discovered by Cisco UCS system.	
CCIM_ControllerFirmwareIdentity	CIM_SoftwareIdentity
An instance of CCIM_ControllerFirmwareIdentity is enumerated for each MegaRAID controller discovered by Cisco UCS system.	

## Software Update Profile

The Software Update Profile provides an interface to upgrade the firmware deployed on the MegaRAID controller.

This profile supports the following classes:

Cisco Class	CIM Class
CCIM_SoftwareInstallationServiceCapabilities	CIM_SoftwareInstallationServiceCapabilities
An instance of CCIM_SoftwareInstallationServiceCapabilities is enumerated for each RAID controller.	
CCIM_SoftwareInstallationService	CIM_SoftwareInstallationService
An instance of CCIM_SoftwareInstallationService is enumerated for each RAID controller.	

## Storelib Tunneling

This profile supports the following classes:

Cisco Class	CIM Class
(none)	CIM_StoreLibCmd
A single instance is generated for each controller.	
(none)	CIM_StoreLibCommandService
This class is used to invoke Storelib command directly from provider.	





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