

IBM System Storage SAN Volume Controller



CIM Agent Developer's Reference

Version 4.2.0

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This edition applies to the IBM System Storage SAN Volume Controller, release 4.2.0, and to all subsequent releases and modifications until otherwise indicated in new editions. This edition replaces SC26-7904-00.

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About this guide

This publication introduces the Common Information Model (CIM) Agent for the IBM System Storage SAN Volume Controller.

This section describes:

- Content and intended audience of this book
- Typefaces that are used to show emphasis
- Information that is related to this book
- How to order IBM publications
- How to send in your feedback on this book
- Web sites that provide information about the SAN Volume Controller or related products or technologies

Who should use this guide?

This reference book is for application programmers who are developing with the Common Information Model (CIM).

This reference book is for CIM-based application programmers who want to do the following tasks:

- Understand the CIM Agent for the SAN Volume Controller
- Discover and connect to the CIM Agent service
- Retrieve and extract the CIM Agent object classes, attributes, and methods
- Create new object instances for basic storage configuration, LUN masking, and copy services on the SAN Volume Controller.

Summary of changes

This document contains terminology, maintenance, and editorial changes.

Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change. This summary of changes describes new functions that have been added to this release.

Summary of changes for SC26-7904-01 SAN Volume Controller CIM Agent Developer's Reference

The Summary of changes provides a list of new, modified, and changed information since the last version of the guide.

New information

This topic describes the changes to this guide since the previous edition, SC26-7904-00. The following sections summarize the changes that have since been implemented from the previous version.

This version includes the following new information:

- Added the following new methods:
 - MigrateVDiskExtents()
 - GetDependentMappingNames()

Changed information

This section lists the updates that were made in this document.

- Added and modified properties to the following CIM Agent Core object classes:
 - IBMTSSVC_BackendVolume
 - IBMTSSVC_Cluster
 - IBMTSSVC_FlashCopySynchronizedSet
 - IBMTSSVC_FlashCopyJob
 - IBMTSSVC_HardwareIdCollection
 - IBMTSSVC_StorageHardwareID
 - IBMTSSVC_StorageVolume
- Added and modified properties to the following CIM Agent Service object class:
 - IBMTSSVC_StorageConfigurationService
- Added new parameters to the following CIM Agent Extrinsic methods:
 - AttachReplica()
 - CreateReplica()
 - ModifySynchronization()
 - ModifySynchronizaitonSet()
 -
- The *IBM System Storage SAN Volume Controller Configuration Guide* is now titled *IBM System Storage SAN Volume Controller: Software Installation and Configuration Guide*.
- The *IBM System Storage SAN Volume Controller Installation Guide* is now titled *IBM System Storage SAN Volume Controller: Hardware Installation Guide*.
- The *IBM System Storage Master Console for SAN Volume Controller: Installation and User's Guide* and the *IBM System Storage Master Console for SAN Volume Controller* Information Center are no longer updated and distributed. Instead, all pertinent information from those information units has been incorporated into other SAN Volume Controller publications.

Summary of changes for SC26-7904-00 SAN Volume Controller CIM Agent Developer's Reference

The Summary of changes provides a list of new, modified, and changed information since the last version of the guide.

New information

This topic describes the changes to this guide since the previous edition, SC26-7545-04. The following sections summarize the changes that have since been implemented from the previous version.

This version includes the following new information:

- Added the following new CIM Agent Core object classes:
 - IBMTSSVC_FabricElement
 - IBMTSSVC_StorageVolumeBackendVolumeView
- Added the following new CIM Agent Association object class:
 - IBMTSSVC_ClusterScopeStorageVolumeBackendVolumeView

Changed information

This section lists the updates that were made in this document.

- Added new properties to the following CIM Agent Core object classes:
 - IBMTSSVC_BackendVolume
 - IBMTSSVC_CandidateNode
 - IBMTSSVC_Cluster
 - IBMTSSVC_Node
 - IBMTSSVC_HardwareIdCollection
 - IBMTSSVC_StorageHardwareID
 - IBMTSSVC_StorageVolume
- Added new properties to the following CIM Agent Service object class:
 - IBMTSSVC_StorageConfigurationService
- Added new parameters to the following CIM Agent Extrinsic methods:
 - CreateOrModifyElementFromStoragePool()
 - CreateReplica()
 - RequestDiscovery()
- Modified a property of the following CIM Agent core object class:
 - IBMTSSVC_NodeVPD

Emphasis

Different typefaces are used in this guide to show emphasis.

The following typefaces are used to show emphasis:

| | |
|-----------------|---|
| Boldface | Text in boldface represents menu items and command names. |
| <i>Italics</i> | Text in <i>italics</i> is used to emphasize a word. In command syntax, it is used for variables for which you supply actual values, such as a default directory or the name of a cluster. |
| Monospace | Text in monospace identifies the data or commands that you type, samples of command output, examples of program code or messages from the system, or names of command flags, parameters, arguments, and name-value pairs. |

SAN Volume Controller library and related publications

A list of other publications that are related to this product are provided to you for your reference.

The tables in this section list and describe the following publications:

- The publications that make up the library for the IBM System Storage SAN Volume Controller
- Other IBM publications that relate to the SAN Volume Controller

SAN Volume Controller library

The following table lists and describes the publications that make up the SAN Volume Controller library. Unless otherwise noted, these publications are available in Adobe portable document format (PDF) from the following Web site:

<http://www.ibm.com/storage/support/2145>

| Title | Description | Order number |
|--|--|--------------|
| <i>IBM System Storage SAN Volume Controller: CIM Agent Developer's Reference</i> | This reference guide describes the objects and classes in a Common Information Model (CIM) environment. | SC26-7904 |
| <i>IBM System Storage SAN Volume Controller: Command-Line Interface User's Guide</i> | This guide describes the commands that you can use from the SAN Volume Controller command-line interface (CLI). | SC26-7903 |
| <i>IBM System Storage SAN Volume Controller: Software Installation and Configuration Guide</i> | This guide provides guidelines for configuring your SAN Volume Controller. | SC23-6628 |
| <i>IBM System Storage SAN Volume Controller: Host Attachment Guide</i> | This guide provides guidelines for attaching the SAN Volume Controller to your host system. | SC26-7905 |
| <i>IBM System Storage SAN Volume Controller: Hardware Installation Guide</i> | This guide includes the instructions that the IBM service representative uses to install the SAN Volume Controller. | GC27-2132 |
| <i>IBM System Storage SAN Volume Controller: Planning Guide</i> | This guide introduces the SAN Volume Controller and lists the features you can order. It also provides guidelines for planning the installation and configuration of the SAN Volume Controller. | GA32-0551 |
| <i>IBM System Storage SAN Volume Controller: Service Guide</i> | This guide includes the instructions that the IBM service representative uses to service the SAN Volume Controller. | GC26-7901 |
| <i>IBM Safety Information</i> | This guide contains translated caution and danger statements. Each caution and danger statement in the SAN Volume Controller documentation has a number that you can use to locate the corresponding statement in your language in the <i>IBM Safety Information</i> document. | N/A |

Other IBM publications

The following table lists and describes other IBM publications that contain additional information related to the SAN Volume Controller.

| Title | Description | Order number |
|--|--|--------------|
| <i>IBM System Storage Multipath Subsystem Device Driver: User's Guide</i> | This guide describes the IBM System Storage Multipath Subsystem Device Driver Version 1.6 for TotalStorage Products and how to use it with the SAN Volume Controller. This publication is referred to as the <i>IBM System Storage Multipath Subsystem Device Driver: User's Guide</i> . | GC27-2122 |
| <i>IBM TotalStorage DS4300 Fibre Channel Storage Subsystem Installation, User's, and Maintenance Guide</i> | This guide describes how to install and configure the IBM TotalStorage DS4300 Fibre-Channel Storage Subsystem. | GC26-7722 |
| <i>IBM eServer xSeries 306m (Types 8849 and 8491) Installation Guide</i> | This guide describes how to install the IBM eServer xSeries 306m, which is the hardware delivered for some versions of the hardware master console. | MIGR-61615 |
| <i>IBM xSeries 306m (Types 8849 and 8491) User's Guide</i> | This guide describes how to use the IBM eServer xSeries 306m, which is the hardware delivered for some versions of the hardware master console. | MIGR-61901 |
| <i>IBM xSeries 306m (Types 8849 and 8491) Problem Determination and Service Guide</i> | This guide can help you troubleshoot and resolve problems with the IBM eServer xSeries 306m, which is the hardware delivered for some versions of the hardware master console. | MIGR-62594 |
| <i>IBM eServer xSeries 306 (Type 8836) Installation Guide</i> | This guide describes how to install the IBM eServer xSeries 306, which is the hardware delivered for some versions of the hardware master console. | MIGR-55080 |
| <i>IBM eServer xSeries 306 (Type 8836) User's Guide</i> | This guide describes how to use the IBM eServer xSeries 306, which is the hardware delivered for some versions of the hardware master console. | MIGR-55079 |

| Title | Description | Order number |
|--|---|---------------------|
| <i>IBM eServer xSeries 306 (Types 1878, 8489 and 8836) Hardware Maintenance Manual and Troubleshooting Guide</i> | This guide can help you troubleshoot problems and maintain the IBM eServer xSeries 306, which is the hardware delivered for some versions of the hardware master console. | MIGR-54820 |
| <i>IBM eServer xSeries 305 (Type 8673) Installation Guide</i> | This guide describes how to install the IBM eServer xSeries 305, which is the hardware delivered for some versions of the hardware master console. | MIGR-44200 |
| <i>IBM eServer xSeries 305 (Type 8673) User's Guide</i> | This guide describes how to use the IBM eServer xSeries 305, which is the hardware delivered for some versions of the hardware master console. | MIGR-44199 |
| <i>IBM eServer xSeries 305 (Type 8673) Hardware Maintenance Manual and Troubleshooting Guide</i> | This guide can help you troubleshoot problems and maintain the IBM eServer xSeries 305, which is the hardware delivered for some versions of the hardware master console. | MIGR-44094 |
| <i>IBM TotalStorage 3534 Model F08 SAN Fibre Channel Switch User's Guide</i> | This guide introduces the IBM TotalStorage SAN Switch 3534 Model F08. | GC26-7454 |
| <i>IBM TotalStorage SAN Switch 2109 Model F16 User's Guide</i> | This guide introduces the IBM TotalStorage SAN Switch 2109 Model F16. | GC26-7439 |
| <i>IBM TotalStorage SAN Switch 2109 Model F32 User's Guide</i> | This guide introduces the IBM TotalStorage SAN Switch 2109 Model F32. It also describes the features of the switch and tells you where to find more information about those features. | GC26-7517 |

Some related publications are available from the following SAN Volume Controller support Web site:

<http://www.ibm.com/storage/support/2145>

Related Web sites

The following Web sites provide information about the SAN Volume Controller or related products or technologies.

| Type of information | Web site |
|-------------------------------|---|
| SAN Volume Controller support | http://www.ibm.com/storage/support/2145 |

How to order IBM publications

The publications center is a worldwide central repository for IBM product publications and marketing material.

The IBM publications center

The IBM publications center offers customized search functions to help you find the publications that you need. Some publications are available for you to view or download free of charge. You can also order publications. The publications center displays prices in your local currency. You can access the IBM publications center through the following Web site:

<http://www.ibm.com/shop/publications/order/>

How to send your comments

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starpubs@us.ibm.com

Be sure to include the name and order number of the book and, if applicable, the specific location of the text you are commenting on, such as a page number or table number.

- Mail

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Chapter 1. Introduction

This chapter introduces the Common Information Model (CIM) Agent for the SAN Volume Controller.

It provides overviews of the following components:

- Storage Management Initiative Specification (SMI-S)
- CIM
- CIM-related concepts
- CIM Agent
- SAN Volume Controller
- CIM Agent for the SAN Volume Controller

This chapter also presents functional views of the CIM Agent object models.

Storage Management Initiative Specification

The Storage Management Initiative Specification (SMI-S) is a design specification of the Storage Management Initiative (SMI) that is launched by the Storage Networking Industry Association (SNIA).

The SMI-S specifies a secure and reliable interface that allows storage management systems to identify, classify, monitor, and control physical and logical resources in a storage area network (SAN). The interface integrates the various devices to be managed in a SAN and the tools used to manage them.

SMI-S is based on a number of existing technologies or industry standards that include the following:

Common Information Model (CIM)

An object model for data storage and management that is developed by the Distributed Management Task Force (DMTF). CIM makes it possible to organize devices and components of devices in an object-oriented pattern.

Web-Based Enterprise Management (WBEM)

A tiered enterprise management architecture that is also developed by the DMTF. This architecture provides the management design framework that consists of devices, device providers, the object manager, and the messaging protocol for the communication between client applications and the object manager. In the case of the CIM, the object manager is the CIMOM and the messaging protocol is the CIM over HTTP technology. The CIM over HTTP approach specifies that the CIM data is encoded in XML and sent in specific messages between the client applications and the CIMOM over the TCP/IP network in a SAN.

Service Location Protocol (SLP)

A directory service that the client application uses to locate the CIMOM.

Intended to be an industry standard, SMI-S extends the generic capabilities of the CIM, the WBEM, and the SLP to implement storage networking interoperability. For example, the WBEM provides provisions for security, resource-locking management, event notification, and service discovery.

CIM agent

The Common Information Model (CIM) agent is a set of standards that is developed by the Distributed Management Task Force (DMTF).

The CIM provides an open approach to the design and implementation of storage systems, applications, databases, networks, and devices.

The CIM specifications provide the language and the methodology for describing management data. For example, CIM Schema 2.7 for Managing Storage Arrays specifies how to enable the management environment for data management in a common way. The CIM defines common object classes, associations, and methods. Member vendors can use those objects and extend them to specify how data can be processed and organized in a specific managed environment.

CIM agent concepts

There are several concepts that describe the Common Information Model (CIM) agent. You must familiarize yourself with these concepts to understand the object models.

The CIM agent specifications use the following concepts and terminology to describe the object models:

Association

A class with two references that define a relationship between two referenced objects.

Class The definition of an object within a specific hierarchy. An object class can have properties and methods and serve as the target of an association.

Indication

An object representation of an event.

Instance

An individual object that is the member of a class. In object-oriented programming, an object that is created by instantiating a class.

Method

A way to implement a function on a class.

Namespace

The scope within which a CIM schema applies.

Object path

An object that consists of a namespace path and a model path. The namespace path provides access to the CIM implementation that the CIM agent manages, and the model path provides navigation within the implementation.

Property

An attribute that is used to characterize instances of a class.

Qualifier

A value that provides additional information about a class, association, indication, method, method parameter, instance, property, or reference.

Reference

A pointer to another instance that defines the role and scope of an object in an association.

Schema

A group of object classes defined for and applicable to a single namespace. Within the CIM agent, the supported schemas are the ones that are loaded through the managed object format (MOF) compiler.

CIM agent components

With a Common Information Model (CIM) agent, application programmers can use common building blocks rather than proprietary software or device-specific programming interfaces to manage CIM-compliant devices. Standardization of the way that applications manage storage provides easier storage management.

Components

A CIM agent involves the following components:

agent code

An open-systems standard that interprets CIM requests and responses as they transfer between the client application and the device.

CIM object manager (CIMOM)

The common conceptual framework for data management that receives, validates, and authenticates the CIM requests from the client application. It then directs the requests to the appropriate component or device provider.

client application

A storage management program that initiates CIM requests to the CIM agent for the device.

device

The storage server that processes and hosts the client application requests.

device provider

A device-specific handler that serves as a plug-in for the CIM. That is, the CIMOM uses the handler to interface with the device.

Service Location Protocol (SLP)

A directory service that the client application calls to locate the CIMOM.

CIM agent at work

Figure 1 on page 4 shows the way a typical CIM agent works. The client application locates the CIMOM by calling an SLP directory service. When the CIMOM is first invoked, it registers itself to the SLP Service agent and supplies its location, IP address, port number, and the type of service that it provides. A string describing the CIM agents access point is registered.

Note: The standard secure port is 5999.

The following output provides an example of the registered string:

```
service:wbem:https://<CIM Agent IP>:<port number>
```

The SLP provides the following attributes:

```
service:wbem:https://<CIM Agent IP>:5999
```

```
service-hi-name=SVC CIM Agent 4.2.0
```

```
service-hi-description=IBM SAN Volume Controller CIM Agent Version 4.2.0
```

```
service-location-tcp=https://<CIM Agent IP>:5999
```

```

service-id=IBM_CIMOM_1094736587984_1108027145

template-url-syntax=https://<CIM Agent IP>

CommunicationMechanism=cim-xml

InteropSchemaNamespace=/root/ibm

FunctionalProfilesSupported=Basic Read, Basic Write, Instance Manipulation,
Association Traversal, Query Execution, Qualifier Declaration, Indications

MultipleOperationsSupported=false

ProtocolVersion=1

AuthenticationMechanismSupported=Basic

Namespace=/root/ibm

```

With this information, the client application starts to directly communicate with the CIMOM.

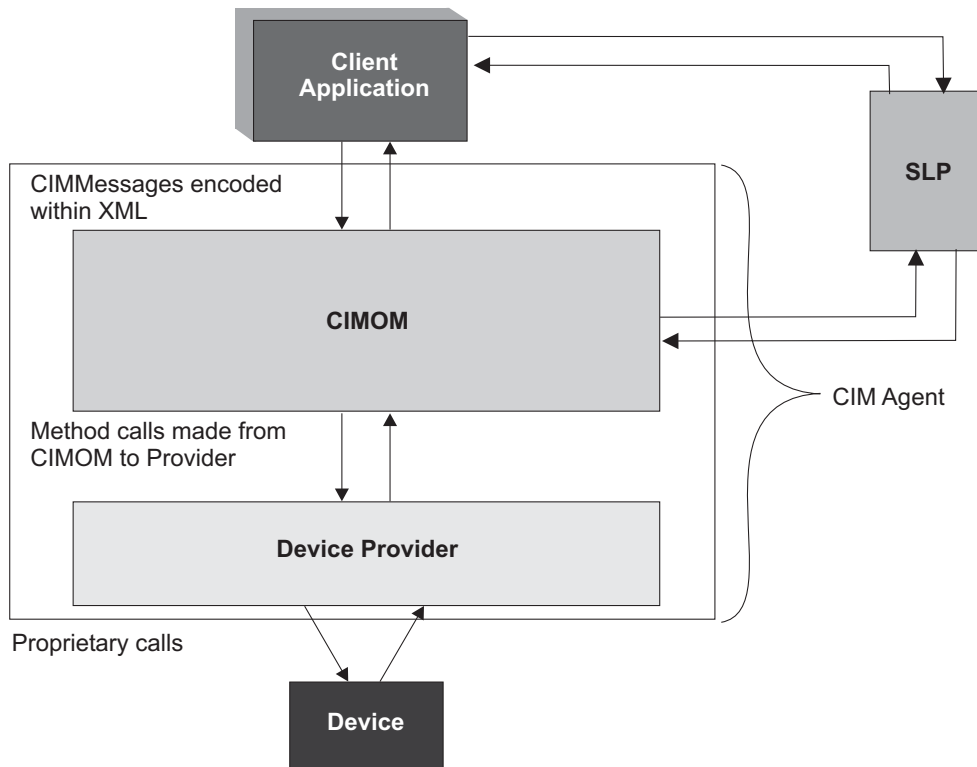


Figure 1. A typical CIM agent at work

The client application then sends CIM requests to the CIMOM. As requests arrive, the CIMOM validates and authenticates each request. It then directs the requests to the appropriate functional component of the CIMOM or to a device provider. To satisfy client application requests, the provider makes calls to a device-unique programming interface on behalf of the CIMOM.

The management application can obtain an instance of the RemoteServiceAccessPoint from the CIMOM. This instance allows the management application to access the Web User Interface.

SAN Volume Controller overview

The SAN Volume Controller combines hardware and software into a comprehensive, modular appliance that uses symmetric virtualization.

Symmetric virtualization is achieved by creating a pool of managed disks (MDisks) from the attached storage subsystems. Those storage systems are then mapped to a set of virtual disks (VDisks) for use by attached host systems. System administrators can view and access a common pool of storage on the SAN. This lets the administrators use storage resources more efficiently and provides a common base for advanced functions.

A SAN is a high-speed fibre-channel network that connects host systems and storage devices. It allows a host system to be connected to a storage device across the network. The connections are made through units such as routers, gateways, hubs, and switches. The area of the network that contains these units is known as the *fabric* of the network.

The SAN Volume Controller is analogous to a logical volume manager (LVM) on a SAN. The SAN Volume Controller performs the following functions for the SAN storage that it controls:

- Creates a single pool of storage
- Provides logical unit virtualization
- Manages logical volumes
- Provides the following advanced functions for the SAN:
 - Large scalable cache
 - Copy Services
 - FlashCopy® (point-in-time copy)
 - Metro Mirror (synchronous copy)
 - Global Mirror (asynchronous copy)
 - Data migration
 - Space management
 - Mapping that is based on desired performance characteristics
 - Metering of service quality

Each SAN Volume Controller node is a rack-mounted unit that you can install in a standard Electrical Industries Association (EIA) 19-inch rack. The nodes are always installed in pairs, with one-to-four pairs of nodes constituting a *cluster*. Each pair of nodes is known as an *I/O group*. All I/O operations that are managed by the nodes in an I/O group are cached on both nodes. Each virtual volume is defined to an I/O group. I/O groups take the storage that is presented to the SAN by the storage subsystems as MDisks and translates the storage into logical disks, known as VDisks, that are used by applications on the hosts. Each node must reside in only one I/O group and provide access to the VDisks in that I/O group.

There are four models of SAN Volume Controller nodes:

- SAN Volume Controller 2145-4F2
- SAN Volume Controller 2145-8F2
- SAN Volume Controller 2145-8F4
- SAN Volume Controller 2145-8G4

|

CIM agent for the SAN Volume Controller

The Common Information Model (CIM) agent for the SAN Volume Controller serves as a configuration interface for the SAN Volume Controller.

The CIM agent consists of the following main components:

- CIM object manager (CIMOM)
- Service Location Protocol (SLP) agent
- SAN Volume Controller provider

The SAN Volume Controller Console is configured to locate the CIMOM through its IP address. When the CIMOM is started, it registers itself with the SLP directory service by supplying its IP address, port number, and service type information. With the location information secured, the SAN Volume Controller Console begins to communicate directly with the CIMOM and the SAN Volume Controller provider. The CIMOM makes requests to the provider and the provider uses the functions that are provided by the SAN Volume Controller to fulfill these requests.

Validating the truststore certificate expiration

In order to successfully log onto the master console, you must ensure that you have a valid truststore certificate.

When signing onto the master console, you might receive a message similar to the following:

CMMUI8304E The Administrative server is unable to find a valid certificate in the truststore file.

This message is displayed when a certificate in the truststore file expires. The Administrative server uses the certificates in the truststore file to create a secure connection with the CIM agent. Because the Administrative server cannot find a valid certificate for the CIM agent in the truststore file, no authentication can occur.

To resolve the problem, you must verify that the truststore file was created correctly. If you have any problems, contact your IBM service representative.

Perform the following steps to regenerate a truststore certificate:

1. Go to the C:\Program Files\IBM\svconconsole\cimom directory.
2. Double-click on the **mkcertificate.bat** file. A "Generating Certificates" message is displayed. The new certificate is generated and stored in the C:\Program Files\IBM\svconconsole\cimom directory.
3. Copy the truststore file to the following sub directories:

Note: Each directory begins with C:\Program Files\IBM\svconconsole\console\embeddedWAS...

```
C:\...\config\cells\DefaultNode\applications\  
ICAConsole.ear\deployments\ICAConsole\ICAConsole.war\  
WEB-INF
```

```
C:\...\config\cells\DefaultNode\applications\  
SVCConsole.ear\deployments\SVCConsole\SVCConsole.war\  
WEB-INF
```

C:\...\config\installedApps\DefaultNode\
ICAConsole.ear\ICAConsole.war\WEB-INF

C:\...\config\installedApps\DefaultNode\
SVCConsole.ear\SVCConsole.war\WEB-INF

4. Stop and then restart the following applications. The following services are located in **Start ► Settings ► Control Panel ► Administrative Tools ► Component Services**.

- IBM® CIM Object Manager
- IBM WebSphere® Application Server V5 - SVC

To stop and then restart the services, right-click on the application and select **Stop**, then **Start**.

Note: If the stop command times-out in the IBM WebSphere application, you can restart the master console because this restarts the application, as well.

5. Ensure that both applications are running again. Launch the SAN Volume Controller Console and logon.

Functional diagrams of the Common Information Model Agent

The functional diagrams of the Common Information Model (CIM) Agent object show specific functionality that the CIM Agent provides, including storage configuration service, Copy Services, LUN masking, and security, and they illustrate the architecture of the CIM Agent for the SAN Volume Controller.

The following topics provide functional diagrams of the Common Information Model (CIM) Agent object model.

Profile overview

The Common Information Model (CIM) Agent for the SAN Volume Controller supports several SMI-S profiles and subprofiles.

Figure 2 on page 8 shows the supported SMI-S profiles and subprofiles.

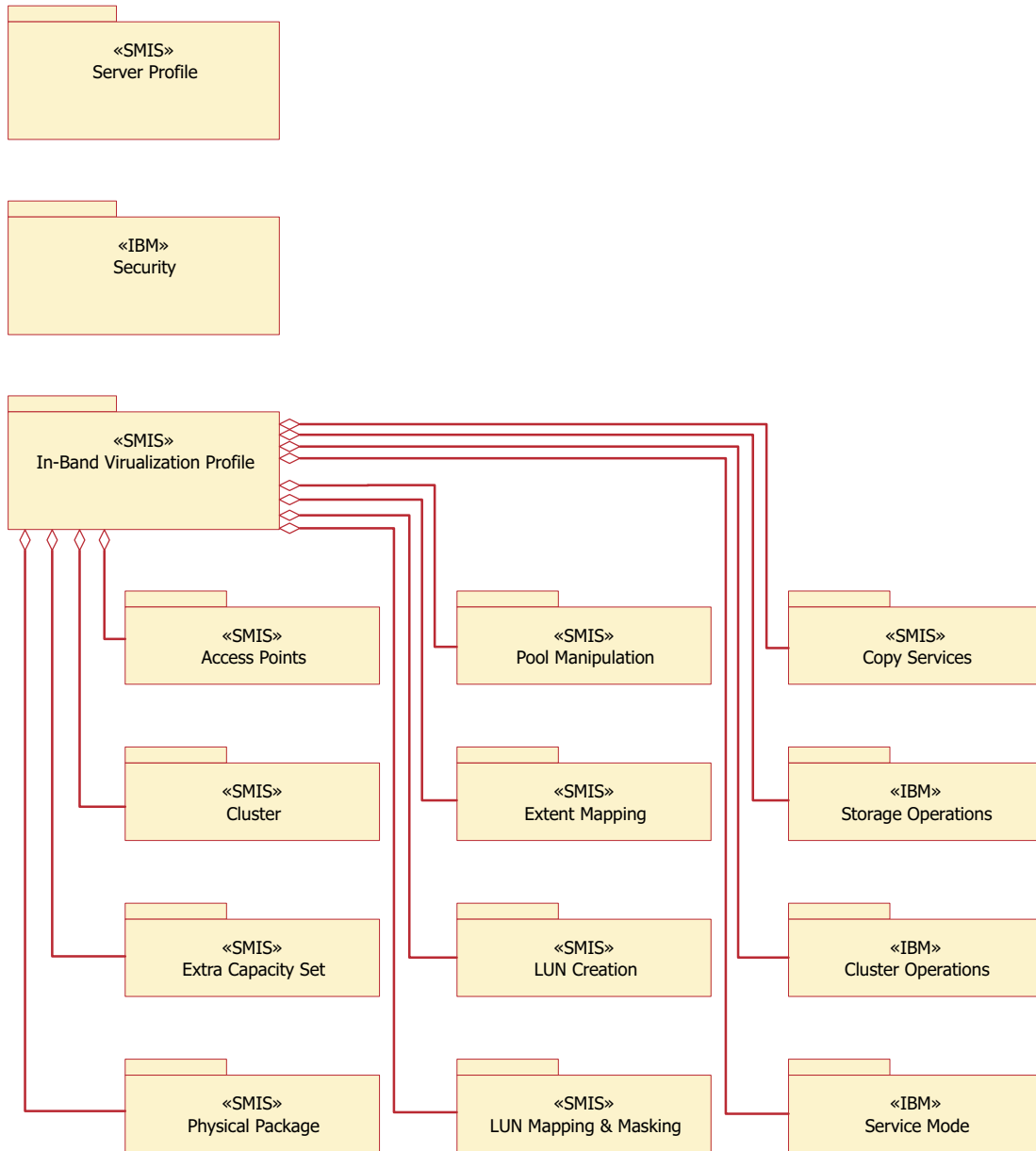


Figure 2. High-level overview of the CIM Agent for the SAN Volume Controller.

Physical package

The physical package of the Common Information Model (CIM) Agent for the SAN Volume Controller consists of three basic classes.

Figure 3 on page 9 shows the basic classes (building blocks) for the model.

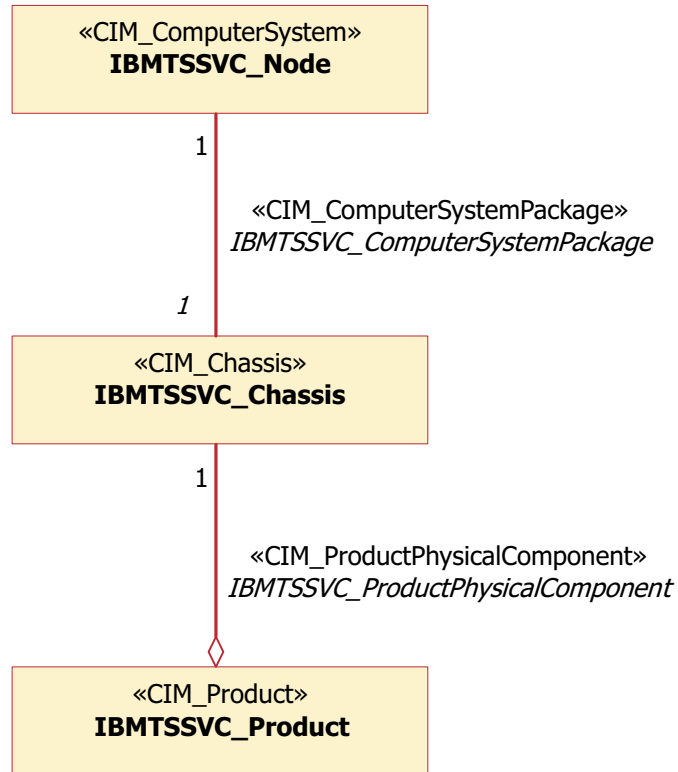


Figure 3. High-level overview of the physical package of the CIM Agent for the SAN Volume Controller.

Server profile

The server profile of the Common Information Model (CIM) Agent for the SAN Volume Controller consists of several basic classes.

Figure 4 on page 10 shows the basic classes (building blocks) for the model.

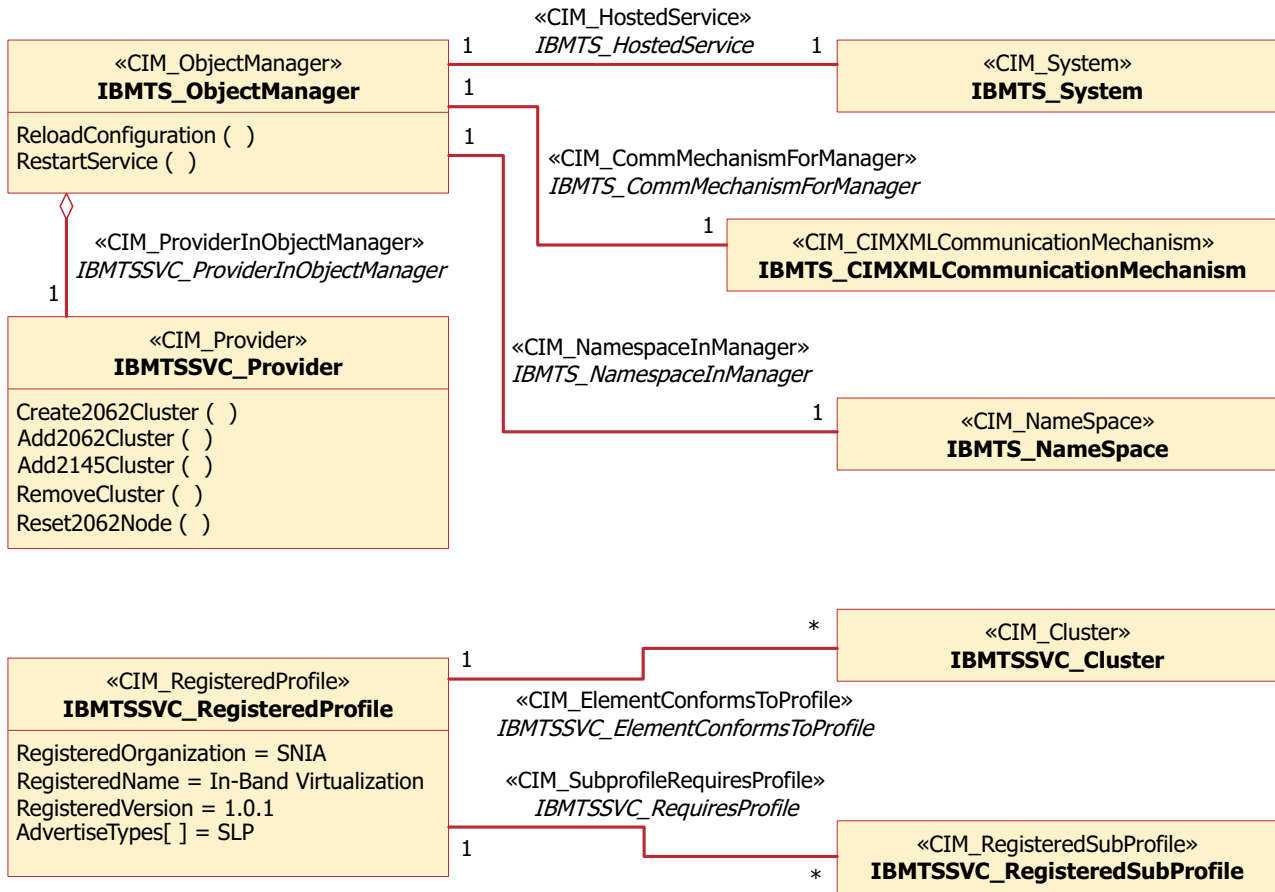


Figure 4. High-level overview of the server profile of the CIM Agent for the SAN Volume Controller.

Extent mapping subprofile

The extent mapping subprofile of the Common Information Model (CIM) Agent for the SAN Volume Controller consists of several basic classes.

Figure 5 on page 11 shows the basic classes (building blocks) for the model.

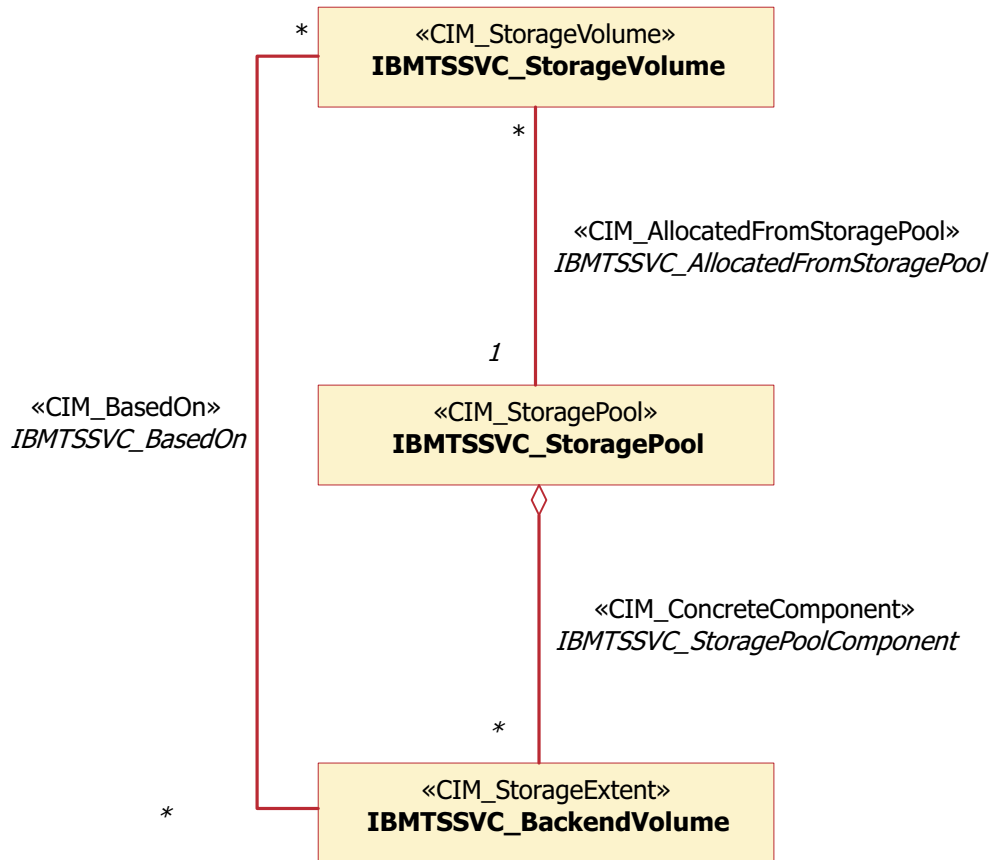


Figure 5. High-level overview of the extent mapping subprofile of the CIM Agent for the SAN Volume Controller

ExtraCapacitySet subprofile

The ExtraCapacitySet subprofile of the Common Information Model (CIM) Agent for the SAN Volume Controller consists of several basic classes.

Figure 6 on page 12 shows the basic classes (building blocks) for the model.

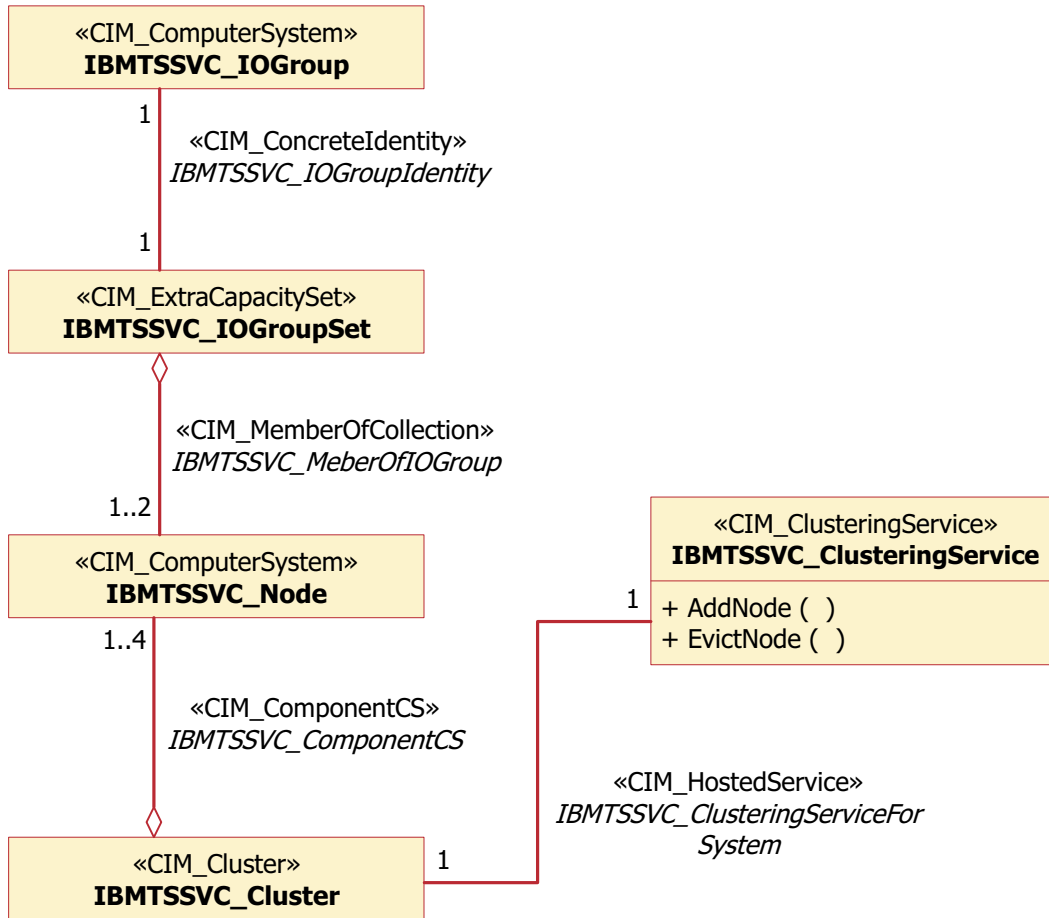


Figure 6. High-level overview of the ExtraCapacitySet subprofile of the CIM Agent for the SAN Volume Controller.

Access point subprofile

The access point subprofile of the Common Information Model (CIM) Agent for the SAN Volume Controller consists of several basic classes.

Figure 7 on page 13 shows the basic classes (building blocks) for the model.

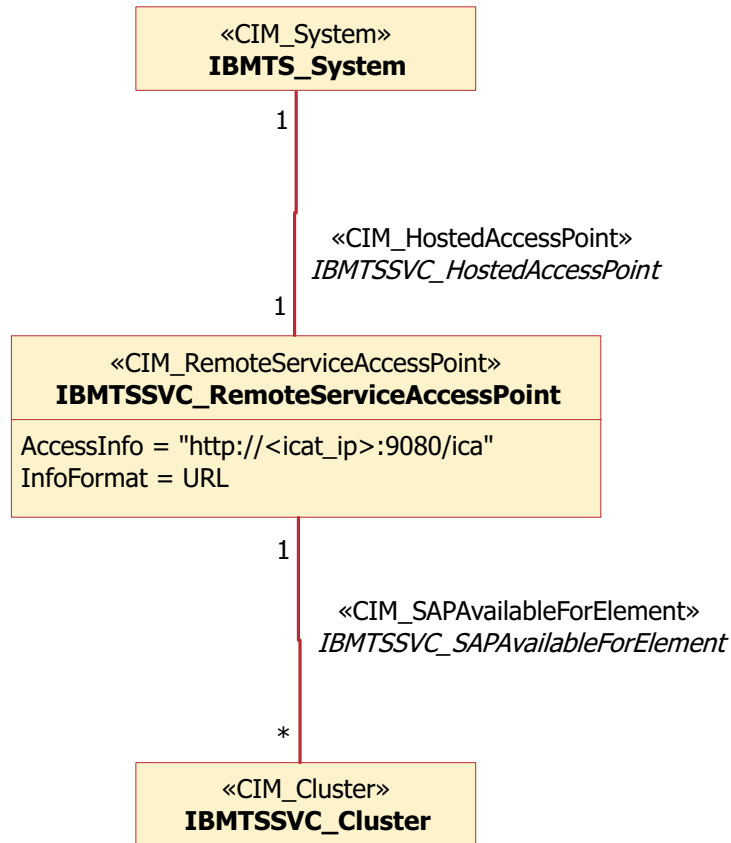


Figure 7. High-level overview of the access point subprofile of the CIM Agent for the SAN Volume Controller.

Cluster subprofile

There are several classes and associations that provide the function of a clustering service.

Figure 8 on page 14 shows the classes and associations that provide the function of a clustering service.

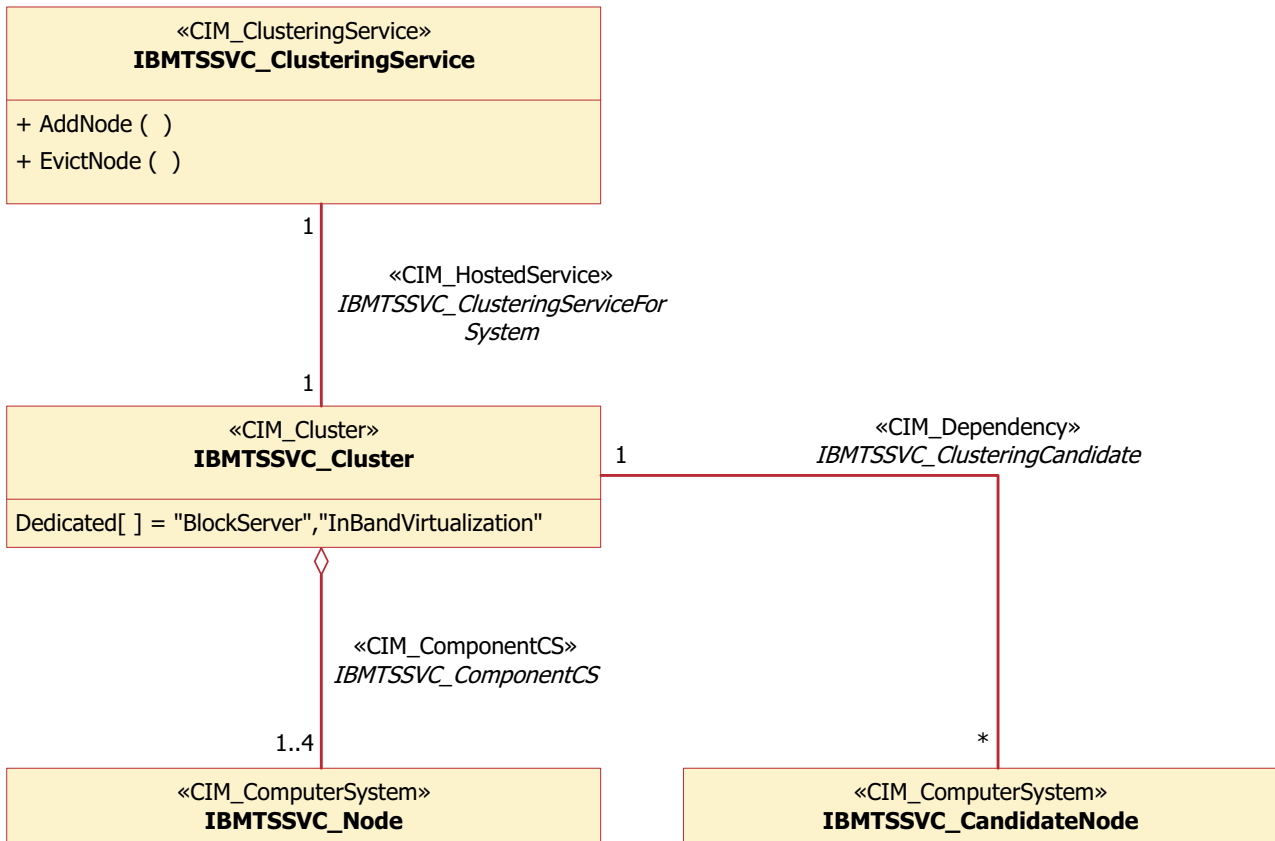


Figure 8. Class diagram of Clustering instance

Vendor-specific storage configuration operations

The StorageConfiguration instance uses several object classes.

Figure 9 on page 15 shows the object classes that implement basic storage configuration.

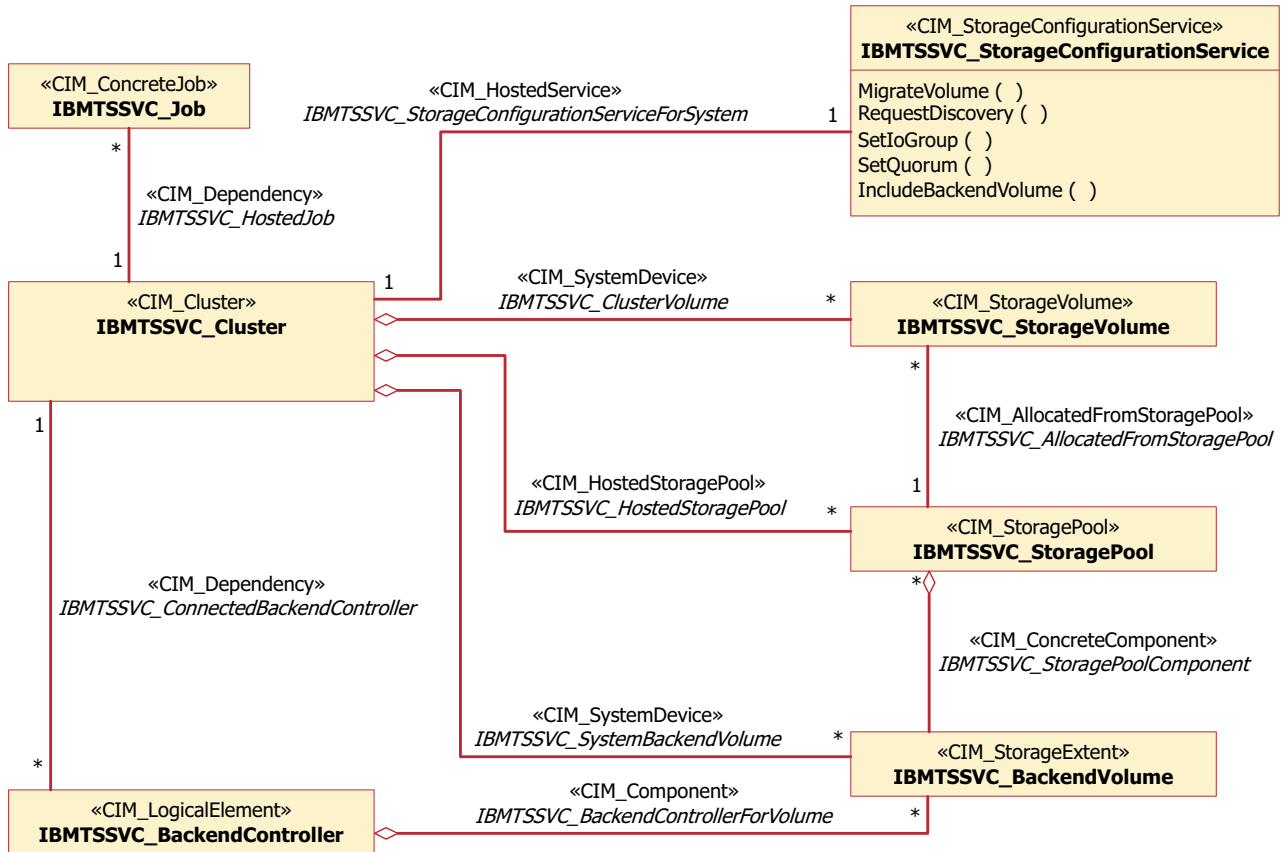


Figure 9. Class diagram of StorageConfiguration instance

LUN masking

A LUN masking instance uses several object classes.

Figure 10 on page 16 shows the object classes that run LUN masking. In the CIM Agent for the SAN Volume Controller, the following classes provide the methods to map an IBMTSSVC_StorageVolume instance to an IBMTSSVC_HardwareIdCollection instance of an IBMTSSVC_StorageHardwareID instance.

- IBMTSSVC_StorageHardwareIdManagementService
- IBMTSSVC_PrivilegeManagementService
- IBMTSSVC_ControllerConfigurationService

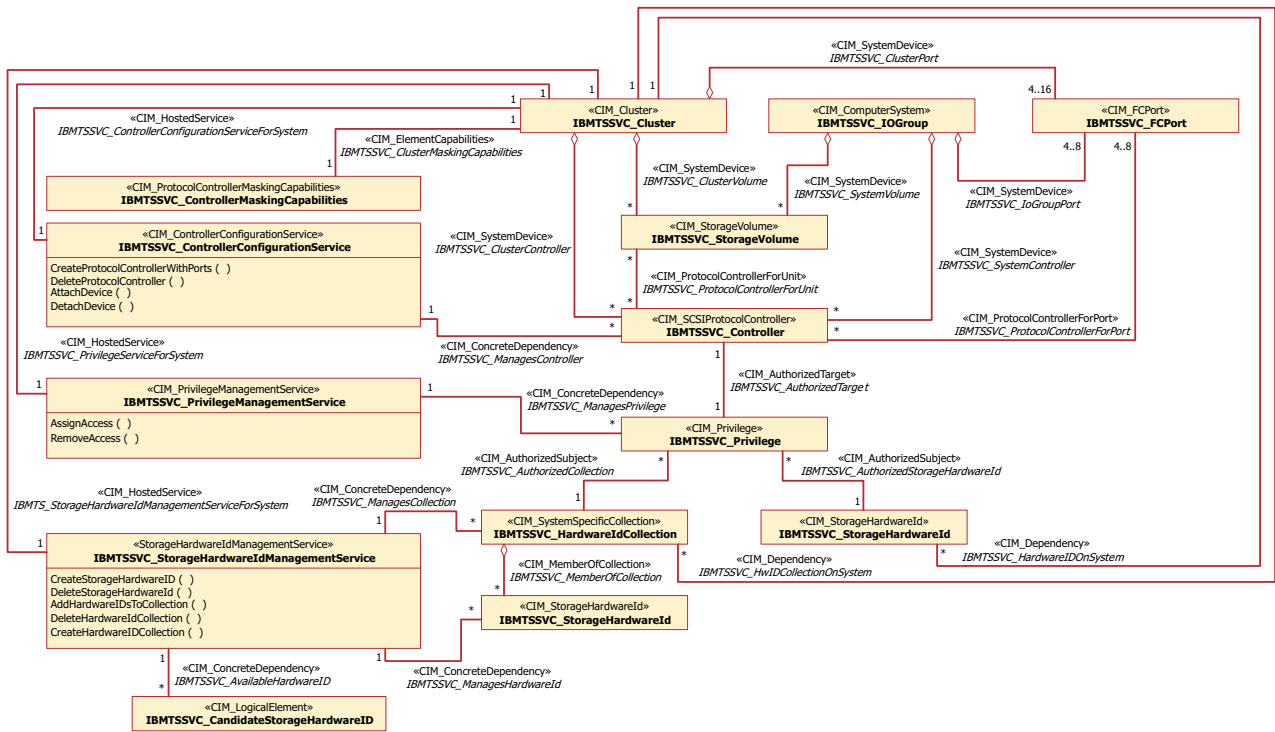


Figure 10. Class diagram for LUN masking instances

LUN creation subprofile

The LUN creation subprofile of the Common Information Model (CIM) Agent for the SAN Volume Controller consists of several basic classes.

Figure 11 on page 17 shows the basic classes (building blocks) for the model.

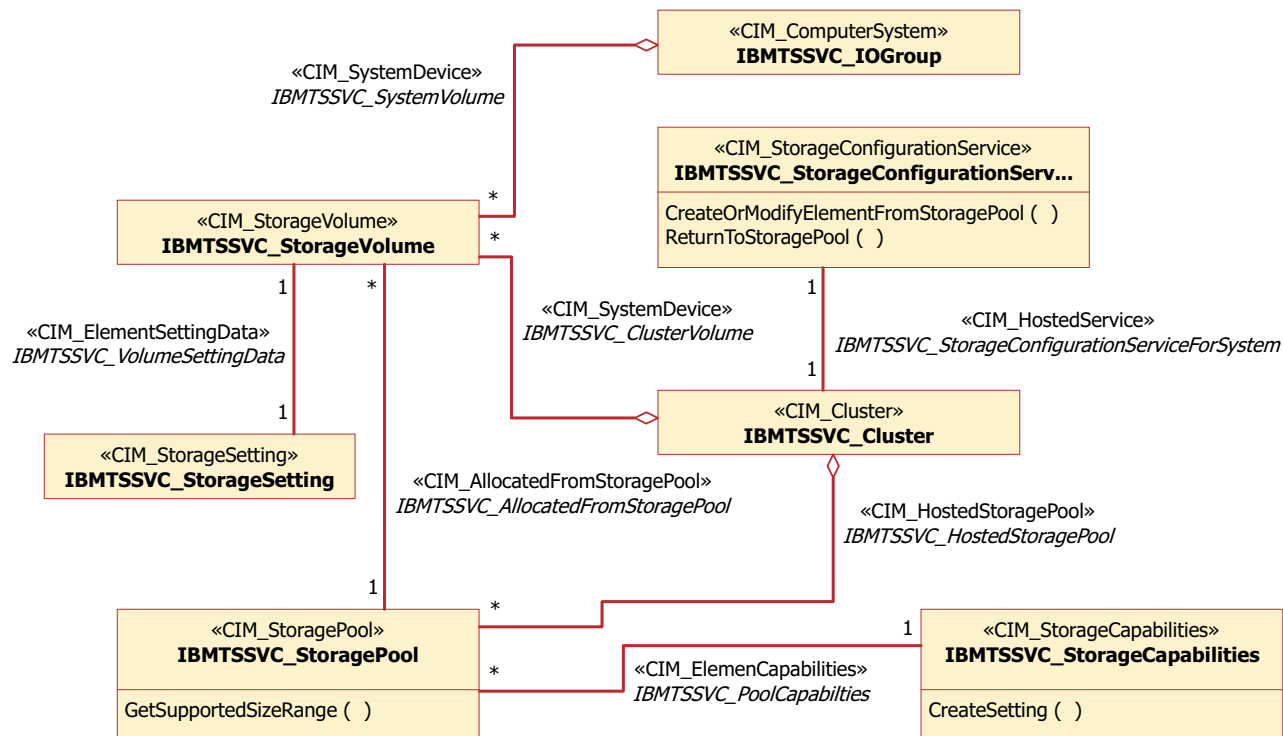


Figure 11. High-level overview of the LUN creation subprofile of the CIM Agent for the SAN Volume Controller.

Copy Services

The IBMTSSVC_StorageConfigurationService class provides the methods to create copy relationships.

Figure 12 on page 18 shows the object classes that provide FlashCopy, Metro Mirror, and Global Mirror Copy Services. In the Common Information Model (CIM) Agent for the SAN Volume Controller, the IBMTSSVC_StorageConfigurationService class provides the methods to create copy relationships. An IBMTSSVC_StorageConfigurationService instance is always associated with an IBMTSSVC_Cluster instance.

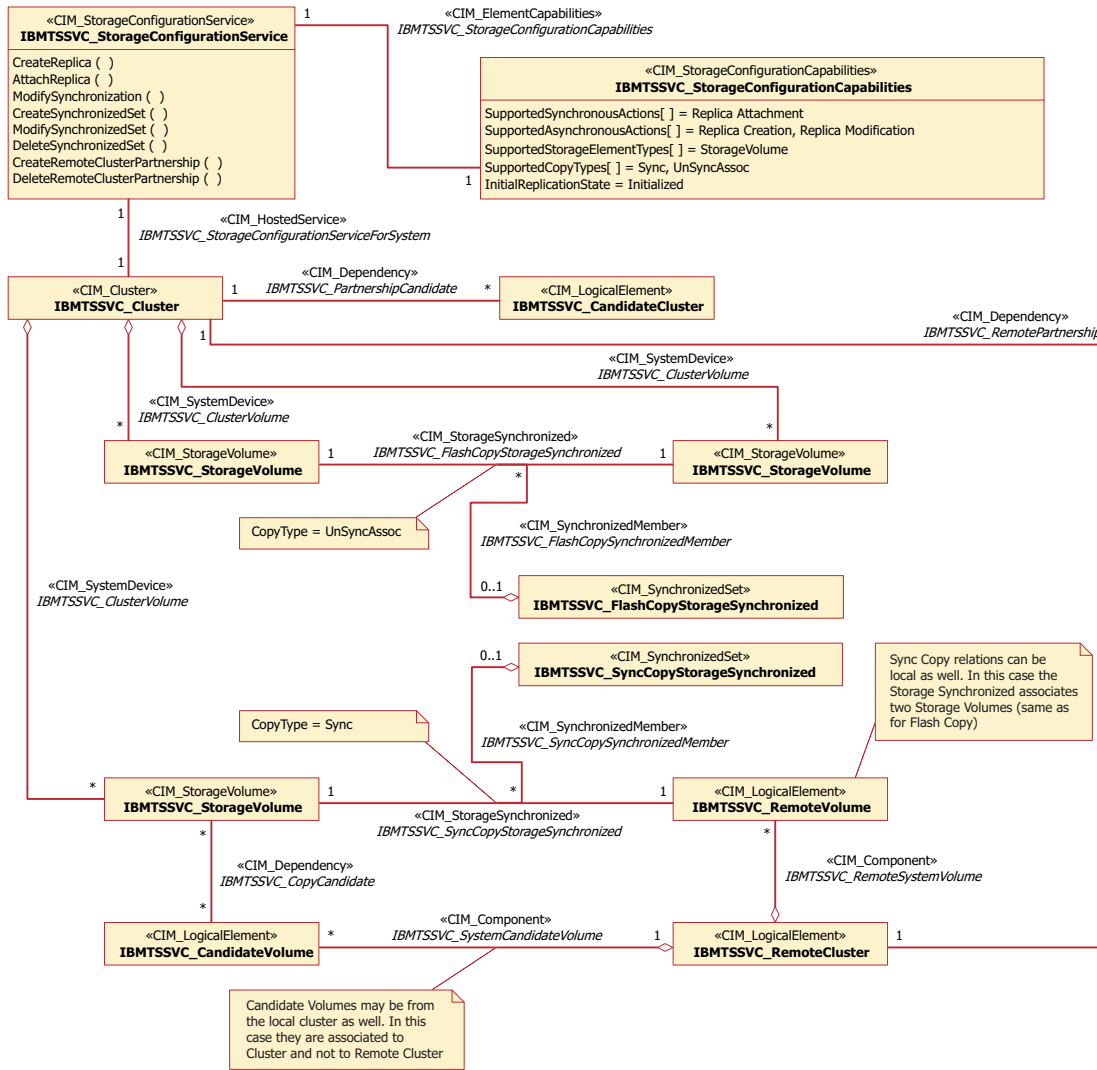


Figure 12. Class diagram of Copy Services instances

Vendor-specific service mode subprofile

The vendor-specific service mode subprofile of the Common Information Model (CIM) Agent for the SAN Volume Controller uses several basic classes.

The service mode subprofile is supported for Blade SAN Volume Controllers (model 2062) only. Figure 13 on page 19 shows the basic classes (building blocks) for the model.

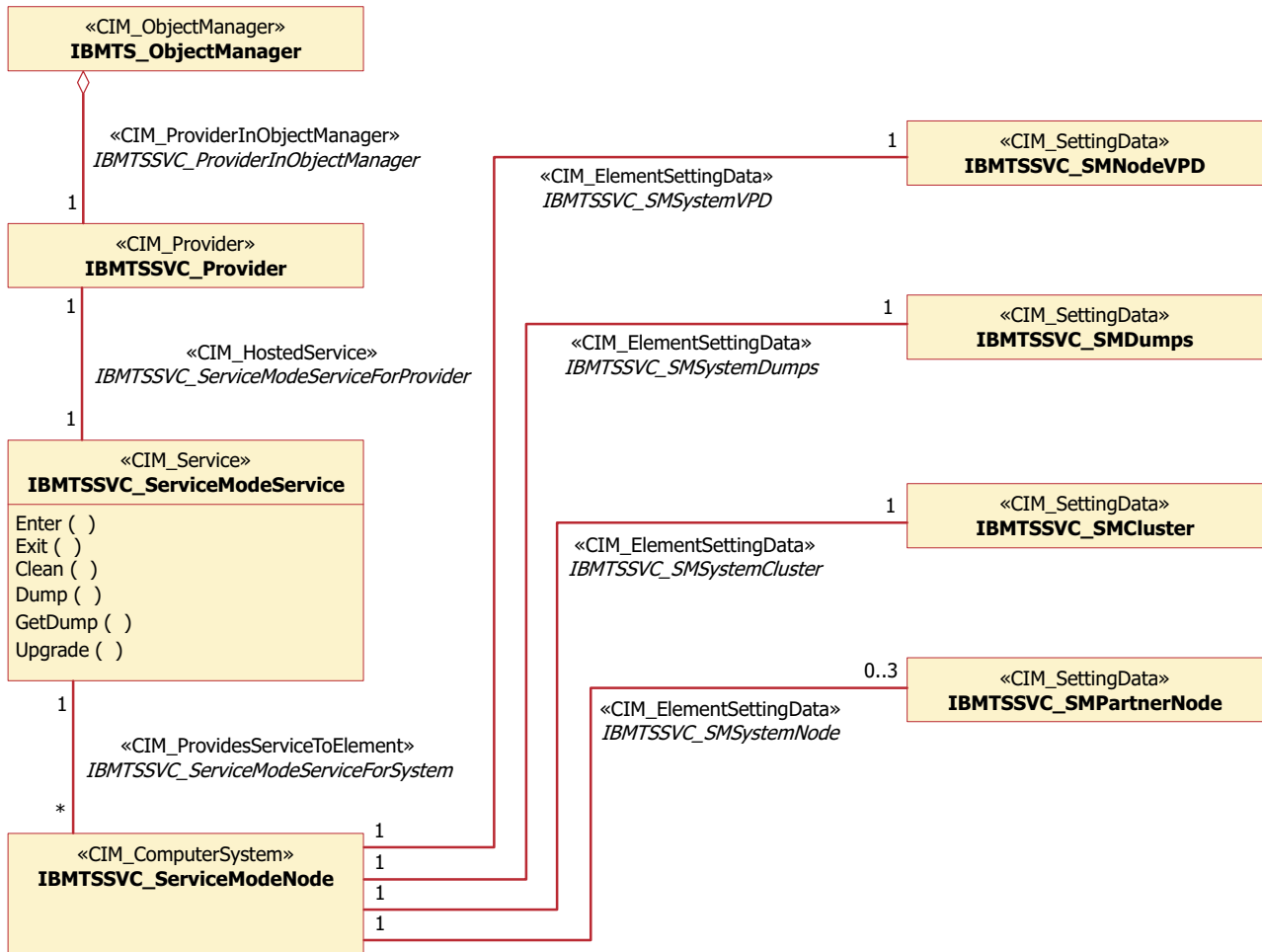


Figure 13. High-level overview of the vendor-specific service mode subprofile of the CIM Agent for the SAN Volume Controller.

Vendor-specific cluster operations

The vendor-specific cluster operations of the Common Information Model (CIM) Agent for the SAN Volume Controller uses several basic classes.

Figure 14 on page 20 shows the basic classes (building blocks) for the model.

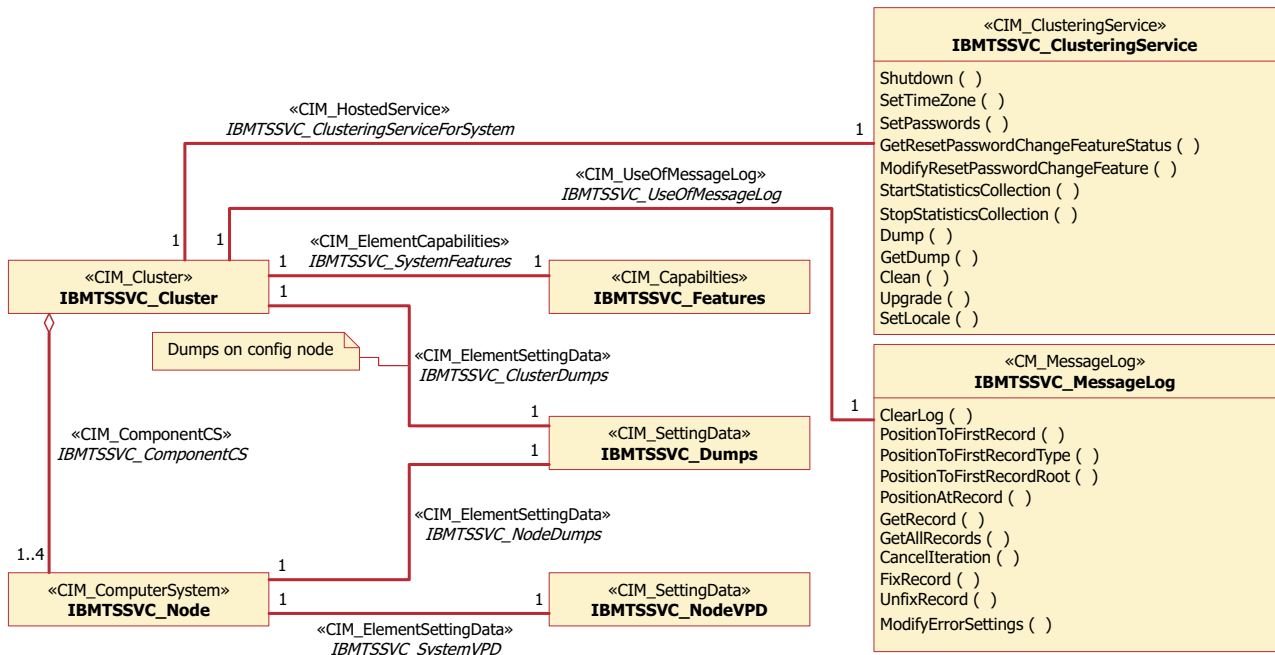


Figure 14. High-level overview of the vendor-specific cluster operations of the CIM Agent for the SAN Volume Controller.

Security service

There are several object classes that you can use to manage user accounts and access rights on the Common Information Model Object Manager (CIMOM) and clusters.

- The `IBMTS_AccountManagementService` class provides the methods to create, delete, and modify `IBMTS_Account` instances that represent a user.
- The `IBMTS_TruststoreManagementService` class generates new server certificates.
- The `IBMTS_AccountOnSystem` class connects an `IBMTS_Account` instance with an `IBMTSSVC_Host` instance.
- The `IBMTS_AccountOnCIMOM` class connects an `IBMTS_Account` instance with the `IBMTS_ObjectManager` instance.
- The `IBMTS_ObjectManager` class represents the actual CIMOM.
- The `IBMTS_Account` class stores the authentication (user name and password) and authorization (global and system roles) information.

Figure 15 on page 21 provides a diagram of these object classes.

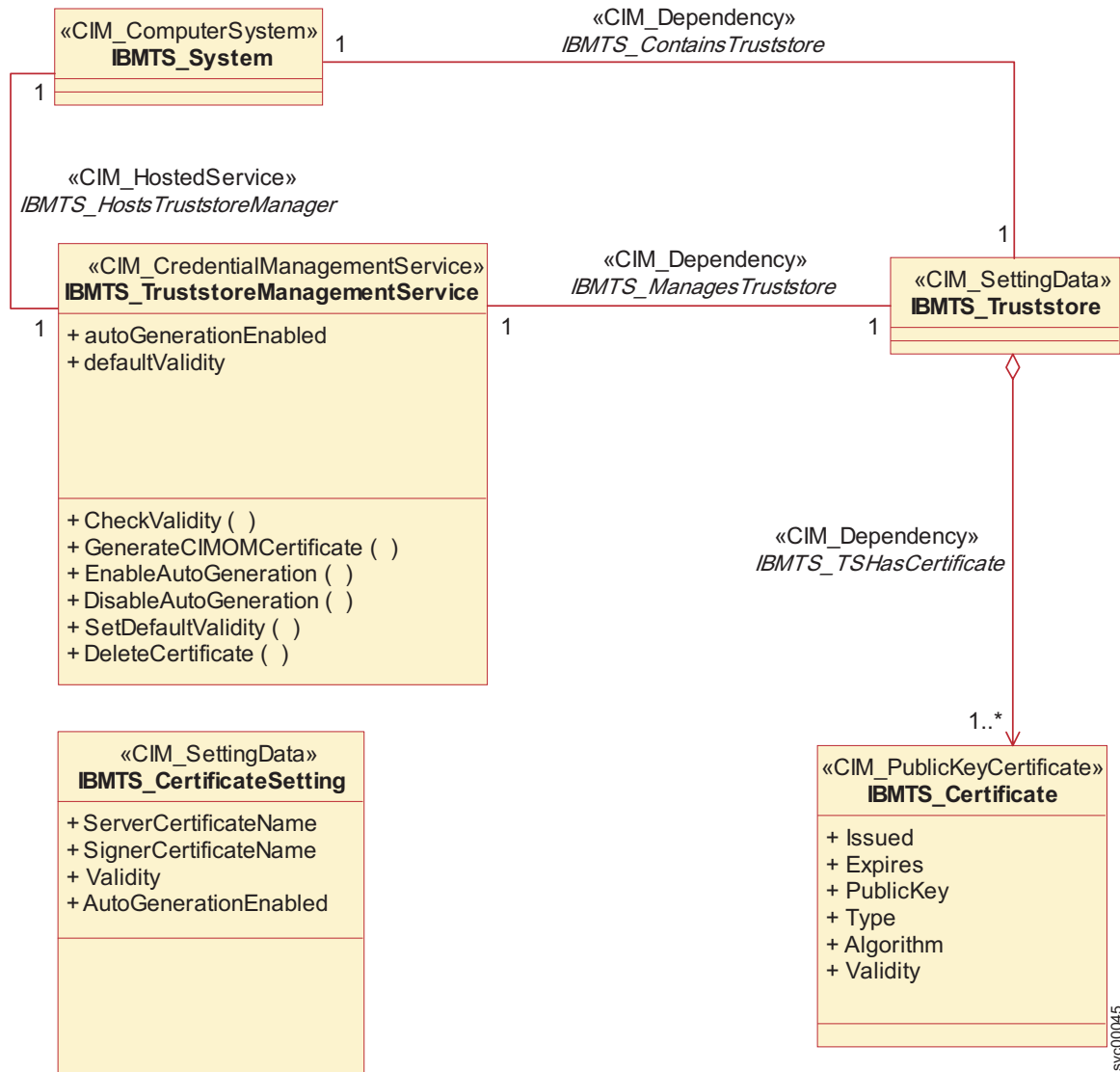


Figure 15. Class diagram of security instances

Pool manipulation

You can use several object classes to manipulate storage pools.

Figure 16 on page 22 provides a high-level overview of the object classes that you can use for pool manipulation of the CIM Agent for the SAN Volume Controller.

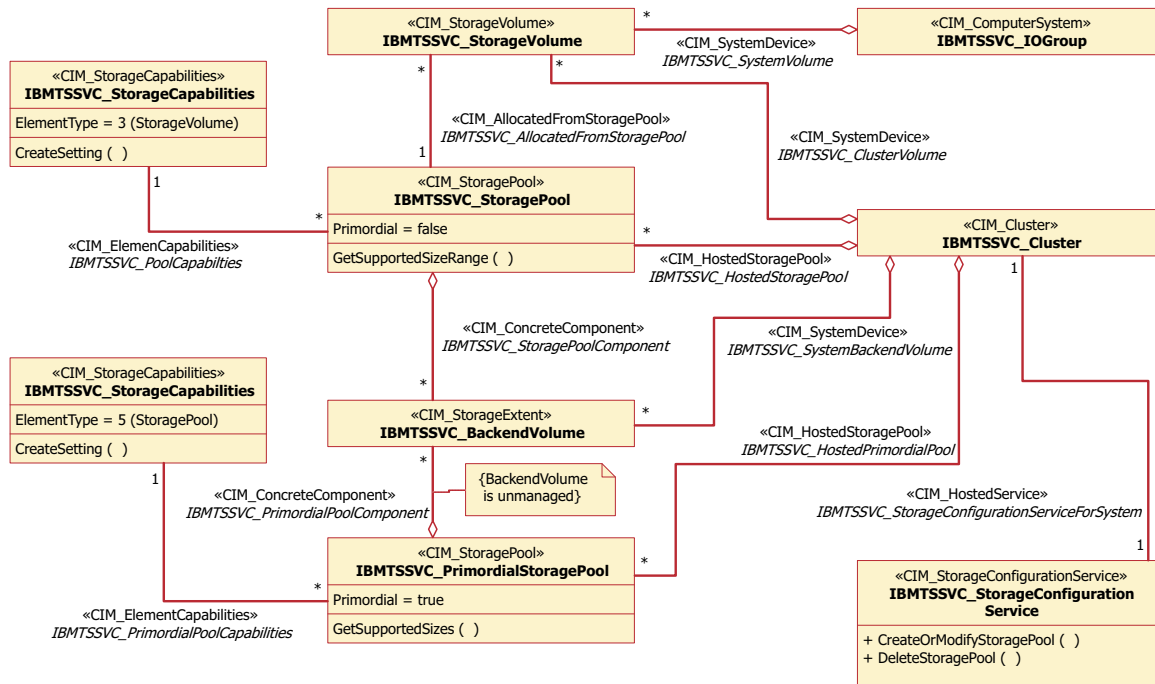


Figure 16. High-level overview of pool manipulation of the CIM Agent for the SAN Volume Controller.

Chapter 2. Performing storage configuration

The following sections describe how to use the Common Information Model (CIM) Agent object class instances to complete basic storage configuration tasks.

The following basic storage configuration tasks are discussed:

- Adding a node to a cluster
- Creating or modifying a storage pool
- Creating a storage volume

Storage configuration

Storage configuration is the mapping of the back-end storage to the storage pools and the allocation of volumes from the pools.

In the Common Information Model (CIM) Agent for the SAN Volume Controller, storage configuration involves three layers of objects: back-end, middle and front-end. The objects in the *back-end* layer contain the back-end controllers and volumes, those in the *middle* layer contain the storage pools, and those in the *front-end* layer contain the storage volumes that are exposed to the hosts.

Performing basic storage configuration

The IBMTSSVC_StorageConfigurationService class provides the CreateOrModifyStoragePool() and CreateOrModifyElementFromStoragePool() methods for performing basic storage configuration.

You can use the CreateOrModifyStoragePool() method to create an IBMTSSVC_StoragePool and add or remove an IBMTSSVC_BackendVolume. You can use the CreateOrModifyElementFromStoragePool() method to allocate, expand, or shrink an IBMTSSVC_StorageVolume from an IBMTSSVC_StoragePool.

You must complete the initial setup of the SAN Volume Controller. That means, you have already created and added clusters to the Common Information Model Object Manager (CIMOM) configuration file of the CIM Agent, and as a result, the Common Information Model (CIM) Agent has discovered all the back-end volumes that are required for the storage configuration.

Perform the following tasks to complete basic storage configuration:

1. Add a node to the cluster.
2. Create a storage pool.
3. Modify the storage pool.
4. Create a storage volume.

Adding a candidate node to a cluster

You can add an IBMTSSVC_CandidateNode to an existing IBMTSSVC_Cluster.

Perform the following steps to add an IBMTSSVC_CandidateNode to an existing IBMTSSVC_Cluster:

1. Obtain the reference (CIMObjectPath) of the IBMTSSVC_Cluster to which you want to add an IBMTSSVC_CandidateNode.

2. Locate the `IBMTSSVC_ClusteringService` instance that is associated with the `IBMTSSVC_Cluster` by traversing the `IBMTSSVC_ClusteringServiceForSystem` association.
3. Invoke the `IBMTSSVC_ClusteringService.AddNode()` method while specifying the node and panel names and the references to the `IBMTSSVC_CandidateNode`.

Creating a new storage pool

The `IBMTSSVC_StorageConfigurationService` class provides the methods for creating a new `IBMTSSVC_StoragePool`.

You must include an `IBMTSSVC_StorageConfigurationService` instance in each cluster before you create a new `IBMTSSVC_StoragePool` instance.

Perform the following steps to create a new `IBMTSSVC_StoragePool` instance:

1. Obtain the reference (CIMObjectPath) of an `IBMTSSVC_StorageConfigurationService` instance that is associated with the `IBMTSSVC_Cluster` in which you will create the new storage pool by traversing the `IBMTS_StorageConfigurationServiceForSystem` association.
2. Invoke the `IBMTSSVC_StorageConfigurationService.CreateOrModifyStoragePool` method while you specify the `Extent[]` parameter with a list of `IBMTSSVC_BackendVolume` instances.

The `Extent[]` parameter is a string array that contains the representation of the CIMObjectPath to an `IBMTSSVC_BackendVolume`.

Modifying a storage pool

You can modify an `IBMTSSVC_StoragePool` instance by changing the pool name and adding or removing an `IBMTSSVC_BackendVolume` instance from the pool.

Perform the following steps to modify an `IBMTSSVC_StoragePool` instance:

1. Select the `IBMTSSVC_StoragePool` instance that you want to modify from an `IBMTSSVC_Cluster`.
2. Identify the `IBMTSSVC_StorageSettingPool` instance that contains the parameter settings of the `IBMTSSVC_StoragePool` instance.
3. Invoke the `IBMTSSVC_StoragePool.SetProperty()` method to change the name of the selected `IBMTSSVC_StoragePool` instance.
4. If necessary, you can further modify the `IBMTSSVC_StoragePool` by adding or removing an `IBMTSSVC_BackendVolume` instance to the pool. Invoke the `IBMTSSVC_StorageSettingPool.CreateOrModifyStoragePool` method while you specify the `Extent[]` parameter with information about the `IBMTSSVC_BackendVolume` that is to be added or removed from the pool. The `Extent[]` parameter is a string array that contains the representation of the CIMObjectPath to an `IBMTSSVC_BackendVolume`.

BackendVolumes in `Extent[]` that are in the pool are removed, and BackendVolumes that are not in the pool are added. Also, you can specify the property `Force` of `StorageSettingPool` to remove BackendVolumes from the pool even if there is data on these disks. This will trigger the migration process that moves data from the removed volumes to the remaining ones.

Creating a new storage volume

The `IBMTSSVC_StorageConfigurationService` class provides all the methods that are required for creating, modifying, and deleting an `IBMTSSVC_StorageVolume` instance.

In the Common Information Model (CIM) Agent for the SAN Volume Controller, the `IBMTSSVC_StorageConfigurationService` class provides all the methods required for creating, modifying, and deleting an `IBMTSSVC_StorageVolume` instance.

Perform the following steps to create a new `IBMTSSVC_StorageVolume` instance:

1. Obtain the reference (CIMObjectPath) of the `IBMTSSVC_StorageConfigurationService` instance that is associated with the `IBMTSSVC_Cluster` to which you will assign the new volume.
2. Invoke the `IBMTSSVC_StorageConfigurationService.CreateOrModifyElementFromStoragePool()` method to create the new `IBMTSSVC_StorageVolume` with the following parameter specifications:
 - a. Set `ElementType` to 2.
 - b. Set `Size` to the desired volume size in megabytes.
 - c. Obtain the reference (CIMObjectPath) of the `IBMTSSVC_StoragePool` instance from which you will allocate an `IBMTSSVC_StorageVolume`.
 - d. Set `InPool` to the reference (obtained in the previous step) of the pool from which the volume will be allocated.

Chapter 3. Performing Copy Services

This chapter describes how you can use the Common Information Model Agent object class instances to establish new Copy Services relationships.

Copy Services

FlashCopy, Global Mirror, and Metro Mirror are Copy Services that are provided by the SAN Volume Controller.

These Copy Services are available to all supported hosts that are connected to the SAN Volume Controller.

The FlashCopy service enables you to make an instant, point-in-time copy of a source IBMTSSVC_StorageVolume instance to a target IBMTSSVC_StorageVolume instance. The synchronous copy service (Metro Mirror) provides a consistent copy of the source IBMTSSVC_StorageVolume on the target IBMTSSVC_StorageVolume. Data is written to the target volume synchronously after it is written to the source volume, both of which can belong to the same IBMTSSVC_Cluster instance or different IBMTSSVC_Cluster instances. The asynchronous copy service (Global Mirror) provides a copy of the source IBMTSSVC_StorageVolume on the target IBMTSSVC_StorageVolume. Data is written to the target volume asynchronously after it is written to the source volume, both of which can belong to the same IBMTSSVC_Cluster instance or different IBMTSSVC_Cluster instances.

Creating a new FlashCopy relationship between storage volumes

The IBMTSSVC_StorageConfigurationService class provides the methods for establishing a FlashCopy relationship between two IBMTSSVC_StorageVolume instances that are the same size and belong to the same IBMTSSVC_Cluster instance.

Perform the following steps to create a FlashCopy relationship between two IBMTSSVC_StorageVolume instances:

1. Select an IBMTSSVC_StorageVolume instance as the source volume for the desired FlashCopy relationship.
2. Select an associated IBMTSSVC_CandidateVolume instance as the target volume.

Make sure that the source IBMTSSVC_StorageVolume and target IBMTSSVC_CandidateVolume instances belong to the same IBMTSSVC_Cluster instance.

3. Retrieve the IBMTSSVC_StorageConfigurationService instance that is associated with the IBMTSSVC_Cluster instance to which the selected IBMTSSVC_StorageVolume instances belong.
4. Invoke the IBMTSSVC_StorageConfigurationService.AttachReplica() method with the following parameter specifications:
 - a. Set SourceElement to the reference (CIMObjectPath) of the source IBMTSSVC_StorageVolume.
 - b. Set TargetElement to the reference (CIMObjectPath) of the target IBMTSSVC_CandidateVolume.
 - c. Optionally set ElementName to the name of the synchronization.

- d. Optionally set BackgroundCopyRate to the desired priority of the background copy rate in percent (0 - 100%).
- e. Optionally specify Set to add the newly created FlashCopySynchronization to the set. If you specify a null value, the newly created FlashCopySynchronization will not be a member of a synchronized set.
- f. Optionally set AutoDelete to true if you want to automatically delete the FlashCopy mapping after the background copy is complete.
- g. Set CopyType to 4.

The source IBMTSSVC_StorageVolume and target IBMTSSVC_CandidateVolume instances are now connected through the IBMTSSVC_FlashCopyStorageSynchronized association.

Creating a FlashCopy relationship for a synchronized set

The IBMTSSVC_StorageConfigurationService class provides the methods for establishing a FlashCopy relationship between two IBMTSSVC_StorageVolume instances and then adding it to an IBMTSSVC_FlashCopySynchronizedSet instance.

Perform the following steps to create a FlashCopy relationship between two IBMTSSVC_StorageVolume instances and add it to an IBMTSSVC_FlashCopySynchronizedSet instance:

1. Select an IBMTSSVC_StorageVolume instance as the source volume for the desired FlashCopy relationship.
2. Select an associated IBMTSSVC_CandidateVolume instance as the target volume.

Make sure that the source IBMTSSVC_StorageVolume and target IBMTSSVC_CandidateVolume instances are the same size.

3. Retrieve the IBMTSSVC_StorageConfigurationService instance that is associated with the IBMTSSVC_Cluster to which the selected IBMTSSVC_StorageVolume instances belong.
4. Invoke the IBMTSSVC_StorageConfigurationService.AttachReplica() method with the following parameter specifications:
 - a. Set SourceElement to the reference (CIMObjectPath) of the source IBMTSSVC_StorageVolume.
 - b. Set TargetElement to the reference (CIMObjectPath) of the target IBMTSSVC_CandidateVolume.
 - c. Optionally set ElementName to the name of the synchronization.
 - d. Optionally set BackgroundCopyRate to the desired priority of the background copy rate in percent (0-100%).
 - e. Set CopyType to 4.

The source IBMTSSVC_StorageVolume and target IBMTSSVC_CandidateVolume instances are now connected through the IBMTSSVC_FlashCopyStorageSynchronized association.

5. Create an IBMTSSVC_FlashCopySynchronizedSet instance by invoking the IBMTSSVC_StorageConfigurationService.CreateSynchronizedSet() method with the following parameter specifications:
 - a. Set CopyType to 4 (flash).
 - b. Optionally set ElementName to the name of the newly created IBMTSSVC_FlashCopySynchronizedSet instance.

6. Add the `IBMTSSVC_FlashCopyStorageSynchronized` instance to the `IBMTSSVC_FlashCopySynchronizedSet` instance by invoking the `IBMTSSVC_StorageConfigurationService.ModifySynchronizedSet()` method with the `Operation` parameter set to 0 (add).

The synchronization must belong to the same cluster as the hosting service.

Creating a synchronous copy relationship between volumes in the same cluster

The `IBMTSSVC_StorageConfigurationService` class provides the methods for creating a synchronous copy relationship between a source `IBMTSSVC_StorageVolume` and a target `IBMTSSVC_StorageVolume` or a source `IBMTSSVC_StorageVolume` and a target `IBMTSSVC_CandidateVolume` in the same `IBMTSSVC_Cluster` instance.

Perform the following steps to create the synchronous copy relationship:

1. Select an `IBMTSSVC_StorageVolume` instance as the source volume for the desired synchronous copy relationship.
2. Select an `IBMTSSVC_StorageVolume` instance or an `IBMTSSVC_CandidateVolume` instance as the target volume.
3. Obtain the reference (`CIMObjectPath`) of the `IBMTSSVC_StorageConfigurationService` instance that is associated with the `IBMTSSVC_Cluster` instance to which the selected volumes belong.
4. Invoke the `IBMTSSVC_StorageConfigurationService.AttachReplica()` method with the following parameter specifications:
 - a. Set `SourceElement` to the reference (`CIMObjectPath`) of the source `IBMTSSVC_StorageVolume` instance.
 - b. Set `TargetElement` to the reference (`CIMObjectPath`) of the target `IBMTSSVC_StorageVolume` or `IBMTSSVC_CandidateVolume` instance.
 - c. Optionally set `ElementName` to the name of the synchronization.
 - d. Set `CopyType` to 3.

The source `IBMTSSVC_StorageVolume` instance and the target `IBMTSSVC_StorageVolume` or `IBMTSSVC_CandidateVolume` instance (whichever you selected) are now connected through the `IBMTSSVC_SyncCopyStorageSynchronized` association.

Creating a synchronous copy relationship between volumes in different clusters

The `IBMTSSVC_StorageConfigurationService` class provides the methods for creating a synchronous copy relationship between a source `IBMTSSVC_StorageVolume` instance and a target `IBMTSSVC_CandidateVolume` instance belonging to different `IBMTSSVC_Cluster` instances.

Perform the following steps to create a synchronous copy relationship between two volumes with the source located in a local cluster and the target located in a remote cluster:

1. Identify an `IBMTSSVC_Cluster` instance as the source cluster for the desired synchronous copy relationship.

2. Obtain the reference (CIMObjectPath) of the IBMTSSVC_StorageConfigurationService instance that is associated with the source cluster.
3. Identify the IBMTSSVC_CandidateCluster on which you want the synchronous copy to reside by traversing the IBMTSSVC_ClusterScopeRemoteCluster association.
4. Invoke the IBMTSSVC_StorageConfigurationService.CreateRemoteClusterPartnership() method with the following parameter specifications:
 - a. Set RemoteCluster to the reference (CIMObjectPath) of the IBMTSSVC_CandidateCluster instance.
 - b. Optionally set Bandwidth to the desired bandwidth in megabytes (MB).
Make sure to issue the method from both the source and candidate clusters to establish a fully configured partnership; otherwise, the synchronous copy relationship cannot be established.
5. Select an IBMTSSVC_StorageVolume as the source volume from the source IBMTSSVC_Cluster.
6. Select an IBMTSSVC_CandidateVolume as the target volume from the IBMTSSVC_RemoteCluster. (IBMTSSVC_StorageVolume instances on the remote cluster are seen on the local cluster as IBMTSSVC_CandidateVolume instances).
7. Invoke the IBMTSSVC_StorageConfigurationService.AttachReplica() method with the following parameter specifications:
 - a. Set SourceElement to the reference (CIMObjectPath) of the source IBMTSSVC_StorageVolume instance.
 - b. Set TargetElement to the reference (CIMObjectPath) of the target IBMTSSVC_StorageVolume or IBMTSSVC_CandidateVolume instance.
 - c. Optionally set ElementName to the name of the synchronization.
 - d. Set CopyType to 3.

The source IBMTSSVC_StorageVolume instance and the target IBMTSSVC_StorageVolume or IBMTSSVC_CandidateVolume instance (whichever you selected) are now connected through the IBMTSSVC_SyncCopyStorageSynchronized association.

FlashCopy state diagram

The FlashCopy state diagram of the Common Information Model (CIM) Agent for the SAN Volume Controller provides states and transitions for FlashCopy relationships.

Figure 17 on page 31 shows the supported states and transitions for FlashCopy relationships.

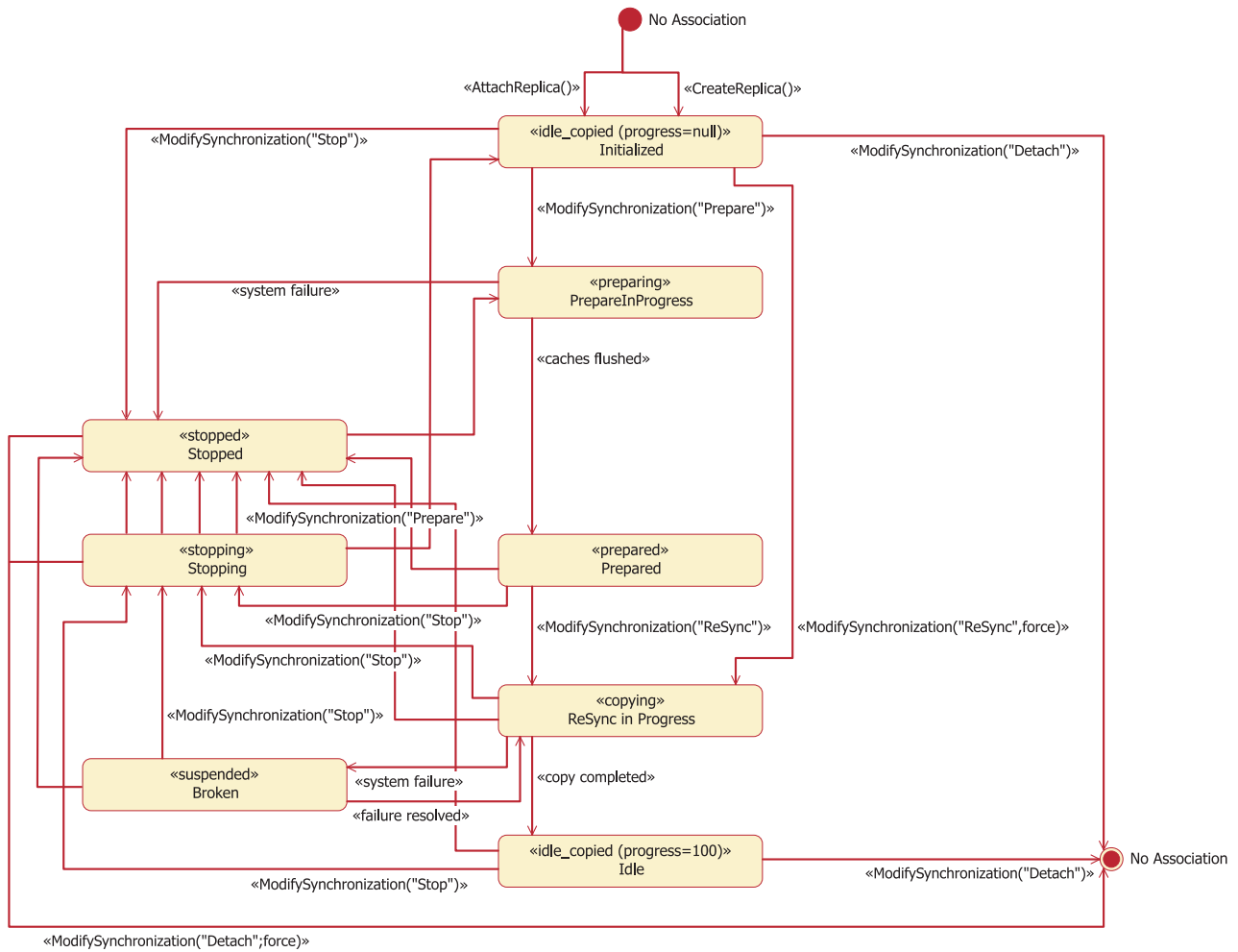


Figure 17. FlashCopy state diagram of the CIM Agent for the SAN Volume Controller.

Sync Copy state diagram

The Sync Copy state diagram of the Common Information Model (CIM) Agent for the SAN Volume Controller provides states and transitions for Flash Copy relationships.

Figure 18 on page 32 shows the supported states and transitions for Flash Copy relationships.

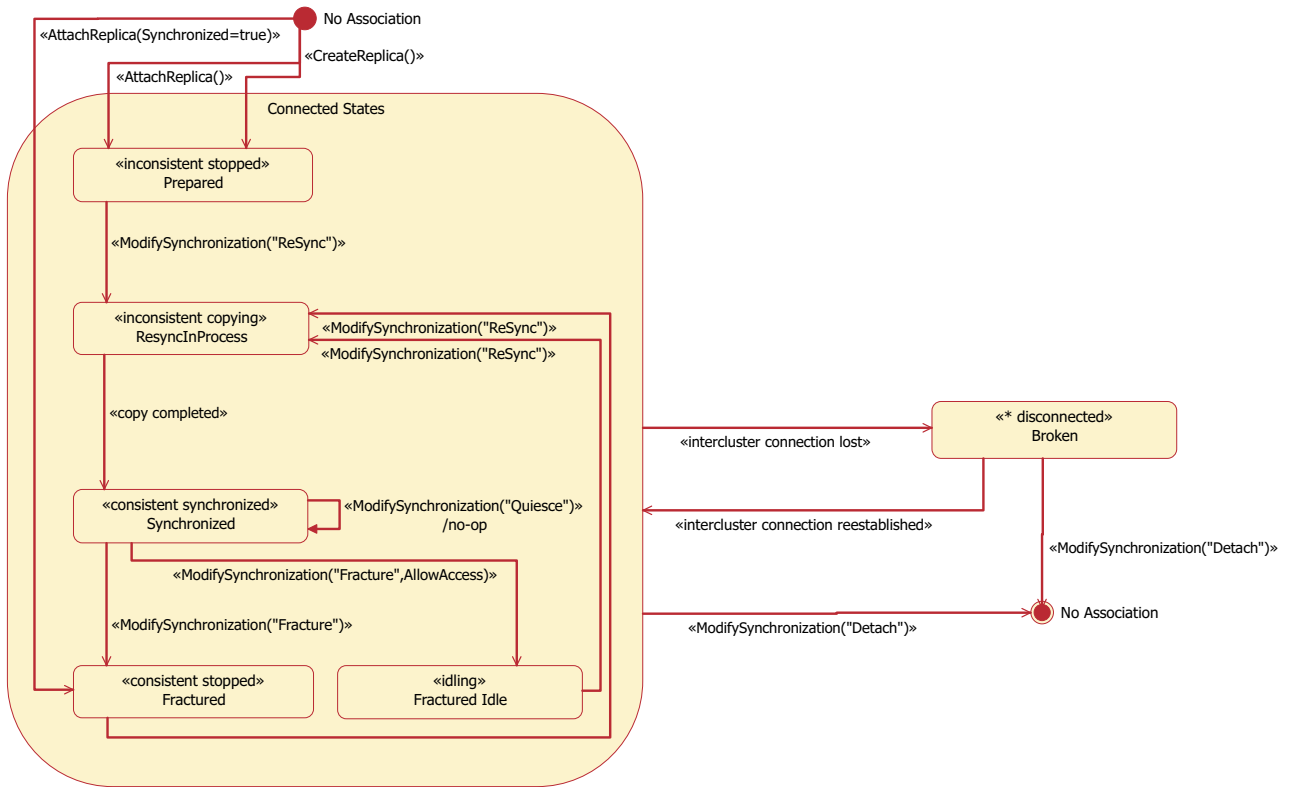


Figure 18. High-level overview of the Sync Copy state diagram of the CIM Agent for the SAN Volume Controller.

Chapter 4. Performing LUN masking

This chapter describes how you can use the CIM Agent object class instances to perform logical unit number (LUN) masking.

LUN masking

The SAN Volume Controller provides logical unit number (LUN) masking capability.

This allows you to associate or dissociate a storage volume with a fibre-based host initiator through the worldwide port names (WWPNs).

Performing LUN masking

To perform logical unit number (LUN) masking, you first need a storage volume to map, which is represented by an instance of the IBMTSSVC_StorageVolume class.

You can map host ports as well as entire hosts to a storage volume.

- Host = IBMTSSVC_HardwareIdCollection
- Port = IBMTSSVC_StorageHardwareID

IBMTSSVC_HardwareIdCollection aggregates instances of IBMTSSVC_StorageHardwareID.

1. Before performing LUN masking, you need instances of the following services (the cluster is the referenced object).
 - IBMTSSVC_ControllerConfigurationService (association IBMTSSVC_ControllerConfigurationServiceForSystem)
 - IBMTSSVC_StorageHardwareIdManagementService (association IBMTSSVC_StorageHardwareIdManagementServiceForSystem)Both are available within a cluster scope (IBMTSSVC_Cluster).
2. Select an IBMTSSVC_StorageVolume (LUN) instance and either an IBMTSSVC_HardwareIdCollection (host) instance or an IBMTSSVC_StorageHardwareID (port) instance. The association between the two instances is IBMTSSVC_MemberOfCollection.

Note: If you want to work with the host and host ports, obtain the reference of IBMTSSVC_StorageHardwareIdManagementService by traversing either IBMTSSVC_ManagesCollection or IBMTSSVC_ManagesHardwareID. The IBMTSSVC_StorageHardwareIdManagementService class has a CreateHardwareIDCollection() method that takes an array of strings and references I/O groups as an input parameter to bind the host collection to the I/O group.

3. Obtain the reference (CIMObjectPath) of both instances.
4. Traverse the IBMTSSVC_SystemVolume association from the storage volume to obtain the reference of the scoping IBMTSSVC_IOGroup.
5. If starting from IBMTSSVC_StorageHardwareID, optionally traverse IBMTSSVC_HardwareIdCollection to get the IBMTSSVC_HardwareIdCollection. This is necessary in order to check the associated instance of IBMTSSVC_Privilege in a later step. The IBMTSSVC_HardwareIdCollection class has the numberOfIOGroups property that indicates how many hosts are bound to a specific I/O group. It is also

possible to directly traverse the association
IBMTSSVC_authorizedStorageHardwareID to get to the associated instance of
IBMTSSVC_Privilege.

6. Check to see if a controller already exists for the host. You can check this by traversing the IBMTSSVC_authorizedCollection to obtain the reference of the IBMTSSVC_Privilege instance. A privilege has a 1:1 relation to the controller.
 - If starting from IBMTSSVC_StorageHardwareID, you can traverse the IBMTSSVC_authorizedStorageHardwareID association to obtain the reference of the IBMTSSVC_Privilege instance.
 - If a controller does not already exist for the Host, a new controller must be created using the IBMTSSVC_ControllerConfigurationService class. This class offers you a method called CreateProtocolControllerWithPorts(). In order to invoke this method, you need the fibre-channel ports and the host. An easy way to use this method is to use the reference of the IO group rather than the fibre-channel ports. The methods automatically detect the fibre-channel ports.
 - If a privilege is already associated, obtain the reference of the IBMTSSVC_Controller instance by traversing the IBMTSSVC_authorizedTarget association.
7. Check to make sure that the IO group of the volume (LUN) and the IO group of the controller are the same.
8. Traverse the IBMTSSVC_SystemController association to obtain the reference of the scoping IO group.
9. Select the Controller which belongs to the same IO group as the storage volume.
10. Call the method AttachDevice() on that Controller instance. Make sure to set the device parameter to the reference of the storage volume.

Chapter 5. Network considerations

This chapter describes the two methods ICAT uses to publish its services. The CIM Agent service can be published through service location protocol (SLP) based discovery. The user interface connection information is published by an instance of the RemoteServiceAccessPoint that the CIM Agent provides.

SLP based discovery

The CIMOM automatically registers its IP address with the SLP; however, you can manually modify the registration.

In an environment with multiple network adapters, the SLP Service Agent might register the CIM Agent with the IP of a network adapter in a different subnet than the management application. As a result, the management application cannot discover the CIM Agent.

The example below illustrates why this occurs:

- The management application runs in subnet A.
- The CIM Agent machine has adapters for subnet A and subnet B.
- Using SLP based discovery, the CIM Agent is registered for subnet B.
- When the management application runs discovery, it detects the CIM Agent SLP registration with the IP of subnet B.
- The management application's connection attempt to the CIM Agent fails because the IP of subnet B cannot be reached from subnet A.

To correct this issue, you can manually register the IP with the SLP. To manually register the IP with the SLP, you must set an attribute within the **cimom.properties** file.

Perform the following steps to set the attribute:

1. Go to the CIM Agent installation directory.
2. Open the cimom.properties file.
3. Find the attribute: `iPToRegisterWithSLP=Off`.

With this attribute set to off, the CIM Agent automatically detects the primary network card.

4. Set `iPToRegisterWithSLP=<Network Adapter's IP Address>`.

This changes the IP address to the correct network adapter and allows the management application to discover the CIM Agent.

RemoteServiceAccessPoint instance

In an environment with multiple network cards, it might be necessary to manually set the connection data of the RemoteServiceAccessPoint (RSAP) instance.

The `IBMTSSVC_RemoteServiceAccessPoint` class hosts the information necessary for connection to the Web user interface. Management applications can obtain an instance of the RSAP from the CIMOM to launch the user interface through the Web.

You can manually set the connection data of the RSAP. This is helpful in an environment with multiple network cards.

Perform the following steps to set the connection data:

1. Obtain the IBMSVC_Cluster instance.
2. Use the intrinsic method SetProperty(), to modify the ConsoleIP and ConsolePort properties.

The CIM Agent automatically updates the RSAP.

Chapter 6. Using the problem determination tool

This chapter describes the Reliability, Availability and Serviceability (RAS) Problem Determination Collection Tool.

The RAS Problem Determination Collection Tool is a batch file that provides you with a convenient way to collect all of the log and trace files relevant to ICAT problem determination.

The default settings allow you to collect the following files:

- CIM Agent log and trace files
- User interface log and trace files
- Installation log files
- Vital product data text files

You can change the default settings by editing the properties file that is referenced by the RAS Problem Determination Collection Tool.

Starting the tool

You can start the Reliability, Availability and Serviceability (RAS) Problem Determination Collection Tool using the **collectLogs** batch file.

The **collectLogs** batch file allows you to zip all of the log and trace files that are generated by the ICAT and user interface. You can move the log and trace files to a default location or a location that you specify.

Perform the following steps to start the RAS Problem Determination Collection Tool:

1. Go to the *CIM agent installation directory/svconconsole/cimom/support* directory.

Where *CIM agent installation directory* is the directory where the CIM agent is installed.

2. Find the batch file name **collectLogs.bat**. The **collectLogs.bat** batch file zips all of the files that are found in the CIM agent directory and its subdirectories with an extension of *.log*.

3. Issue the following command to run the batch file:

```
collectLogs.bat target directory
```

Where *target directory* is the location where you want to save the zip file.

Note: If you do not specify a target directory, the zip file is created in the default directory, *CIM agent installation directory/svconconsole/cimom/support*. Target directories that do not exist are created.

4. Verify that the zip file **collectedLogs.zip** is created in the target or default directory.

Editing the properties file

The **raspd.properties** file allows you to specify the file extension types that you want the Reliability, Availability and Serviceability (RAS) Problem Determination Collection Tool to collect.

The **raspd.properties** file provides the following information:

- The default location where the zip file is created.
- The location of the CIMOM log files and the file extension types that are collected.
- The location of the user interface log files and the file extension types that are collected.
- The location of the installation log files and the file extension types that are collected.
- The location of the vital product data (VPD) text files and the file extension types that are collected.

By default, only log files for the CIMOM, the user interface, and the installation are collected. Only text files for the VPD are collected. You can collect additional file extension types by editing the **raspd.properties** file.

Perform the following steps to edit the **raspd.properties** file:

1. Go to the *CIM agent installation directory*/svconconsole/cimom/support directory.
Where *CIM agent installation directory* is the directory where the CIM agent is installed.
2. Find the **raspd.properties** file and open it using a text editor.
3. Find the keys that you want to edit and append the additional file extension types. Each entry must be separated by a comma.

Note: Do not edit the **raspd.properties** unless you want to collect additional file extension types.

The following example shows the format for an entry in the **raspd.properties** file on a Windows® operating system:

```
#Zip file destination
DefaultZipFileDest=C:/CIM/svconconsole/cimom/support
#
#Logfile locations with the file extension types that are to be collected,
appended at the end and SEPARATED by a comma
#
CIMAgentLogDir=C:/CIM/svconconsole/cimom, log, txt
```

Chapter 7. CIM agent object classes

Object classes are the building blocks of the Common Information Model (CIM) agent and utilize functions such as storage configuration, Copy Services, and logical unit number (LUN) masking.

Core object classes

The following section describes the CIM Agent's core classes and their properties for the SAN Volume Controller.

IBMTSSVC_BackendController

The IBMTSSVC_BackendController class extends the CIM_SCSIController class.

Properties

The IBMTSSVC_BackendController class represents a RAID adapter on the back end of the SAN Volume Controller. The adapters control the IBMTSSVC_BackendVolumes that the SAN Volume Controller uses to store data. The IBMTSSVC_BackendController class extends the CIM_SCSIController class and has the properties shown in Table 1.

Table 1. IBMTSSVC_BackendController properties

| Property | Type | Qualifier | Description |
|---------------|---------|---|-----------------------|
| AccessGranted | Boolean | ModelCorrespondence (CIM_Controller. AuthorizationView) | Unsupported property. |

Table 1. IBMTSSVC_BackendController properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|-----------------------------|--|---|------|-----------|---|-------|---|---------|---|---------------------|---|---------|---|---------|---|-----|---|-----------|---|----------|---|----------|----|----------|----|---------------|----|---------------|----|----------------------|----|-----------------------------|----|----------------------|----|-------------|----|----------------------|----|--------|----|-----------|----|----------------|----|----------|
| AdditionalAvailability | Uint16[] | Deprecated(CIM_Associated PowerManagementService. PowerState CIM_Managed SystemElement. OperationalStatus CIM_Enabled LogicalElement.EnabledStatus) ModelCorrespondence (CIM_LogicalDevice.Availability) | <p>Additional availability and status of the device, beyond that specified in the Availability property.</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>Unknown</td></tr> <tr><td>3</td><td>Running/ Full Power</td></tr> <tr><td>4</td><td>Warning</td></tr> <tr><td>5</td><td>In Test</td></tr> <tr><td>6</td><td>N/A</td></tr> <tr><td>7</td><td>Power Off</td></tr> <tr><td>8</td><td>Off Line</td></tr> <tr><td>9</td><td>Off Duty</td></tr> <tr><td>10</td><td>Degraded</td></tr> <tr><td>11</td><td>Not Installed</td></tr> <tr><td>12</td><td>Install Error</td></tr> <tr><td>13</td><td>Power Save - Unknown</td></tr> <tr><td>14</td><td>Power Save - Low Power Mode</td></tr> <tr><td>15</td><td>Power Save - Standby</td></tr> <tr><td>16</td><td>Power Cycle</td></tr> <tr><td>17</td><td>Power Save - Warning</td></tr> <tr><td>18</td><td>Paused</td></tr> <tr><td>19</td><td>Not Ready</td></tr> <tr><td>20</td><td>Not Configured</td></tr> <tr><td>21</td><td>Quiesced</td></tr> </tbody> </table> | Code | Semantics | 1 | Other | 2 | Unknown | 3 | Running/ Full Power | 4 | Warning | 5 | In Test | 6 | N/A | 7 | Power Off | 8 | Off Line | 9 | Off Duty | 10 | Degraded | 11 | Not Installed | 12 | Install Error | 13 | Power Save - Unknown | 14 | Power Save - Low Power Mode | 15 | Power Save - Standby | 16 | Power Cycle | 17 | Power Save - Warning | 18 | Paused | 19 | Not Ready | 20 | Not Configured | 21 | Quiesced |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Running/ Full Power | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Warning | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | In Test | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Power Off | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Off Line | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Off Duty | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Not Installed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Install Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Power Save - Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Power Save - Low Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Power Save - Standby | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Power Cycle | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Power Save - Warning | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Paused | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Not Ready | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Not Configured | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | Quiesced | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 1. IBMTSSVC_BackendController properties (continued)

| Property | Type | Qualifier | Description |
|-------------------|---------|---|--|
| Availability | Uint16 | Deprecated(CIM_AssociatedPowerManagementService.PowerState CIM_ManagedSystemElement.OperationalStatus CIM_EnabledLogicalElement.EnabledStatus), ModelCorrespondence (CIM_LogicalDevice.AdditionalAvailability), Expensive(TRUE) | The primary availability and status of the device. Code Semantics 1 Other 2 Unknown 3 Running/ Full Power 4 Warning 5 In Test 6 N/A 7 Power Off 8 Off Line 9 Off Duty 10 Degraded 11 Not Installed 12 Install Error 13 Power Save - Unknown 14 Power Save - Low Power Mode 15 Power Save - Standby 16 Power Cycle 17 Power Save - Warning 18 Paused 19 Not Ready 20 Not Configured 21 Quiesced |
| Caption | String | MaxLen(64) | Unsupported property. |
| Controlled | Boolean | | Unsupported property. |
| CreationClassName | String | MaxLen(256) | The name of the class or subclass used to create an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |
| DeviceID | String | MaxLen(64) | An address or other identifying information to uniquely name the LogicalDevice. |
| Description | String | | A textual description of the object. |
| Element Name | String | | Unsupported property. |

Table 1. IBMTSSVC_BackendController properties (continued)

| Property | Type | Qualifier | Description |
|------------------|---------|---|---|
| EnabledDefault | Uint16 | Write(TRUE) | <p>An enumerated value that indicates an administrator's default/startup configuration for an element's EnabledStatus. By default, the element is "Enabled" (value=2).</p> <p>Code Semantics</p> <p>2 Enabled 3 Disabled 5 N/A 6 Enabled but Offline 7 No Default 8..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.OtherEnabledState) | <p>Integer enumeration indicator.</p> <p>Code Semantics</p> <p>0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 N/A 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| ErrorCleared | Boolean | Deprecated (CIM_ManagedSystemElement) | Unsupported property. |
| ErrorDescription | String | Deprecated (CIM_DeviceErrorData.ErrorDescription) | Unsupported property. |

Table 1. IBMTSSVC_BackendController properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------|----------------------------|--|---|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| Identifying Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_LogicalDevice.OtherIdentifyingInfo) | An array of free-form strings providing explanations and details behind the entries in the OtherIdentifyingInfo array. Each entry of this array is related to the entry in OtherIdentifyingInfo that is located at the same index. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| InstallDate | Date-time | | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LastErrorCode | Uint32 | Deprecated(CIM_DeviceError.Data.LastErrorCode) | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MaxQuiesceTime | Uint64 | Deprecated(No value), Units(MilliSeconds) | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name | String | MaxLen(1024), Write(TRUE), WriteRole(Administrator) | The unique label, in the context of the hosting system, by which the controller is known. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operational Status | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.StatusDescriptions), Expensive(TRUE) | Indicates the current status of the element. <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 1. IBMTSSVC_BackendController properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------------|----------|---|--|
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogicalElement.EnabledState) | The element's enabled/disabled state when the EnabledState property is set to 1 ("Other"). This property <i>must</i> be set to NULL when EnabledState is any value other than 1. |
| OtherIdentifyingInfo | String[] | MaxLen(256), ArrayType (Indexed), ModelCorrespondence (CIM_LogicalDevice.IdentifyingDescriptions) | Captures additional data, beyond DeviceID information, that could be used to identify a LogicalDevice. For example, you can use this property to hold the OperatingSystem's user-friendly name for the device. |
| PowerManagementCapabilities | Uint16[] | Deprecated(CIM_PowerManagementCapabilities.PowerCapabilities) | An enumerated array that describes the power management capabilities of the device. The use of this property is deprecated. Instead, the PowerCapabilites property in an associated PowerManagementCapabilities class must be used. Code Semantics 0 Unknown 1 Not Supported 2 Disabled 3 Enabled 4 Power Saving Modes Entered Automatically 5 Power State Settable 6 Power Cycling Supported 7 Timed Power On Supported |
| PowerManagementSupported | Boolean | Deprecated(CIM_PowerManagementCapabilities) | Indicates that the device can be power-managed. |
| PowerOnHours | Uint64 | Deprecated(CIM_PoweredStatisticalData.PowerOnHours), Units(Hours), Counter(TRUE) | Unsupported property. |
| ProductIdHigh | String | | The higher part of the controller's product id. |
| ProductIdLow | String | | The lower part of the controller's product id. |

Table 1. IBMTSSVC_BackendController properties (continued)

| Property | Type | Qualifier | Description |
|--------------------------|----------|---|--|
| ProductRevision | String | Expensive(TRUE) | The controller's product revision. |
| ProductSerial Number | String | | The controller's product serial number. |
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | <p>An integer enumeration indicator. This property is provided to compare Requested and current Enabledstatus. The SAN Volume Controller does not evaluate this attribute so no action is taken when it is changed.</p> <p>Code Semantics</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shut Down</p> <p>5 No Change</p> <p>6 Offline</p> <p>7 Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10..32767 DMTF Reserved</p> <p>32768..65535 Vendor Reserved</p> |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement) | Deprecated property - set to "Unknown." Look at OperationalStatus for status information. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement. OperationalStatus) | Describes the status - used when the OperationalStatus property is set to 1 ("Other"). |
| StatusInfo | Uint16 | Deprecated (CIM_EnabledLogical Element.EnabledState) | <p>The state (enabled or disabled) of the Logical Device. Since this property does not apply to the Controller, the value "Not Applicable" is always reported.</p> <p>Code Semantics</p> <p>1 Other</p> <p>2 Unknown</p> <p>3 Enabled</p> <p>4 Disabled</p> <p>5 Not Applicable</p> |
| SystemCreation ClassName | String | Propagated (CIM_System.Creation ClassName), MaxLen(256) | The scoping system's CreationClassName. |

Table 1. IBMTSSVC_BackendController properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|-----------|---|--|
| SystemName | String | Propagated(CIM_System.Name), MaxLen(256) | The scoping system's name. |
| TimeOfLastStateChange | Date-time | | Unsupported property. |
| TotalPowerOnHours | Uint64 | Deprecated (CIM_PoweredStatisticalData.TotalPowerOnHours), Units (Hours), Counter(TRUE) | Unsupported property. |
| VendorID | String | | The ID of the controller's vendor. |
| VolumeLinkCount | Uint32 | Expensive(TRUE) | The number of links to the BackendVolumes. |
| VolumeMaxLinkCount | Uint32 | Expensive(TRUE) | The maximum number of links to the BackendVolumes. |
| WWNN | String | Expensive(TRUE) | The worldwide node name (WWNN) of the controller. |
| Wwpn | String[] | ModelCorrespondence (IBMTSSVC_BackendController.WwpnPathCount), Expensive(TRUE) | The worldwide port name (WWPN) of the controller. |
| WwpnMaxPathCount | Uint64[] | ModelCorrespondence (IBMTSSVC_BackendController.Wwpn), Expensive(TRUE) | The maximum path count to the corresponding WWPN. |
| WwpnPathCount | Uint64[] | ModelCorrespondence (IBMTSSVC_BackendController.Wwpn), Expensive(TRUE) | The path count to the corresponding WWPN. |

IBMTSSVC_BackendVolume

The IBMTSSVC_BackendVolume class represents a SCSI LUN that a storage controller in the fibre-channel SAN exposes to the SAN Volume Controller.

Properties

The IBMTSSVC_BackendVolume class extends the CIM_StorageExtent class and has the properties shown in Table 2.

Table 2. IBMTSSVC_BackendVolume properties

| Property | Type | Qualifier | Description | | | | | | | | | | | | |
|-------------|----------------------|-----------|--|-------------|------------------|----------|---------|----------|----------|----------|-----------|----------|----------------------|----------|------------|
| Access | Uint16 | | The access levels. <table border="0"> <tr> <td>Code</td> <td>Semantics</td> </tr> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Readable</td> </tr> <tr> <td>2</td> <td>Writeable</td> </tr> <tr> <td>3</td> <td>Read/Write Supported</td> </tr> <tr> <td>4</td> <td>Write Once</td> </tr> </table> | Code | Semantics | 0 | Unknown | 1 | Readable | 2 | Writeable | 3 | Read/Write Supported | 4 | Write Once |
| Code | Semantics | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | |
| 1 | Readable | | | | | | | | | | | | | | |
| 2 | Writeable | | | | | | | | | | | | | | |
| 3 | Read/Write Supported | | | | | | | | | | | | | | |
| 4 | Write Once | | | | | | | | | | | | | | |
| ActiveWWPN | String | | The volume's active worldwide port number. | | | | | | | | | | | | |

Table 2. IBMTSSVC_BackendVolume properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------|----------|--|--|
| Additional Availability | Uint16[] | ModelCorrespondence (CIM_LogicalDevice.Availability) | <p>The availability and status of the device in addition to what is specified in the Availability property. The Availability property denotes the primary status and availability of the device. In cases where this will not be sufficient to denote the complete status of the device, the AdditionalAvailability property provides further information.</p> <p>Code Semantics</p> <p>1 Other 2 Unknown 3 Running/Full Power 4 Warning 5 In Test 6 Not Applicable 7 Power Off 8 Off Line 9 Off Duty 10 Degraded 11 Not Installed 12 Install Error 13 Power Save - Unknown 14 Power Save - Low Power Mode 15 Power Save - Standby 16 Power Cycle 17 Power Save - Warning 18 Paused 19 Not Ready 20 Not Configured 21 Quiesced</p> |

Table 2. IBMTSSVC_BackendVolume properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|--------|--|--|
| Availability | Uint16 | Deprecated(CIM_AssociatedPowerManagementService.PowerState CIM_ManagedSystemElement.OperationalStatus CIM_EnabledLogicalElement.EnabledState) ModelCorrespondence (CIM_LogicalDevice.AdditionalAvailability) | The primary availability and status of the device. Code Semantics 1 Other 2 Unknown 3 Running/Full Power 4 Warning 5 In Test 6 Not Applicable 7 Power Off 8 Off Line 9 Off Duty 10 Degraded 11 Not Installed 12 Install Error 13 Power Save - Unknown 14 Power Save - Low Power Mode 15 Power Save - Standby 16 Power Cycle 17 Power Save - Warning 18 Paused 19 Not Ready 20 Not Configured 21 Quiesced |
| BlockSize | Uint64 | Units(bytes), Expensive(TRUE) | The size (bytes) of the blocks that form this StorageExtent. If variable block size, the maximum block size in bytes must be specified. If the block size is unknown or if a block concept is not valid, enter a 1. |
| Capacity | Uint64 | Units(Bytes) | The total capacity of the BackendVolume. |
| Caption | String | MaxLen(15), Write(TRUE), WriteRole(Administrator) | A short (one-line string) textual description of the object. |
| CreationClass Name | String | MaxLen(256) | The name of the class or subclass that is used to create an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |

Table 2. IBMTSSVC_BackendVolume properties (continued)

| Property | Type | Qualifier | Description |
|------------------|--------|---|--|
| ConsumableBlocks | Uint64 | Expensive(TRUE) | The maximum number of blocks, of size BlockSize, that are available for consumption when layering StorageExtents using the BasedOn association. |
| ControllerName | String | | The name of the volume's backend controller. |
| DataOrganization | Uint16 | | The type of data organization techniques. Code Semantics 0 Other 1 Unknown 2 Fixed Block 3 Variable Block 4 Count Key Data |
| DataRedundancy | Uint16 | ModelCorrespondence (CIM_StorageSetting. DataRedundancyGoal CIM_StorageSetting. DataRedundancyMax CIM_StorageSetting. DataRedundancyMin) | The number of complete copies of data that is maintained. |
| DeltaReservation | Uint8 | MinValue(0), MaxValue(100), Units(Percentage), ModelCorrespondence (CIM_StorageSetting. DeltaReservationGoal CIM_StorageSetting. DeltaReservationMax CIM_StorageSetting. DeltaReservationMin) | The current value for the Delta reservation. |
| Description | String | | A textual description of the object. |
| DeviceID | String | MaxLen(64) | The ID of the BackendVolume. A numerical value which is unique inside the BackendVolume class only. |
| ElementName | String | MaxLen(15), Write(TRUE), WriteRole(Administrator) | The BackendVolume's user-friendly name |

Table 2. IBMTSSVC_BackendVolume properties (continued)

| Property | Type | Qualifier | Description |
|------------------|---------|---|--|
| EnabledDefault | Uint16 | Write(TRUE) | <p>An enumerated value that indicates an administrator's default/startup configuration for an element's EnabledStatus. By default, the element is "Enabled" (value=2).</p> <p>Code Semantics</p> <p>2 Enabled 3 Disabled 5 Not Applicable 6 Enabled but Offline 7 No Default 8..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.OtherEnabledState) | <p>An integer enumeration that indicates if the element is currently shutting down or is in an enabled or disabled state.</p> <p>Code Semantics</p> <p>0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 Not Applicable 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| ErrorCleared | Boolean | Deprecated(CIM_ManagedSystemElement.OperationalStatus) | This property is not supported. |
| ErrorDescription | String | Deprecated(CIM_DeviceErrorData.ErrorDescription) | This property is not supported. |
| ErrorMethodology | String | | This property is not supported. |

Table 2. IBMTSSVC_BackendVolume properties (continued)

| Property | Type | Qualifier | Description |
|---------------------------------|-----------|---|--|
| ExtentStatus | Uint16[] | | <p>Records status information in addition to what is captured in the Availability and StatusInfo properties, inherited from ManagedSystem Element.</p> <p>Code Semantics</p> <p>0 Other</p> <p>1 Unknown</p> <p>2 None/Not Applicable</p> <p>3 Broken</p> <p>4 Data Lost</p> <p>5 Dynamic Reconfig</p> <p>6 Exposed</p> <p>7 Fractionally Exposed</p> <p>8 Partially Exposed</p> <p>9 Protection Disabled</p> <p>10 Reaying</p> <p>11 Rebuild</p> <p>12 Recalculate</p> <p>13 Spare in Use</p> <p>14 Verify In Progress</p> <p>15..32767 DMTF Reserved</p> <p>32768..65535 Vendor Reserved</p> |
| Identifying Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_LogicalDevice.Other IdentifyingInfo) | An array of free-form strings that provide explanations and details behind the entries in the OtherIdentifyingInfo array. Each entry of this array is related to the entry in OtherIdentifyingInfo which is located in the same index. |
| InstallDate | Date-time | | This property is not supported. |
| IsBasedOn Underlying Redundancy | Boolean | | If set to true, the underlying StorageExtent participates in a StorageRedundancy Group. |
| LastErrorCode | Uint32 | Deprecated(CIM_Device ErrorData.LastErrorCode) | This property is not supported. |

Table 2. IBMTSSVC_BackendVolume properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|---------|--|--|
| MaxPathCount | Uint32 | Counter(TRUE), Expensive(TRUE) | The maximum fibre-channel path count to the BackendVolume. |
| MaxQuiesceTime | Uint64 | Deprecated(No value), Units(MilliSeconds) | This property is not supported. |
| Mode | Uint32 | ValueMap, Values | The mode of the BackendVolume. Code Semantics 0 Unmanaged 1 Router restricted 2 Managed 3 Image 4 for future use 5 for future use 6 Router config 7 Remote copy 8 for future use |
| Name | String | MaxLen(1024) | The unique label by which the object is known. |
| NativeStatus | Uint16 | | The back-end volume's native operational status. Code Semantics 0 Offline 1 Online 2 Degraded 3 Excluded |
| NoSinglePointOfFailure | Boolean | ModelCorrespondence (CIM_StorageSetting. NoSinglePointOfFailure) | Indicates if the no-single-point-of-failure feature exists. |
| NumberOfBlocks | Uint64 | Expensive(TRUE) | The total number of logically contiguous blocks that form the extent. The total size of the extent can be calculated by multiplying BlockSize by NumberOfBlocks. If the BlockSize is 1, this property is the total size of the extent. |

Table 2. IBMTSSVC_BackendVolume properties (continued)

| Property | Type | Qualifier | Description |
|----------------------|----------|---|--|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | The status of the volume. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode |
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | The element's enabled or disabled state when EnabledStatus is set to 1. The state is NULL when EnabledStatus is set to a value other than 1. |
| OtherIdentifyingInfo | String[] | MaxLen(256), ArrayType(Indexed), ModelCorrespondence (CIM_LogicalDevice. IdentifyingDescriptions), Expensive(TRUE) | Captures additional data, beyond DeviceID information, that could be used to identify a LogicalDevice. For example, you can hold the OperatingSystem's user-friendly name for the device in this property. |
| Package Redundancy | Uint16 | ModelCorrespondence (CIM_StorageSetting. PackageRedundancyGoal CIM_StorageSetting.Package RedundancyMax CIM_StorageSetting. PackageRedundancyMin) | The number of disk spindles that can fail without data loss. |
| PathCount | Uint32 | Counter(TRUE), Expensive(TRUE) | The current counts of fibre-channel paths to the BackendVolume. |

Table 2. IBMTSSVC_BackendVolume properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | |
|------------------------------|--|--|---|------|-----------|---|---------|---|---------------|---|----------|---|---------|---|--|---|----------------------|---|-------------------------|---|--------------------------|
| PoolID | String | | The identifier of the associated storage pool. | | | | | | | | | | | | | | | | | | |
| PoolName | String | | The name of the associated storage pool. | | | | | | | | | | | | | | | | | | |
| PowerManagement Capabilities | Uint16[] | Deprecated (CIM_PowerManagement Capabilities.PowerCapabilities) | <p>An enumerated array that describes the power management capabilities of the device. The use of this property is deprecated. Instead, the PowerCapabilites property in an associated PowerManagement Capabilities class must be used.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Not Supported</td> </tr> <tr> <td>2</td> <td>Disabled</td> </tr> <tr> <td>3</td> <td>Enabled</td> </tr> <tr> <td>4</td> <td>Power Saving Modes Entered Automatically</td> </tr> <tr> <td>5</td> <td>Power State Settable</td> </tr> <tr> <td>6</td> <td>Power Cycling Supported</td> </tr> <tr> <td>7</td> <td>Timed Power On Supported</td> </tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Not Supported | 2 | Disabled | 3 | Enabled | 4 | Power Saving Modes Entered Automatically | 5 | Power State Settable | 6 | Power Cycling Supported | 7 | Timed Power On Supported |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | |
| 1 | Not Supported | | | | | | | | | | | | | | | | | | | | |
| 2 | Disabled | | | | | | | | | | | | | | | | | | | | |
| 3 | Enabled | | | | | | | | | | | | | | | | | | | | |
| 4 | Power Saving Modes Entered Automatically | | | | | | | | | | | | | | | | | | | | |
| 5 | Power State Settable | | | | | | | | | | | | | | | | | | | | |
| 6 | Power Cycling Supported | | | | | | | | | | | | | | | | | | | | |
| 7 | Timed Power On Supported | | | | | | | | | | | | | | | | | | | | |
| PowerManagement Supported | Boolean | Deprecated (CIM_PowerManagement Capabilities) | Indicates that the device can be power- managed. The use of this property is deprecated. Instead, the existence of an associated PowerManagement Capabilities class (associated using the ElementCapabilities relationship) indicates that power management is supported. | | | | | | | | | | | | | | | | | | |
| PowerOnHours | Uint64 | Deprecated (CIM_PoweredStatistical Data.PowerOnHours), Units(Hours), Counter(TRUE) | This property is not supported. | | | | | | | | | | | | | | | | | | |
| PreferredWWPN | String | | The volume's preferred worldwide port number. | | | | | | | | | | | | | | | | | | |
| Primordial | Boolean | | If true, this property indicates that the containing system does not have the ability to create or delete this operational element. | | | | | | | | | | | | | | | | | | |

Table 2. IBMTSSVC_BackendVolume properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|----------|--|--|
| Purpose | String | | A free form string that describes the media and/or its use. |
| QuorumIndex | Uint8 | Expensive(TRUE) | The quorum index of the BackendVolume; valid indexes are 0, 1, 2 while an index of 3 indicates that this volume is not used as a quorum disk. |
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.EnabledState) | <p>An Integer enumeration indicator. This property is provided to compare Requested and current Enabledstatus. The SAN Volume Controller does not evaluate this attribute so no action is taken when it is changed.</p> <p>Code Semantics</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shut Down</p> <p>5 No Change</p> <p>6 Offline</p> <p>7 Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10..32767 DMTF Reserved</p> <p>32768..65535 Vendor Reserved</p> |
| SequentialAccess | Boolean | | If set to true, indicates that the storage is sequentially accessed by a MediaAccessDevice. A TapePartition is an example of a sequentially accessed StorageExtent. StorageVolumes, DiskPartitions and LogicalDisks are examples of randomly accessed extents. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement.OperationalStatus) | The use of this property is deprecated. Look at OperationalStatus for status information. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.OperationalStatus) | Describes the status - used when the OperationalStatus property is set to 1 ("Other"). |

Table 2. IBMTSSVC_BackendVolume properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------|-----------|---|---|
| StatusInfo | Uint16 | Deprecated (CIM_EnabledLogicalElement.EnabledState) | The use of this property is deprecated. Code Semantics 1 Other 2 Unknown 3 Enabled 4 Disabled 5 Not Applicable |
| SystemCreationClassName | String | Propagated, Key, MaxLen(256) | The scoping system's CreationClassName. |
| SystemName | String | Propagated, Key, MaxLen(256) | The scoping cluster's IP address. |
| TimeOfLastStateChange | Date-time | | This property is not supported. |
| TotalPowerOnHours | Uint64 | Deprecated (CIM_PoweredStatisticalData.TotalPowerOnHours), Units(Hours), Counter(TRUE) | This property is not supported. |
| UniqueID | String | | The SCSI vital product date for the managed disk (MDisk). UID type Controller 3 IBM DS4000 1 IBM 2105 3 IBM DS6000 3 IBM DS8000 3 EMC Symmetrix 3 EMC Clariion 1 HDS Lightning 1 HDS Thunder 3 HDS TagmaStore 3 HP StorageWorks |

IBMTSSVC_CandidateCluster

The IBMTSSVC_CandidateCluster class extends the CIM_LogicalElement class.

Properties

The IBMTSSVC_CandidateCluster class represents other IBMTSSVC_Cluster instances that are visible in the fibre-channel SAN and potential candidates for creating a synchronous copy partnership. The IBMTSSVC_CandidateCluster class extends the CIM_LogicalElement class and has the properties shown in Table 3.

Table 3. IBMTSSVC_CandidateCluster properties

| Property | Type | Qualifier | Description |
|----------|--------|------------|--|
| Caption | String | MaxLen(64) | A short (one-line string) textual description of the object. |

Table 3. IBMTSSVC_CandidateCluster properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|-----------|---|--|
| Description | String | | A textual description of the object. |
| ElementName | String | | The name of the cluster. |
| InstallDate | Date-time | | Unsupported property. |
| IsConfigured | Boolean | | The partnership configuration state. |
| Name | String | MaxLen(1024) | The label by which the object is known. Format: cluster_ip: candidate_id |
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.StatusDescriptions) | The current status of the element. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement.OperationalStatus) | This property is deprecated in lieu of OperationalStatus. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.OperationalStatus) | Describes the status - used when the OperationalStatus property is set to 1 ("Other"). |

IBMTSSVC_CandidateNode

The IBMTSSVC_CandidateNode class extends the CIM_ComputerSystem class.

Properties

The IBMTSSVC_CandidateNode class represents a single SAN Volume Controller node in a fibre-channel SAN that is not a member of a cluster, but is available to be a member. The IBMTSSVC_CandidateNode class extends the CIM_ComputerSystem class and has the properties shown in Table 4.

Table 4. IBMTSSVC_CandidateNode properties

| Property | Type | Qualifier | Description |
|-------------------|--------|-------------|--|
| Caption | String | MaxLen(64) | A short textual description (one-line string) of the object. |
| CreationClassName | String | MaxLen(256) | The name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |

Table 4. IBMTSSVC_CandidateNode properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|------------------------|---|---|------|-----------|---|---------------|---|---------|---|-------|---|---------|---|--------|---|--------|---|----------------|---|-----------------------|---|-----|---|---------------|----|----------|----|-------|----|-----|----|------------------------|----|--------------|----|-------------|----|--------------------|----|----------|----|-----------------|----|---------|----|---------|
| Dedicated | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem. OtherDedicatedDescriptions) | <p>An enumeration that indicates if the ComputerSystem is a special-purpose system (dedicated to a particular use), or a general purpose system.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Not Dedicated</td></tr> <tr><td>1</td><td>Unknown</td></tr> <tr><td>2</td><td>Other</td></tr> <tr><td>3</td><td>Storage</td></tr> <tr><td>4</td><td>Router</td></tr> <tr><td>5</td><td>Switch</td></tr> <tr><td>6</td><td>Layer 3 Switch</td></tr> <tr><td>7</td><td>Central Office Switch</td></tr> <tr><td>8</td><td>Hub</td></tr> <tr><td>9</td><td>Access Server</td></tr> <tr><td>10</td><td>Firewall</td></tr> <tr><td>11</td><td>Print</td></tr> <tr><td>12</td><td>I/O</td></tr> <tr><td>13</td><td>Web Caching Management</td></tr> <tr><td>14</td><td>Block Server</td></tr> <tr><td>15</td><td>File Server</td></tr> <tr><td>16</td><td>Mobile User Device</td></tr> <tr><td>17</td><td>Repeater</td></tr> <tr><td>18</td><td>Bridge/Extender</td></tr> <tr><td>19</td><td>Gateway</td></tr> <tr><td>20</td><td>Gateway</td></tr> </tbody> </table> | Code | Semantics | 0 | Not Dedicated | 1 | Unknown | 2 | Other | 3 | Storage | 4 | Router | 5 | Switch | 6 | Layer 3 Switch | 7 | Central Office Switch | 8 | Hub | 9 | Access Server | 10 | Firewall | 11 | Print | 12 | I/O | 13 | Web Caching Management | 14 | Block Server | 15 | File Server | 16 | Mobile User Device | 17 | Repeater | 18 | Bridge/Extender | 19 | Gateway | 20 | Gateway |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Not Dedicated | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Storage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Router | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Layer 3 Switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Central Office Switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Hub | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Access Server | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Firewall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Print | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | I/O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Web Caching Management | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Block Server | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | File Server | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Mobile User Device | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Repeater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Bridge/Extender | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Gateway | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Gateway | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description | String | | A textual description of the object. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ElementName | String | | A user-friendly name for the object. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 4. IBMTSSVC_CandidateNode properties (continued)

| Property | Type | Qualifier | Description |
|----------------|--------|---|--|
| EnabledDefault | Uint16 | Write(TRUE) | <p>An enumerated value that indicates an administrator's default/startup configuration for an element's EnabledStatus. By default, the element is "Enabled" (value=2).</p> <p>Code Semantics</p> <p>2 Enabled 3 Disabled 5 Not Applicable 6 Enabled but Offline 7 No Default 8..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.OtherEnabledState) | <p>An integer enumeration that indicates if the element is currently shutting down (value = 4), or in an enabled (value = 2) or disabled (value = 3) state.</p> <p>Code Semantics</p> <p>0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 Not Applicable 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |

Table 4. *IBMTSSVC_CandidateNode* properties (continued)

| Property | Type | Qualifier | Description |
|--------------------------|-----------|---|---|
| Identifying Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem.OtherIdentifyingInfo) | An array of free-form strings that provide explanations and details behind the entries in the OtherIdentifyingInfo array. Each entry of this array is related to the entry in OtherIdentifyingInfo that is located at the same index. |
| InstallDate | Date-time | | This property is not supported. |
| HardwareType | String | MaxLen(256) | The hardware type for this node. |
| Name | String | MaxLen(256) | The label by which the object is known. Format: cluster_ip:node_id. |
| NameFormat | String | MaxLen(64) | Identifies how the ComputerSystem Name is generated, using a heuristic. The heuristic is outlined, in detail, in the CIM V2 System Model specification. |

Table 4. IBMTSSVC_CandidateNode properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|----------------------------|---|---|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| OperationalStatus | UInt16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | <p>Indicates the current status(es) of the element. Various health and operational statuses are defined. Many of the enumeration's values are self-explanatory.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherDedicated Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem. Dedicated) | Describes how or why the system is dedicated when the Dedicated array includes the value 2, "Other". | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | Describes the element's enabled/disabled state when the EnabledState property is set to 1 ("Other"). This property <i>must</i> be set to NULL when EnabledState is any value other than 1. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 4. IBMTSSVC_CandidateNode properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------------|----------|--|--|
| OtherIdentifyingInfo | String[] | MaxLen(256), ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem. IdentifyingDescriptions) | Captures additional data, beyond System Name information, that can be used to identify a ComputerSystem. For example, you can use the Fibre Channel World-Wide Name (WWN) of a node to identify the ComputerSystem. If only the Fibre Channel name is available and is unique (able to be used as the System key), then this property would be NULL and the WWN becomes the System key. The WWN's data is then placed in the Name property. |
| PowerManagementCapabilities | Uint16[] | Deprecated (CIM_PowerManagement Capabilities.PowerCapabilities) | An enumerated array that describes the power management capabilities of the ComputerSystem. The use of this property is deprecated. Instead, the PowerCapabilites property in an associated PowerManagement Capabilities class must be used. Code Semantics 0 Unknown 1 Not Supported 2 Disabled 3 Enabled 4 Power Saving Modes Entered Automatically 5 Power State Settable 6 Power Cycling Supported 7 Timed Power On Supported |
| PrimaryOwnerContact | String | MaxLen(256), Write(TRUE) | This property is not supported. |
| PrimaryOwnerName | String | MaxLen(64), Write(TRUE) | This property is not supported. |

Table 4. IBMTSSVC_CandidateNode properties (continued)

| Property | Type | Qualifier | Description |
|---------------------------|---------------|--|--|
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | <p>An integer enumeration that indicates if the element must be shut down (value = 4), enabled (2), disabled (3), taken offline (6) or tested (7) at the next opportunity.</p> <p>Code Semantics 2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| ResetCapability | Uint16 | | <p>If enabled, the ComputerSystem can be reset through hardware (e.g. the power and reset buttons). If disabled, hardware reset is not allowed.</p> <p>Code Semantics 1 Other 2 Unknown 3 Disabled 4 Enabled 5 Not Implemented</p> |
| Roles | String[] | Write(TRUE) | This property is not supported. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystem Element.OperationalStatus) | This property is deprecated in lieu of OperationalStatus. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.OperationalStatus) | Describes the status - used when the OperationalStatus property is set to 1 ("Other"). |
| TimeOfLastState Change | Date- time | | This property is not supported. |
| UPSSerialNumber | String | MaxLen(256) | The serial number of the uninterruptible power supply for this node. |

Table 4. *IBMTSSVC_CandidateNode* properties (continued)

| Property | Type | Qualifier | Description |
|-------------|--------|-------------|--|
| UPSUniqueID | String | MaxLen(256) | The unique identifier of the uninterruptible power supply for this node. |

IBMTSSVC_CandidateStorageHardwareID

The *IBMTSSVC_CandidateStorageHardwareID* extends the *CIM_LogicalElement* class.

Properties

The *IBMTSSVC_CandidateStorageHardwareID* extends the *CIM_LogicalElement* class and has the properties shown in Table 5.

Table 5. *IBMTSSVC_CandidateStorageHardwareID* properties

| Property | Type | Qualifier | Description |
|-------------|----------|--------------|--|
| Caption | String | MaxLen(64) | Unsupported property. |
| Description | String | | A textual description of the object. |
| ElementName | String | | Unsupported property. |
| InstallDate | Datetime | | Indicates when the object was installed. A lack of a value does not indicate that the object is not installed. |
| Name | String | MaxLen(1024) | The label by which the object is known. When subclassed, the Name property can be overridden to be a key property. |

Table 5. IBMTSSVC_CandidateStorageHardwareID properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|----------|---|---|
| OperationalStatus | UInt16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | The current status of the element. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode .. DMTF Reserved 0x8000.. Vendor Reserved |
| Status | String | Deprecated (CIM_ManagedSystem Element.OperationalStatus), MaxLen(10) | The current status of the object. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.OperationalStatus) | The various OperationalStatus array values. |
| StorageID | String | ModelCorrespondence (CIM_StorageHardware ID.IDType) | The unique ID of the candidate port. |
| SystemName | String | | The IP address of the candidate HWID's cluster. |

IBMTSSVC_CandidateVolume

The IBMTSSVC_CandidateVolume class represents a potential volume for a synchronous copy relationship.

Properties

The IBMTSSVC_CandidateVolume class extends the CIM_LogicalElement class and has the properties shown in Table 6.

Table 6. IBMTSSVC_CandidateVolume properties

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|----------------------------|---|--|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| AuxClusterID | String | | The ID of this volume's cluster. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Caption | String | MaxLen(64) | A short textual description (one-line string) of the object. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description | String | | A textual description of the object. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ElementName | String | | A user-friendly name for the object. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| InstallDate | Datetime | | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name | String | MaxLen(1024) | The label by which the object is known. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.StatusDescriptions) | <p>The current status of the element. Various health and operational statuses are defined.</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SourceVolumeID | String | | The ID of the potential master StorageVolume. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement.OperationalStatus) | This property is deprecated in lieu of OperationalStatus. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 6. IBMTSSVC_CandidateVolume properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|----------|--|--|
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.OperationalStatus) | Describes the status. Use when the OperationalStatus property is set to 1 ("Other"). |
| SystemName | String | | The IP address of the scoping cluster. |

IBMTSSVC_Chassis

The IBMTSSVC_Chassis class represents the physical frame that contains other elements and provides definable functionality for a product.

Properties

The IBMTSSVC_Chassis class extends the CIM_Chassis class and has the properties shown in Table 7.

Table 7. IBMTSSVC_Chassis properties

| Property | Type | Qualifier | Description |
|-------------------------|---------|---|--|
| AudibleAlarm | Boolean | | Indicates if the Frame is equipped with an audible alarm. |
| BreachDescription | String | ModelCorrespondence (CIM_PhysicalFrame. SecurityBreach) | Unsupported property. |
| CableManagementStrategy | String | | Unsupported property. |
| CanBeFRUed | Boolean | | Unsupported property. |
| Caption | String | MaxLen(64) | A short textual description (one-line String) of the object. |

Table 7. IBMTSSVC_Chassis properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|-----------------------|--|--|------|-----------|---|---------|---|-------|---|--------|--|----------|---|---------|---|---------------------|---|-----------|---|------------|---|-------|---|----------|---|--------|----|----------|----|-----------|----|-----------------|----|------------|----|--------------|----|--------------|----|-----------|----|---------------------|----|-------------------|----|------------|----|-----------------------|----|--------------------|----|-----------------|----|----------------|----|----------------|----|-----------------|----|---------------|----------------|-----------------|
| ChassisPackage Type | Uint16 | Experimental(TRUE), ModelCorrespondence (CIM_Chassis.ChassisTypeDescription) | <p>The physical form factor for the type of Chassis.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>SMBIOS</td></tr> <tr><td></td><td>Reserved</td></tr> <tr><td>3</td><td>Desktop</td></tr> <tr><td>4</td><td>Low Profile Desktop</td></tr> <tr><td>5</td><td>Pizza Box</td></tr> <tr><td>6</td><td>Mini Tower</td></tr> <tr><td>7</td><td>Tower</td></tr> <tr><td>8</td><td>Portable</td></tr> <tr><td>9</td><td>LapTop</td></tr> <tr><td>10</td><td>Notebook</td></tr> <tr><td>11</td><td>Hand Held</td></tr> <tr><td>12</td><td>Docking Station</td></tr> <tr><td>13</td><td>All in One</td></tr> <tr><td>14</td><td>Sub Notebook</td></tr> <tr><td>15</td><td>Space-Saving</td></tr> <tr><td>16</td><td>Lunch Box</td></tr> <tr><td>17</td><td>Main System Chassis</td></tr> <tr><td>18</td><td>Expansion Chassis</td></tr> <tr><td>19</td><td>SubChassis</td></tr> <tr><td>20</td><td>Bus Expansion Chassis</td></tr> <tr><td>21</td><td>Peripheral Chassis</td></tr> <tr><td>22</td><td>Storage Chassis</td></tr> <tr><td>23</td><td>SMBIOS Reseved</td></tr> <tr><td>24</td><td>Sealed-Case PC</td></tr> <tr><td>25</td><td>SMBIOS Reserved</td></tr> <tr><td>..</td><td>DMTF Reserved</td></tr> <tr><td>0x8000..0xFFFF</td><td>Vendor Reserved</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | SMBIOS | | Reserved | 3 | Desktop | 4 | Low Profile Desktop | 5 | Pizza Box | 6 | Mini Tower | 7 | Tower | 8 | Portable | 9 | LapTop | 10 | Notebook | 11 | Hand Held | 12 | Docking Station | 13 | All in One | 14 | Sub Notebook | 15 | Space-Saving | 16 | Lunch Box | 17 | Main System Chassis | 18 | Expansion Chassis | 19 | SubChassis | 20 | Bus Expansion Chassis | 21 | Peripheral Chassis | 22 | Storage Chassis | 23 | SMBIOS Reseved | 24 | Sealed-Case PC | 25 | SMBIOS Reserved | .. | DMTF Reserved | 0x8000..0xFFFF | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | SMBIOS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Desktop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Low Profile Desktop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Pizza Box | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Mini Tower | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Tower | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Portable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | LapTop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Notebook | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Hand Held | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Docking Station | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | All in One | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Sub Notebook | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Space-Saving | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Lunch Box | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Main System Chassis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Expansion Chassis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | SubChassis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Bus Expansion Chassis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | Peripheral Chassis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | Storage Chassis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | SMBIOS Reseved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | Sealed-Case PC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | SMBIOS Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| .. | DMTF Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0x8000..0xFFFF | Vendor Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ChassisType Description | String | Experimental(TRUE), ModelCorrespondence (CIM_Chassis.ChassisPackageType) | Provides more information on the ChassisPackageType. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 7. IBMTSSVC_Chassis properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------------|----------|--|---|
| ChassisTypes | Uint16[] | Deprecated (CIM_Chassis.Chassis PackageType CIM_Chassis.Multiple SystemSupport), ArrayType(Indexed), ModelCorrespondence (CIM_Chassis.Type Descriptions) | An enumerated, integer-valued array that indicates the type of Chassis. Code Semantics 1 Other 2 Unknown 3 Desktop 4 Low Profile Desktop 5 Pizza Box 6 Mini Tower 7 Tower 8 Portable 9 LapTop 10 Notebook 11 Hand Held 12 Docking Station 13 All in One 14 Sub-Notebook 15 Space-Saving 16 Lunch Box 17 Main System Chassis 18 Expansion Chassis 19 SubChassis 20 Bus Expansion Chassis 21 Peripheral Chassis 22 Storage Chassis 23 Rack Mount Chassis 24 Sealed-Case PC 25 Multi-system Chassis |
| CreationClassName | String | MaxLen(256) | The name of the class or subclass used in the creation of an instance. When used with the other key properties of this class, this allows all instances of this class and its subclasses to be uniquely identified. |
| CurrentRequired OrProduced | Uint16 | Units(Amps at 120 Volts) | Unsupported property. |
| Depth | Real32 | Units(Inches) | The depth of the PhysicalPackage in inches. |
| Description | String | | A textual description of the object. |

Table 7. IBMTSSVC_Chassis properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|-----------|--|---|
| ElementName | String | | The Chassis' user-friendly name. |
| HeatGeneration | Uint16 | Units(BTU per Hour) | Unsupported property. |
| Height | Real32 | Units(Inches) | The height of the PhysicalPackage in inches. |
| HotSwappable | Boolean | Deprecated(PhysicalPackage. RemovalConditions) | A PhysicalPackage is HotSwappable if it is possible to replace the element with a physically different but equivalent element while the containing Package has power applied to it. |
| InstallDate | Date-time | | Unsupported property. |
| IsLocked | Boolean | | Unsupported property. |
| LockPresent | Boolean | | Indicates if the Frame is protected with a lock. |
| ManufactureDate | Date-time | | Unsupported property. |
| Manufacturer | String | MaxLen(256) | The name of the organization responsible for producing the PhysicalElement. This may be the entity from whom the element is purchased, but this is not necessarily true. The latter information is contained in the Vendor property of CIM_Product. |
| Model | String | MaxLen(256) | The name by which the PhysicalElement is generally known. |
| MultipleSystem Support | Uint16 | Experimental(TRUE) | Indicates if the Chassis supports multiple systems. An example is the support of server blades. Code Semantics 0 Unknown 1 True 2 False |
| Name | String | MaxLen(1024) | The label by which the object is known. When subclassed, the Name property can be overridden to be a key property. |

Table 7. IBMTSSVC_Chassis properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|----------------------------|---|--|------|-----------|---|---------|---|-------|---|-------|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| NumberOfPowerCords | Uint16 | | An integer that indicates the number of power cords which must be connected to the Chassis, for all of the components to operate. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.StatusDescriptions) | <p>The current status of the element. Various health and operational statuses are defined.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherIdentifyingInfo[] | String | Write(TRUE) | Captures additional data, beyond that of Tag information, that could be used to identify a PhysicalElement. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PartNumber | String | MaxLen(256) | The part number assigned by the organization responsible for producing or manufacturing the PhysicalElement. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PoweredOn | Boolean | | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RackMountable | Uint16 | Experimental(TRUE) | <p>Indicates if the Chassis is Rack Mountable.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>True</td></tr> <tr><td>2</td><td>False</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | True | 2 | False | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | True | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | False | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 7. IBMTSSVC_Chassis properties (continued)

| Property | Type | Qualifier | Description |
|---------------------|----------|---|--|
| Removable | Boolean | Deprecated(PhysicalPackage. RemovalConditions) | A PhysicalPackage is Removable if it is designed to be taken in and out of the physical container in which it is normally found, without impairing the function of the overall packaging. |
| RemovalConditions | Uint16 | | The conditions under which a PhysicalPackage can be removed. Code Semantics 0 Unknown 2 Not Applicable 3 Removable when off 4 Removable when on or off |
| Replaceable | Boolean | Deprecated(No Value) | A PhysicalPackage is Replaceable if it is possible to replace (FRU or upgrade) the element with a physically different one. |
| SecurityBreach | Uint16 | ModelCorrespondence (CIM_PhysicalFrame. BreachDescription) | An enumerated, integer-valued property: Code Semantics 1 Other 2 Unknown 3 No Breach 4 Breach Attempted 5 Breach Successful |
| SerialNumber | String | MaxLen(256) | A manufacturer-allocated number used to identify the PhysicalElement. |
| ServiceDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_PhysicalFrame. ServicePhilosophy) | Unsupported property. |

Table 7. IBMTSSVC_Chassis properties (continued)

| Property | Type | Qualifier | Description |
|----------------------|----------|---|---|
| ServicePhilosophy | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_PhysicalFrame.ServiceDescriptions) | Unsupported property. Code Semantics 0 Unknown 1 Other 2 Service From Top 3 Service From Front 4 Service From Back 5 Service From Side 6 Sliding Trays 7 Removable Sides 8 Moveable |
| SKU | String | MaxLen(64) | Unsupported property. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement.OperationalStatus) | Deprecated property - set to "Unknown." Look at OperationalStatus for information. |
| StatusDescriptions[] | String | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.OperationalStatus) | Describes the status - used when the OperationalStatus property is set to 1 ("Other"). |
| Tag | String | MaxLen(256) | An arbitrary string that uniquely identifies the PhysicalElement and serves as the Element's key. |
| TypeDescriptions | String[] | Deprecated (CIM_Chassis.ChassisTypeDescription), ArrayType(Indexed), ModelCorrespondence (CIM_Chassis.ChassisTypes) | Unsupported property. |
| UserTracking | String | Write(TRUE) | Unsupported property. |
| VendorEquipmentType | String | | Unsupported property. |
| Version | String | MaxLen(64) | The version of the PhysicalElement. |
| VisibleAlarm | Boolean | | Indicates that the equipment includes a visible alarm. |
| Weight | Real32 | Units(Pounds) | The weight of the PhysicalPackage in pounds. |
| Width | Real32 | Units(Inches) | The width of the PhysicalPackage in inches. |

IBMTSSVC_Cluster

The IBMTSSVC_Cluster class represents a single SAN Volume Controller cluster.

Properties

The IBMTSSVC_Cluster class extends the IBMTSSVC_AbstractCluster class and has the properties shown in Table 8.

Table 8. IBMTSSVC_Cluster properties

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | |
|-------------------------|------------------|--|--|-------------|------------------|---|---------|---|-------|---|---------|---|----------|---|----------|---|-------------|
| AllocatedCapacity | Uint64 | Units(Bytes), Expensive(TRUE) | The total capacity of all storage volumes (virtual disks) in the cluster. | | | | | | | | | | | | | | |
| AvailableCapacity | Uint64 | Units(Bytes), Expensive(TRUE) | The approximate amount of available capacity in the cluster. This amount describes both backend storage capacity and allocated capacity. | | | | | | | | | | | | | | |
| Backendstorage Capacity | Uint64 | Units(Bytes), Expensive(TRUE) | The total capacity of all backend storage that is connected to the cluster. | | | | | | | | | | | | | | |
| Caption | String | MaxLen(15), Write(TRUE), WriteRole(Administrator), ReadRole(None) | A short textual description (one-line string) of the object. | | | | | | | | | | | | | | |
| ClusterState | Uint16 | | The state of the cluster. <table border="0"> <tr> <td>Code</td> <td>Semantics</td> </tr> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Other</td> </tr> <tr> <td>2</td> <td>On-line</td> </tr> <tr> <td>3</td> <td>Off-line</td> </tr> <tr> <td>4</td> <td>Degraded</td> </tr> <tr> <td>5</td> <td>Unavailable</td> </tr> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | On-line | 3 | Off-line | 4 | Degraded | 5 | Unavailable |
| Code | Semantics | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | |
| 2 | On-line | | | | | | | | | | | | | | | | |
| 3 | Off-line | | | | | | | | | | | | | | | | |
| 4 | Degraded | | | | | | | | | | | | | | | | |
| 5 | Unavailable | | | | | | | | | | | | | | | | |
| CodeLevel | String | Expensive(TRUE) | The code level of the cluster. | | | | | | | | | | | | | | |
| ConsoleIP | String | Expensive(TRUE), Write(TRUE), WriteRole(Administrator), ReadRole(None) | The IP address of the management console. | | | | | | | | | | | | | | |
| ConsolePort | String | Expensive(TRUE), Write(TRUE), WriteRole(Administrator), ReadRole(None) | The port address of the management console. | | | | | | | | | | | | | | |
| CreationClassName | String | MaxLen(256), ReadRole(None) | The name of the class or subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. | | | | | | | | | | | | | | |

Table 8. IBMTSSVC_Cluster properties (continued)

| Property | Type | Qualifier | Description |
|-----------------|----------|---|---|
| Dedicated | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem. OtherDedicatedDescriptions) | <p>An enumeration that indicates if the computer system is a special-purpose system (dedicated to a particular use), or a general purpose system. The SAN Volume Controller is a dedicated storage device and will return {3,15} ("Storage," "Block Server")</p> <p>Code Semantics</p> <p>0 Not Dedicated</p> <p>1 Unknown</p> <p>2 Other</p> <p>3 Storage</p> <p>4 Router</p> <p>5 Switch</p> <p>6 Layer 3 Switch</p> <p>7 Central Office Switch</p> <p>8 Hub</p> <p>9 Access Server</p> <p>10 Firewall</p> <p>11 Print</p> <p>12 I/O</p> <p>13 Web Caching</p> <p>14 Management</p> <p>15 Block Server</p> <p>16 File Server</p> <p>17 Mobile User Device</p> <p>18 Repeater</p> <p>19 Bridge/Extender</p> <p>20 Gateway</p> |
| Description | String | | A textual description of the object. |
| DiscoveryStatus | Sint8 | | <p>The discovery status of the cluster.</p> <p>Code Semantics</p> <p>-2 Not Supported</p> <p>-1 Unknown</p> <p>0 No Discovery In Progress</p> <p>1 Discovery In Progress</p> |
| ElementName | String | MaxLen(15), Write(TRUE), WriteRole(Administrator), ReadRole(None) | The user-friendly name for the cluster. |
| EmailSetting | String | Expensive(TRUE) | The email setting. |

Table 8. IBMTSSVC_Cluster properties (continued)

| Property | Type | Qualifier | Description |
|----------------|--------|--|---|
| EnabledDefault | Uint16 | Write(TRUE), | <p>An enumerated value that indicates an administrator's default/startup configuration for an element's EnabledStatus. By default, the element is "Enabled" (value=2).</p> <p>Code Semantics</p> <p>2 Enabled 3 Disabled 5 Not Applicable 6 Enabled but Offline 7 No Default 8..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.OtherEnabledState) | <p>An integer enumeration indicator. In various situations, an element that is being tested is neither enabled nor disabled — this is addressed by the value "In Test" (7). If this property does not apply to an instance of EnabledLogical Element, the value 5 is used.</p> <p>Code Semantics</p> <p>0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 Not Applicable 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| FcPortSpeed | Uint64 | Units(GigaBit per second), Expensive(TRUE) | The transmission speed of the attached fibre-channel. |

Table 8. IBMTSSVC_Cluster properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|------------------------|---------------------------------------|---|------|-----------|---|---------------|---|------------------|---|----------------------|---|----------------------|---|-------------------|---|----------------------|---|-----------------|---|-------------------|---|----------------|----|----------------------|----|-----------------------|----|------------------------|----|----------------|----|---------------------|
| FeatureIndex | Uint16 | | <p>Determines if a feature is supported by the SAN Volume Controller software level that is running on this cluster.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Global Mirror</td> </tr> <tr> <td>2</td> <td>Cacheless VDisks</td> </tr> <tr> <td>3</td> <td>VDisk Unit Device ID</td> </tr> <tr> <td>4</td> <td>Host IOGroup Mapping</td> </tr> <tr> <td>5</td> <td>CIM User Auditing</td> </tr> <tr> <td>6</td> <td>LUN Discovery Status</td> </tr> <tr> <td>7</td> <td>Node Port Speed</td> </tr> <tr> <td>8</td> <td>Host Port Masking</td> </tr> <tr> <td>9</td> <td>Set Port Speed</td> </tr> <tr> <td>10</td> <td>FlashCopy Start Time</td> </tr> <tr> <td>11</td> <td>Auto Delete FlashCopy</td> </tr> <tr> <td>12</td> <td>Multi Target FlashCopy</td> </tr> <tr> <td>13</td> <td>TPGS Host Type</td> </tr> <tr> <td>14</td> <td>E-mail Notification</td> </tr> </tbody> </table> | Code | Semantics | 1 | Global Mirror | 2 | Cacheless VDisks | 3 | VDisk Unit Device ID | 4 | Host IOGroup Mapping | 5 | CIM User Auditing | 6 | LUN Discovery Status | 7 | Node Port Speed | 8 | Host Port Masking | 9 | Set Port Speed | 10 | FlashCopy Start Time | 11 | Auto Delete FlashCopy | 12 | Multi Target FlashCopy | 13 | TPGS Host Type | 14 | E-mail Notification |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Global Mirror | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Cacheless VDisks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | VDisk Unit Device ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Host IOGroup Mapping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | CIM User Auditing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | LUN Discovery Status | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Node Port Speed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Host Port Masking | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Set Port Speed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | FlashCopy Start Time | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Auto Delete FlashCopy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Multi Target FlashCopy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | TPGS Host Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | E-mail Notification | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GetFeatureSupportStatus | Uint32 | | <p>Indicates if a feature is supported by the SAN Volume Controller software level that is running on the cluster.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Supported</td> </tr> <tr> <td>1</td> <td>Unknown Feature</td> </tr> <tr> <td>2</td> <td>Unsupported</td> </tr> </tbody> </table> | Code | Semantics | 0 | Supported | 1 | Unknown Feature | 2 | Unsupported | | | | | | | | | | | | | | | | | | | | | | |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Supported | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Unknown Feature | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Unsupported | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GMIntraClusterDelaySimulation | Uint32 | Write(TRUE), WriteRole(Administrator) | The Global Mirror intracluster delay simulation. Accepts values from 0 to 100. The default is 0. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GMInterClusterDelaySimulation | Uint32 | Write(TRUE), WriteRole(Administrator) | The Global Mirror intracluster delay simulation. Accepts values from 0 to 100. The default is 0. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 8. IBMTSSVC_Cluster properties (continued)

| Property | Type | Qualifier | Description |
|--------------------------|-----------|---|---|
| GMLinkTolerance | UInt32 | Write(TRUE), WriteRole(Administrator) | The Global Mirror link tolerance. Accepts values from 60 to 86400 in steps of 10. The default is 60. |
| HardwareType | String | | The hardware type for this node. |
| Identifying Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem. OtherIdentifyingInfo) | An array of free-form strings that provide explanations and details behind the entries in the OtherIdentifying Info array. Each entry of this array is related to the entry in OtherIdentifying Info that is located at the same index. |
| InstallDate | Date-time | | This property is not supported. |
| Interconnect | String | | This property is not supported. |
| InterconnectAddress | String | | This property is not supported. |
| Locale | String | Expensive(TRUE) | The current locale setting of the cluster. |
| MaxNumberOf Nodes | UInt32 | | The maximum number of nodes that can participate in the cluster. If unlimited, enter 0. |
| Name | String | MaxLen(256), ReadRole(None) | The label by which the object is known. Format: cluster_ip:object_id |
| NameFormat | String | MaxLen(64) | Identifies how the ComputerSystem Name is generated. SAN Volume Controller returns the cluster's ID as Name, therefore this attribute is set to "Other." |

Table 8. IBMTSSVC_Cluster properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|-------------------------------|---|--|-------------|------------------|----------|---------|----------|-------|----------|----|----------|---------------------------|----------|----------|----------|-----------------------|----------|-------|----------|------------------------------|----------|----------|----------|----------|-----------|---------|-----------|------------|-----------|------------|-----------|-----------------------|-----------|---------|-----------|---------|-----------|-------------------------------|-----------|-----------|-----------|------------|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | The operational status of the cluster. <table border="0"> <tr> <td>Code</td> <td>Semantics</td> </tr> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Other</td> </tr> <tr> <td>2</td> <td>OK</td> </tr> <tr> <td>3</td> <td>Degraded Recovery Mode</td> </tr> <tr> <td>4</td> <td>Stressed</td> </tr> <tr> <td>5</td> <td>Predictive Failure</td> </tr> <tr> <td>6</td> <td>Error</td> </tr> <tr> <td>7</td> <td>Non- Recoverable Error</td> </tr> <tr> <td>8</td> <td>Starting</td> </tr> <tr> <td>9</td> <td>Stopping</td> </tr> <tr> <td>10</td> <td>Stopped</td> </tr> <tr> <td>11</td> <td>In Service</td> </tr> <tr> <td>12</td> <td>No Contact</td> </tr> <tr> <td>13</td> <td>Lost Communication</td> </tr> <tr> <td>14</td> <td>Aborted</td> </tr> <tr> <td>15</td> <td>Dormant</td> </tr> <tr> <td>16</td> <td>Supporting Entity in Error</td> </tr> <tr> <td>17</td> <td>Completed</td> </tr> <tr> <td>18</td> <td>Power Mode</td> </tr> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded Recovery Mode | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non- Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded Recovery Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non- Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherDedicated Descriptions | String[] | ModelCorrespondence (CIM_ComputerSystem. Dedicated), ArrayType(Indexed) | Describes how or why the system is dedicated when the Dedicated array includes the value 2, "Other." | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | The element's enabled/disabled state when the EnabledState property is set to 1 ("Other"). This property <i>must</i> be set to null when EnabledState is any value other than 1. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherIdentifying Info | String[] | MaxLen(256), ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem. IdentifyingDescriptions), Write(TRUE), WriteRole(Service), Expensive(TRUE) | The cluster's IP Address, Subnet Mask, Default Gateway and Service IP Address. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PoolCapacity | Uint64 | Units(Bytes), Expensive(TRUE) | The total capacity of all storage pools in the cluster. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 8. IBMTSSVC_Cluster properties (continued)

| Property | Type | Qualifier | Description |
|------------------------------|----------|--|--|
| PowerManagement Capabilities | Uint16[] | Deprecated (CIM_PowerManagement Capabilities.PowerCapabilities) | <p>An enumerated array that describes the power management capabilities of the computer system. The use of this property is deprecated. Instead, the Power Capabilities property in an associated PowerManagement Capabilities class must be used.</p> <p>Code Semantics</p> <p>0 Unknown</p> <p>1 Not Supported</p> <p>2 Disabled</p> <p>3 Enabled</p> <p>4 Power Saving Modes Entered Automatically</p> <p>5 Power State Settable</p> <p>6 Power Cycling Supported</p> <p>7 Timed Power On Supported</p> |
| PrimaryOwner Contact | String | MaxLen(256), Write(TRUE), Expensive(TRUE) | The email address of the primary contact person for this cluster. |
| PrimaryOwner Name | String | MaxLen(64), Write(TRUE), | This property is not supported. |
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | <p>An integer enumeration value.</p> <p>Code Semantics</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shut Down</p> <p>5 No Change</p> <p>6 Offline</p> <p>7 Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10..32767 DMTF Reserved</p> <p>32768..65535 Vendor Reserved</p> |
| RequiredMemory | Uint32 | Units(MegaBytes), Expensive(TRUE) | The amount of required memory for a cluster. |

Table 8. IBMTSSVC_Cluster properties (continued)

| Property | Type | Qualifier | Description |
|---------------------|----------|--|--|
| ResetCapability | Uint16 | | <p>If enabled (value = 4), the ComputerSystem can be reset through hardware (the power and reset buttons). If disabled (value = 3), hardware reset is not allowed.</p> <p>Code Semantics</p> <p>1 Other 2 Unknown 3 Disabled 4 Enabled 5 Not Implemented</p> |
| Roles | String[] | Write(TRUE) | This property is not supported. |
| SNMPCommunity | String | Expensive(TRUE) | The SNMP community. |
| SNMPServerIP | String | Expensive(TRUE) | The SNMP server IP address. |
| SNMPSetting | String | Expensive(TRUE) | The SNMP setting of the cluster. |
| StatisticsFrequency | Uint32 | Units(Seconds), Expensive(TRUE) | The update interval for the cluster statistics. |
| StatisticsStatus | Boolean | Expensive(TRUE) | Indicates if statistics collection is active. When set to true, statistics collection is active. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement.OperationalStatus) | <p>The status of the cluster.</p> <ul style="list-style-type: none"> • Ok • Key Refused • Invalid Fingerprint • Cluster Interface Not Available • CLI Error • Connection Lost • No Contact • Cluster in Recovery Mode • Invalid Key Authorization |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.OperationalStatus) | Describes the status - used when the OperationalStatus property is set to 1 ("Other"). |

Table 8. IBMTSSVC_Cluster properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|-----------|-----------------------------------|---|
| SupportStatus | Uint16 | MaxLen (256), ArrayType (Indexed) | Describes the support status. The array is indexed by the feature's index. Code Semantics 0 Supported 1 Unsupported 2 Unknown Features |
| TimeOfLast StateChange | Date-time | | This property is not supported. |
| TimeZone | String | Expensive(TRUE) | The timezone setting of the cluster. |
| Types | Uint16[] | | The cluster types. This specifies if the cluster is for failover (value=2), performance (3). The values which can be specified are not mutually exclusive. Thus, Types is an array. Code Semantics 0 Unknown 1 Other 2 Failover 3 Performance 4 Distributed OS 5 Node Grouping 6 SysPlex |

IBMTSSVC_Controller

The IBMTSSVC_Controller class extends the CIM_SCSIController class.

Properties

The IBMTSSVC_Controller class represents the logical SAN Volume Controller used for modeling the authorization path from host ports to storage volumes. The IBMTSSVC_Controller class has the properties shown in Table 9 on page 83.

Table 9. IBMTSSVC_Controller properties

| Property | Type | Qualifier | Description |
|-------------------------|----------|---|--|
| AccessGranted | Boolean | ModelCorrespondence (CIM_Controller.AuthorizationView) | A quick interface for finding devices with no Authorization Subject association to an AccessControl Information instance; either directly, or through a controller. True indicates that the device has granted access to some consumer. False indicates that no access has been granted. |
| Additional Availability | Uint16[] | Deprecated(CIM_Associated PowerManagementService.PowerState CIM_ManagedSystemElement.OperationalStatus CIM_EnabledLogicalElement.EnabledStatus), ModelCorrespondence (CIM_LogicalDevice.Availability) | Additional availability and status of the device, beyond that specified in the Availability property. Code Semantics 1 Other 2 Unknown 3 Running/ Full Power 4 Warning 5 In Test 6 Not Applicable 7 Power Off 8 Off Line 9 Off Duty 10 Degraded 11 Not Installed 12 Install Error 13 Power Save - Unknown 14 Power Save - Low Power Mode 15 Power Save - Standby 16 Power Cycle 17 Power Save - Warning 18 Paused 19 Not Ready 20 Not Configured 21 Quiesced |

Table 9. IBMTSSVC_Controller properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|-----------------------------|---|---|------|-----------|---|---------|---|---------|---|---------------------|---|---------|---|---------|---|----------------|---|-----------|---|----------|---|----------|----|----------|----|---------------|----|---------------|----|----------------------|----|-----------------------------|----|----------------------|----|-------------|----|----------------------|----|--------|----|-----------|----|----------------|----|----------|
| Availability | Uint16 | Deprecated(CIM_Associated PowerManagementService. PowerState CIM_ManagedSystem Element.OperationalStatus CIM_EnabledLogical Element.EnabledStatus), ModelCorrespondence (CIM_LogicalDevice. AdditionalAvailability) | <p>The primary availability and status of the device.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>Unknown</td></tr> <tr><td>3</td><td>Running/ Full Power</td></tr> <tr><td>4</td><td>Warning</td></tr> <tr><td>5</td><td>In Test</td></tr> <tr><td>6</td><td>Not Applicable</td></tr> <tr><td>7</td><td>Power Off</td></tr> <tr><td>8</td><td>Off Line</td></tr> <tr><td>9</td><td>Off Duty</td></tr> <tr><td>10</td><td>Degraded</td></tr> <tr><td>11</td><td>Not Installed</td></tr> <tr><td>12</td><td>Install Error</td></tr> <tr><td>13</td><td>Power Save - Unknown</td></tr> <tr><td>14</td><td>Power Save - Low Power Mode</td></tr> <tr><td>15</td><td>Power Save - Standby</td></tr> <tr><td>16</td><td>Power Cycle</td></tr> <tr><td>17</td><td>Power Save - Warning</td></tr> <tr><td>18</td><td>Paused</td></tr> <tr><td>19</td><td>Not Ready</td></tr> <tr><td>20</td><td>Not Configured</td></tr> <tr><td>21</td><td>Quiesced</td></tr> </tbody> </table> | Code | Semantics | 1 | Other | 2 | Unknown | 3 | Running/ Full Power | 4 | Warning | 5 | In Test | 6 | Not Applicable | 7 | Power Off | 8 | Off Line | 9 | Off Duty | 10 | Degraded | 11 | Not Installed | 12 | Install Error | 13 | Power Save - Unknown | 14 | Power Save - Low Power Mode | 15 | Power Save - Standby | 16 | Power Cycle | 17 | Power Save - Warning | 18 | Paused | 19 | Not Ready | 20 | Not Configured | 21 | Quiesced |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Running/ Full Power | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Warning | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | In Test | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Not Applicable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Power Off | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Off Line | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Off Duty | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Not Installed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Install Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Power Save - Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Power Save - Low Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Power Save - Standby | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Power Cycle | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Power Save - Warning | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Paused | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Not Ready | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Not Configured | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | Quiesced | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Caption | String | MaxLen(64) | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ConnectionRole | Uint16[] | | <p>The role of the protocol controller in a connection. A protocol controller can have one or more of several roles in a connection. In certain applications, a controller can have both functions (providing and consuming the connection). For example, a HBA can be a 'client,' a front end controller on a RAID array can be a 'server,' and a SCSI Extended Copy controller can be both.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>2</td><td>Server</td></tr> <tr><td>3</td><td>Client</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 2 | Server | 3 | Client | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Server | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Client | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Controlled | Boolean | | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 9. IBMTSSVC_Controller properties (continued)

| Property | Type | Qualifier | Description |
|-------------------|--------|-------------|---|
| CreationClassName | String | MaxLen(256) | The name of the class or subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |
| Description | String | | A textual description of the object. |
| DeviceID | String | MaxLen(64) | An address or other identifying information to uniquely name the LogicalDevice. |
| ElementName | String | | Unsupported property. |
| EnabledDefault | Uint16 | Write(TRUE) | An enumerated value that indicates an administrator's default/startup configuration for an element's EnabledStatus. By default, the element is "Enabled" (value=2). Code Semantics 2 Enabled 3 Disabled 5 Not Applicable 6 Enabled but Offline 7 No Default 8..32767 DMTF Reserved 32768..65535 Vendor Reserved |

Table 9. IBMTSSVC_Controller properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------------|---------------|--|---|
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.OtherEnabledState) | An integer enumeration. In various situations, an element that is tested is neither enabled nor disabled - this is addressed by the value "In Test" (7). If this property does not apply to an instance of EnabledLogical Element, the value 5 ("Not Applicable") is used. Code Semantics 0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 Not Applicable 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| ErrorCleared | Boolean | Deprecated(CIM_Managed SystemElement. OperationalStatus) | Unsupported property. |
| ErrorDescription | String | Deprecated(CIM_Device ErrorData.ErrorDescription) | Unsupported property. |
| Identifying Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_LogicalDevice. OtherIdentifyingInfo) | An array of free-form strings that provide explanations and details behind the entries in the OtherIdentifyingInfo array. Each entry of this array is related to the entry in OtherIdentifying Info that is located at the same index. |
| InstallDate | Date- time | | Unsupported property. |
| LastErrorCode | Uint32 | Deprecated(CIM_Device ErrorData.LastErrorCode) | Unsupported property. |
| MaxQuiesce Time | Uint64 | Deprecated(No value), Units(MilliSeconds) | Unsupported property. |

Table 9. IBMTSSVC_Controller properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|----------------------------|--|---|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| MaxUnits Controlled | UInt32 | | The maximum number of units that can be controlled by or accessed through this protocol controller. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name | String | MaxLen(1024) | The label by which the object is known. Format: RedundancyGroup_id: Host_id. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OperationalStatus | UInt16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.StatusDescriptions) | <p>The current status of the element. This property always reports "Unknown."</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogicalElement.EnabledState) | The element's enabled/disabled state when the EnabledState property is set to 1 ("Other"). This property <i>must</i> be set to NULL when EnabledState is any value other than 1. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherIdentifying Info | String[] | MaxLen(256), ArrayType(Indexed), ModelCorrespondence (CIM_LogicalDevice.IdentifyingDescriptions) | Captures additional data, beyond DeviceID information, that can be used to identify a LogicalDevice. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 9. IBMTSSVC_Controller properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------------|----------|---|---|
| Power Management Capabilities | Uint16[] | Deprecated(CIM_Power ManagementCapabilities.PowerCapabilities) | The use of this property is deprecated. PowerCapabilites property in an associated Power Management Capabilities class must be used. Code Semantics 0 Unknown 1 Not Supported 2 Disabled 3 Enabled 4 Power Saving Modes Entered Automatically 5 Power State Settable 6 Power Cycling Supported 7 Timed Power On Supported |
| Power Management Supported | Boolean | Deprecated(CIM_Power ManagementCapabilities) | Indicates that the device can be power managed. |
| PowerOnHours | Uint64 | Deprecated(CIM_Powered StatisticalData.PowerOn Hours), Units(Hours), Counter(TRUE) | Unsupported property. |
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | An integer enumeration indicator. Code Semantics 2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| Status | String | MaxLen(10), Deprecated(CIM_Managed SystemElement.Operational Status) | Deprecated property; set to "Unknown." |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.OperationalStatus) | Describes the status — used when the OperationalStatus property is set to 1 ("Other") |

Table 9. IBMTSSVC_Controller properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------|-----------|---|--|
| StatusInfo | Uint16 | Deprecated(CIM_EnabledLogicalElement.EnabledState) | Indicates if the LogicalDevice is in an enabled or disabled state. StatusInfo does not apply to the Controller, so the value "Not Applicable" is used. Code Semantics 1 Other 2 Unknown 3 Enabled 4 Disabled 5 Not Applicable |
| SystemCreationClassName | String | Propagated(CIM_System.CreationClassName), MaxLen(256) | The scoping System's CreationClassName. |
| SystemName | String | Propagated(CIM_System.Name), MaxLen(256) | The scoping System's Name. |
| TimeOfLastStateChange | Date-time | | Unsupported property. |
| TotalPowerOnHours | Uint64 | Deprecated(CIM_PoweredStatisticalData.TotalPowerOnHours), Units(Hours), Counter(TRUE) | Unsupported property. |

IBMTSSVC_ControllerConfigurationService

The IBMTSSVC_ControllerConfigurationService class extends the CIM_ControllerConfigurationService.

Properties

The IBMTSSVC_ControllerConfigurationService class has the properties shown in Table 10.

Table 10. IBMTSSVC_ControllerConfigurationService properties

| Property | Type | Qualifier | Description |
|-------------------|--------|-------------|--|
| Caption | String | MaxLen(64), | Unsupported property. |
| CreationClassName | String | MaxLen(256) | Indicates the name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |
| Description | String | | A textual description of the object. |
| ElementName | String | | Unsupported property. |

Table 10. IBMTSSVC_ControllerConfigurationService properties (continued)

| Property | Type | Qualifier | Description |
|----------------|-----------|---|---|
| EnabledDefault | Uint16 | Write(TRUE) | <p>An enumerated value that indicates an administrator's default/startup configuration for an element's EnabledStatus. By default, the element is "Enabled."</p> <p>Code Semantics 2 Enabled 3 Disabled 5 Not Applicable 6 Enabled but Offline 7 No Default 8..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.OtherEnabledState) | <p>An integer enumeration indicator.</p> <p>Code Semantics 0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 Not Applicable 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| InstallDate | Date-time | | Unsupported property. |
| Name | String | MaxLen(256) | The label by which the object is known. |

Table 10. IBMTSSVC_ControllerConfigurationService properties (continued)

| Property | Type | Qualifier | Description |
|---------------------|----------|---|---|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | The operational status of the service. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode |
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | The element's enabled/disabled state when the EnabledStatus property is set to 1 ("Other"). This property <i>must</i> be set to NULL when EnabledStatus is any value other than 1. |
| PrimaryOwnerContact | String | MaxLen(256), Write(TRUE) | Unsupported property. |
| PrimaryOwnerName | String | MaxLen(64), Write(TRUE) | Unsupported property. |

Table 10. IBMTSSVC_ControllerConfigurationService properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------|-----------|--|---|
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.EnabledState) | An integer enumeration indicator. When EnabledStatus is set to 5 ("Not Applicable"), writing this property has no effect. By default, the element's RequestedStatus is set to "No Change." Code Semantics 2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| Started | Boolean | | Indicates if this service is started. |
| StartMode | String | MaxLen(10), Deprecated(CIM_Service.EnabledDefault) | Indicates if this service is started manually or automatic. |
| Status | String | MaxLen(10), Deprecated(CIM_ManagedSystemElement.OperationalStatus) | Deprecated property - set to "Unknown." Look at OperationalStatus for status information. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.OperationalStatus) | Describes the status - used when the OperationalStatus property is set to 1 ("Other"). |
| SystemCreationClassName | String | Propagated(CIM_System.CreationClassName), MaxLen(256) | The scoping system's creation class name. |
| SystemName | String | Propagated(CIM_System.Name), MaxLen(256) | The scoping system's name. |
| TimeOfLastStateChange | Date-time | | Unsupported property. |

IBMTSSVC_ControllerMaskingCapabilities

The IBMTSSVC_ControllerMaskingCapabilities class extends the CIM_ProtocolControllerMaskingCapabilities class.

Properties

The IBMTSSVC_ControllerMaskingCapabilities class has the properties shown in Table 11.

Table 11. IBMTSSVC_ControllerMaskingCapabilities properties

| Property | Type | Qualifier | Description |
|--------------------------------|----------|--------------------|---|
| AttachDevice Supported | Boolean | | Set to true if this storage system supports the AttachDevice method. |
| Caption | String | MaxLen(64) | A short textual description (one-line string) of the object. |
| ClientSelectable DeviceNumbers | Boolean | | Set to true if this storage system allows the client to specify the DeviceNumber parameter when calling ControllerConfiguration Service.AttachDevice() and Controller Configuration Service.AttachDevice(). Set to false if the implementation does not allow unit numbers to vary for a Protocol Controller. |
| Description | String | | A textual description of the object. |
| ElementName | String | Required(TRUE) | The user-friendly name for this instance of Capabilities. |
| InstanceID | String | | Opaquely and uniquely identifies an instance of this class. |
| OneHardware IDPerView | Boolean | | Set to true if this storage system limits configurations to a single subject hardware ID per view. Otherwise, multiple hardware ID types can be used. The default is false, in that multiple ID types may be used in a single view. |
| OtherValid HardwareID Types | String[] | ArrayType(Indexed) | An array of strings that describe types for valid Storage HardwareID.IDType. Used when the ValidHardwareIdTypes includes 1 ("Other"). |

Table 11. IBMTSSVC_ControllerMaskingCapabilities properties (continued)

| Property | Type | Qualifier | Description |
|---|---------|-----------|--|
| PortsPerView | UInt16 | | <p>An integer enumeration that indicates the way that ports per view (ProtocolController) are managed by the underlying storage system.</p> <p>Code Semantics</p> <p>2 One Port per View</p> <p>3 Multiple Ports per View</p> <p>4 All Ports share the same View</p> |
| PrivilegeDenied Supported | Boolean | | Set to true if this storage system allows a client to create a Privilege instance with PrivilegeGranted set to false. |
| Protocol Controller Requires AuthorizedIdentity | Boolean | | If true, this property indicates that at least one Privilege/Identity pair must be specified when CreateProtocol Controller() is called. |
| Protocol Controller Supports Collections | Boolean | | If true, this property indicates that the Identity parameter of CreateProtocol ControllerWithPorts() <i>must</i> contain a reference to a CIM_Collection (or subclass) or to a CIM_Identity (or subclass). |
| UniqueUnit NumbersPerPort | Boolean | | When set to false, different Protocol Controllers attached to a LogicalPort can expose the same unit numbers. If true, then this storage system requires unique unit numbers across all of the Protocol Controllers connected to a LogicalPort. |

Table 11. IBMTSSVC_ControllerMaskingCapabilities properties (continued)

| Property | Type | Qualifier | Description |
|--------------------------|----------|--------------------|---|
| ValidHardware IdTypes | Uint16[] | ArrayType(Indexed) | A list of the valid values for StorageHardware ID.IDType. Code Semantics 1 Other 2 Port WWN 3 Node WWN 4 Host Name |

IBMTSSVC_Dumps

The IBMTSSVC_Dumps class extends the CIM_SettingData class.

Properties

The IBMTSSVC_Dumps class has the properties shown in Table 12.

Table 12. IBMTSSVC_Dumps properties

| Property | Type | Qualifier | Description |
|-------------|----------|----------------|--|
| Admin | String[] | | An array of admin log file names. |
| Caption | String | MaxLen(64) | A short textual description (one-line string) of the object. |
| Configs | String[] | | An array of config dump file names. |
| Description | String | | A textual description of the object. |
| ElementName | String | Required(TRUE) | The user-friendly name for this instance of SettingData. |
| Elogs | String[] | | An array of error log file names. |
| Feature | String[] | | An array of feature log file names. |

Table 12. IBMTSSVC_Dumps properties (continued)

| Property | Type | Qualifier | Description |
|------------|----------|-----------|--|
| InstanceID | String | | Opaquely identifies a unique instance of SettingData. The InstanceID must be unique within a namespace. In order to ensure this, the value of InstanceID must be constructed in the following manner: (Vendor ID)(ID) (Vendor ID) <i>must</i> include a copyrighted, trademarked or otherwise unique name that is owned by the business entity or a registered ID that is assigned to the business entity that is defining the InstanceID. |
| lostats | String[] | | An array of iostats log file names. |
| lotrace | String[] | | An array of iotrace log file names. |

IBMTSSVC_FabricElement

The IBMTSSVC_FabricElement class represents an element that is present on the fibre-channel fabric.

Properties

The IBMTSSVC_FabricElement class has the properties shown in Table 13.

Table 13. IBMTSSVC_FabricElement properties

| Property | Type | Qualifier | Description |
|--------------|--------|------------------|---|
| ClusterName | String | Key, MaxLen(256) | The cluster name for the element. |
| ID | String | Key, MaxLen(256) | The ID of the element. |
| LocalNPortID | String | Key, MaxLen(256) | The local nPort ID of the element. |
| LocalPort | String | Key, MaxLen(256) | The local port of the element. |
| LocalWWPN | String | Key, MaxLen(256) | The local worldwide port number of the element. |
| Name | String | Key, MaxLen(256) | The name of the element. |
| NodeName | String | Key, MaxLen(256) | The node name for the element. |

Table 13. IBMTSSVC_FabricElement properties (continued)

| Property | Type | Qualifier | Description |
|---------------|--------|------------------|--|
| RemoteNPortID | String | Key, MaxLen(256) | The remote nPort ID of the element. |
| RemoteWWPN | String | Key, MaxLen(256) | The remote worldwide port number of the element. |
| State | String | Key, MaxLen(256) | The state of the element. |
| SystemName | String | Key, MaxLen(256) | The unique handle for the element. |
| Type | String | Key, MaxLen(256) | The type of element. |

IBMTSSVC_FCPort

The IBMTSSVC_FCPort class represents a fibre-channel port of a SAN Volume Controller node.

Properties

Generally, all fibre-channel ports of a SAN Volume Controller pair are connected to the same devices. The IBMTSSVC_FCPort class extends the CIM_FCPort class and has the properties shown in Table 14.

Table 14. IBMTSSVC_FCPort properties

| Property | Type | Qualifier | Description |
|-----------|----------|--|--|
| ActiveCOS | Uint16[] | ModelCorrespondence (CIM_FCPort.SupportedCOS) | An array of integers that indicates the Classes of Service (COS) that are active. The Active COS is indicated in ActiveCOS. Code Semantics 0 Unknown 1 1 2 2 3 3 4 4 5 5 6 6 7 F |

Table 14. IBMTSSVC_FCPort properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|--|---|--|------|-----------|---|---------|---|-------|---|----------------------|---|------------|---|------------|---|------------|----|----------------|----|---------------|----|--------------|----|-------------------|----|------------------|----|-----------------|----|---------------|----|--------------------|----|-----------------|----|----------------------|----|--|----|-------|----|-----------|----|------------|----|-------------|----|-------------------------------|----|--------------------------------|----|---------|----|---------|-----|---------------|
| ActiveFC4Types | Uint16[] | ModelCorrespondence (CIM_FCPort.Supported FC4Types) | <p>An array of integers that indicates the Fibre Channel FC-4 protocols currently running. A list of all protocols supported is indicated in the Supported FC4Types property.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Other</td> </tr> <tr> <td>4</td> <td>ISO/IEC 8802 - 2 LLC</td> </tr> <tr> <td>5</td> <td>IP over FC</td> </tr> <tr> <td>8</td> <td>SCSI - FCP</td> </tr> <tr> <td>9</td> <td>SCSI - GPP</td> </tr> <tr> <td>17</td> <td>IPI - 3 Master</td> </tr> <tr> <td>18</td> <td>IPI - 3 Slave</td> </tr> <tr> <td>19</td> <td>IPI - 3 Peer</td> </tr> <tr> <td>21</td> <td>CP IPI - 3 Master</td> </tr> <tr> <td>22</td> <td>CP IPI - 3 Slave</td> </tr> <tr> <td>23</td> <td>CP IPI - 3 Peer</td> </tr> <tr> <td>25</td> <td>SBCCS Channel</td> </tr> <tr> <td>26</td> <td>SBCCS Control Unit</td> </tr> <tr> <td>27</td> <td>FC-SB-2 Channel</td> </tr> <tr> <td>28</td> <td>FC-SB-2 Control Unit</td> </tr> <tr> <td>32</td> <td>Fibre Channel Services (FC-GS, FC-GS-2, FC-GS-3)</td> </tr> <tr> <td>34</td> <td>FC-SW</td> </tr> <tr> <td>36</td> <td>FC - SNMP</td> </tr> <tr> <td>64</td> <td>HIPPI - FP</td> </tr> <tr> <td>80</td> <td>BBL Control</td> </tr> <tr> <td>81</td> <td>BBL FDDI Encapsulated LAN PDU</td> </tr> <tr> <td>82</td> <td>BBL 802.3 Encapsulated LAN PDU</td> </tr> <tr> <td>88</td> <td>FC - VI</td> </tr> <tr> <td>96</td> <td>FC - AV</td> </tr> <tr> <td>255</td> <td>Vendor Unique</td> </tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 4 | ISO/IEC 8802 - 2 LLC | 5 | IP over FC | 8 | SCSI - FCP | 9 | SCSI - GPP | 17 | IPI - 3 Master | 18 | IPI - 3 Slave | 19 | IPI - 3 Peer | 21 | CP IPI - 3 Master | 22 | CP IPI - 3 Slave | 23 | CP IPI - 3 Peer | 25 | SBCCS Channel | 26 | SBCCS Control Unit | 27 | FC-SB-2 Channel | 28 | FC-SB-2 Control Unit | 32 | Fibre Channel Services (FC-GS, FC-GS-2, FC-GS-3) | 34 | FC-SW | 36 | FC - SNMP | 64 | HIPPI - FP | 80 | BBL Control | 81 | BBL FDDI Encapsulated LAN PDU | 82 | BBL 802.3 Encapsulated LAN PDU | 88 | FC - VI | 96 | FC - AV | 255 | Vendor Unique |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | ISO/IEC 8802 - 2 LLC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | IP over FC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | SCSI - FCP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | SCSI - GPP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | IPI - 3 Master | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | IPI - 3 Slave | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | IPI - 3 Peer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | CP IPI - 3 Master | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | CP IPI - 3 Slave | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | CP IPI - 3 Peer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | SBCCS Channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | SBCCS Control Unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | FC-SB-2 Channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | FC-SB-2 Control Unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | Fibre Channel Services (FC-GS, FC-GS-2, FC-GS-3) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | FC-SW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | FC - SNMP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64 | HIPPI - FP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80 | BBL Control | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 81 | BBL FDDI Encapsulated LAN PDU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 82 | BBL 802.3 Encapsulated LAN PDU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 88 | FC - VI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 96 | FC - AV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 255 | Vendor Unique | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ActiveMaximumTransmissionUnit | Uint64 | Units(Bytes), | This property is not supported. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 14. IBMTSSVC_FCPort properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------|----------|--|--|
| Additional Availability | Uint16[] | Deprecated (CIM_AssociatedPowerManagementService.PowerState CIM_ManagedSystemElement.OperationalStatus CIM_EnabledLogicalElement.EnabledState), ModelCorrespondence (CIM_LogicalDevice.Availability) | Additional availability and status of the device, beyond that specified in the Availability property. The SAN Volume Controller always reports this property as "Unknown." |
| AutoSense | Boolean | | Indicates if the NetworkPort is capable of automatically determining the speed or other communications characteristics of the attached network media. |
| Availability | Uint16 | Deprecated (CIM_AssociatedPowerManagementService.PowerState CIM_ManagedSystemElement.OperationalStatus CIM_EnabledLogicalElement.EnabledState) ModelCorrespondence (CIM_LogicalDevice.AdditionalAvailability) | The primary availability and status of the device. The SAN Volume Controller always reports this property as "Unknown." |
| Caption | String | MaxLen(64) | This property is not supported. |
| CreationClassName | String | MaxLen(256) | The name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |
| Description | String | | A textual description of the object. |
| DeviceID | String | MaxLen(64), Expensive(TRUE) | An address or other identifying information to uniquely name the LogicalDevice. |
| ElementName | String | | This property is not supported. |

Table 14. IBMTSSVC_FCPort properties (continued)

| Property | Type | Qualifier | Description |
|------------------|---------|---|---|
| EnabledDefault | Uint16 | Write(TRUE) | <p>An enumerated value that indicates an administrator's default/startup configuration for an element's EnabledStatus. By default, the element is "Enabled."</p> <p>Code Semantics</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 No Default</p> <p>8..32767 DMTF Reserved</p> <p>32768..65535 Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.OtherEnabledState) | <p>An integer enumeration indicator.</p> <p>Code Semantics</p> <p>0 Unknown</p> <p>1 Other</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shutting Down</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 In Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10 Starting</p> <p>11..32767 DMTF Reserved</p> <p>32768..65535 Vendor Reserved</p> |
| ErrorCleared | Boolean | Deprecated (CIM_ManagedSystemElement.OperationalStatus) | This property is not supported. |
| ErrorDescription | String | Deprecated (CIM_DeviceErrorData.ErrorDescription) | This property is not supported. |
| FullDuplex | Boolean | | Indicates if the port is operating in full duplex mode. |

Table 14. IBMTSSVC_FCPort properties (continued)

| Property | Type | Qualifier | Description |
|--------------------------|----------|--|--|
| Identifying Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_LogicalDevice.OtherIdentifyingInfo) | An array of free-form strings that provide explanations and details behind the entries in the OtherIdentifying Info array. Each entry of this array is related to the entry in OtherIdentifyingInfo that is located at the same index. |
| InstallDate | Datetime | | This property is not supported. |
| LastErrorCode | UInt32 | Deprecated (CIM_DeviceErrorData.LastErrorCode) | This property is not supported. |
| LinkTechnology | UInt16 | ModelCorrespondence (CIM_NetworkPort.OtherLinkTechnology) | An enumeration of the types of links. When set to 1 ("Other"), the related property OtherLinkTechnology contains a string description of the link's type. Code Semantics 0 Unknown 1 Other 2 Ethernet 3 IB 4 FC 5 FDDI 6 ATM 7 Token Ring 8 Frame Relay 9 Infrared 10 BlueTooth 11 Wireless LAN |
| MaxQuiesceTime | UInt64 | Deprecated(No value), Units(MilliSeconds) | This property is not supported. |
| MaxSpeed | UInt64 | Units(Bits per Second) | The maximum speed of the port in bits per second. |
| Name | String | MaxLen(1024) | This property is not supported. |
| NetworkAddresses | String[] | MaxLen(64) | This property is not supported. |

Table 14. IBMTSSVC_FCPort properties (continued)

| Property | Type | Qualifier | Description |
|----------------------|----------|---|--|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions), Expensive(TRUE) | The current status of the port. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode |
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | The element's enabled/disabled state when the EnabledState property is set to 1 ("Other"). This property <i>must</i> be set to NULL when EnabledState is any value other than 1. |
| OtherIdentifyingInfo | String[] | MaxLen(256), ArrayType(Indexed), ModelCorrespondence (CIM_LogicalDevice. IdentifyingDescriptions) | Captures additional data, beyond DeviceID information, that could be used to identify a LogicalDevice. |
| OtherLinkTechnology | String | ModelCorrespondence (CIM_NetworkPort. LinkTechnology) | Describes LinkTechnology when it is set to "Other." |
| OtherNetworkPortType | String | ModelCorrespondence (CIM_NetworkPort. PortType) | Describes the type of module, when PortType is set to "Other." |
| PermanentAddress | String | MaxLen(64), Expensive(TRUE) | The network address hardcoded into a port. This 'hardcoded' address may be changed through firmware upgrade or software configuration. |

Table 14. IBMTSSVC_FCPort properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|--|---|---|------|-----------|---|---------|---|---------------|----|----------|----|---------|----|--|----|----------------------|----|-------------------------|----|--------------------------|----|----|----|---|----|---|--------------|-----------------|
| PortNumber | Uint16 | Expensive(TRUE) | NetworkPorts are often numbered relative to either a logical module or a network element. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PortType | Uint16 | ModelCorrespondence (CIM_NetworkPort. OtherNetworkPortType) | <p>The specific mode currently enabled for the port.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Other</td> </tr> <tr> <td>10</td> <td>N</td> </tr> <tr> <td>11</td> <td>NL</td> </tr> <tr> <td>12</td> <td>F/NL</td> </tr> <tr> <td>13</td> <td>Nx</td> </tr> <tr> <td>14</td> <td>E</td> </tr> <tr> <td>15</td> <td>F</td> </tr> <tr> <td>16</td> <td>FL</td> </tr> <tr> <td>17</td> <td>B</td> </tr> <tr> <td>18</td> <td>G</td> </tr> <tr> <td>16000..65535</td> <td>Vendor Reserved</td> </tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 10 | N | 11 | NL | 12 | F/NL | 13 | Nx | 14 | E | 15 | F | 16 | FL | 17 | B | 18 | G | 16000..65535 | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | N | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | NL | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | F/NL | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Nx | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | E | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | F | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | FL | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | B | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | G | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16000..65535 | Vendor Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Power Management Capabilities | Uint16[] | Deprecated (CIM_PowerManagement Capabilities.Power Capabilities) | <p>The power management capabilities of the device. The use of this property is deprecated. Instead, the PowerCapabilites property in an associated Power Management Capabilities class must be used.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Not Supported</td> </tr> <tr> <td>2</td> <td>Disabled</td> </tr> <tr> <td>3</td> <td>Enabled</td> </tr> <tr> <td>4</td> <td>Power Saving Modes Entered Automatically</td> </tr> <tr> <td>5</td> <td>Power State Settable</td> </tr> <tr> <td>6</td> <td>Power Cycling Supported</td> </tr> <tr> <td>7</td> <td>Timed Power On Supported</td> </tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Not Supported | 2 | Disabled | 3 | Enabled | 4 | Power Saving Modes Entered Automatically | 5 | Power State Settable | 6 | Power Cycling Supported | 7 | Timed Power On Supported | | | | | | | | |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Not Supported | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Disabled | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Enabled | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Power Saving Modes Entered Automatically | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Power State Settable | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Power Cycling Supported | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Timed Power On Supported | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 14. IBMTSSVC_FCPort properties (continued)

| Property | Type | Qualifier | Description |
|----------------------------|---------|--|--|
| Power Management Supported | Boolean | Deprecated (CIM_PowerManagement Capabilities) | Indicates if the device can be power managed. The use of this property is deprecated. Instead, the existence of an associated Power Management Capabilities class (associated using the Element Capabilities relationship) indicates that power management is supported. |
| PowerOnHours | Uint64 | Deprecated (CIM_PoweredStatistical Data.PowerOnHours), Units(Hours), Counter(TRUE) | This property is not supported. |
| RequestedSpeed | Uint64 | Write(TRUE), Units(Bits per Second), ModelCorrespondence (CIM_LogicalPort.Speed) | This property is not supported. |
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | <p>An integer enumeration indicator. The SAN Volume Controller does not evaluate this attribute so no action is taken when it is changed.</p> <p>Code Semantics</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shut Down</p> <p>5 No Change</p> <p>6 Offline</p> <p>7 Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10..32767 DMTF Reserved</p> <p>32768..65535 Vendor Reserved</p> |
| Speed | Uint64 | Units(Bits per Second) | An estimate of the current bandwidth in bits per second. For ports that vary in bandwidth or for those where no accurate estimation can be made, this property contains the nominal bandwidth. |

Table 14. IBMTSSVC_FCPort properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|----------|--|--|
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystem Element.OperationalStatus) | Deprecated property - set to "Unknown." Look at OperationalStatus for status information. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.OperationalStatus) | Describes the status - used when the OperationalStatus property is set to "Other." |
| StatusInfo | Uint16 | Deprecated (CIM_EnabledLogical Element.EnabledState) | Indicates if the LogicalDevice is in an enabled, disabled, or other state. Since this property is deprecated, the value "Unknown" is always reported. |
| SupportedCOS | Uint16[] | | An array of integers that indicates the Fibre Channel Classes of Service (COS) that are supported. The active COS are indicated in ActiveCOS. Code Semantics 0 Unknown 1 1 2 2 3 3 4 4 5 6 6 F |

Table 14. IBMTSSVC_FCPort properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|--|--|---|------|-----------|---|---------|---|-------|---|----------------------|---|------------|---|------------|---|------------|----|----------------|----|---------------|----|--------------|----|-------------------|----|------------------|----|-----------------|----|---------------|----|--------------------|----|-----------------|----|----------------------|----|--|----|-------|----|-----------|----|------------|----|-------------|----|-------------------------------|----|--------------------------------|----|---------|----|---------|-----|---------------|
| SupportedFC4Types | Uint16[] | | <p>An array of integers that indicates the Fibre Channel FC-4 protocols that are supported. The protocols that are active and running are indicated in the ActiveFC4 Types property.</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Other</td> </tr> <tr> <td>4</td> <td>ISO/IEC 8802 - 2 LLC</td> </tr> <tr> <td>5</td> <td>IP over FC</td> </tr> <tr> <td>8</td> <td>SCSI - FCP</td> </tr> <tr> <td>9</td> <td>SCSI - GPP</td> </tr> <tr> <td>17</td> <td>IPI - 3 Master</td> </tr> <tr> <td>18</td> <td>IPI - 3 Slave</td> </tr> <tr> <td>19</td> <td>IPI - 3 Peer</td> </tr> <tr> <td>21</td> <td>CP IPI - 3 Master</td> </tr> <tr> <td>22</td> <td>CP IPI - 3 Slave</td> </tr> <tr> <td>23</td> <td>CP IPI - 3 Peer</td> </tr> <tr> <td>25</td> <td>SBCCS Channel</td> </tr> <tr> <td>26</td> <td>SBCCS Control Unit</td> </tr> <tr> <td>27</td> <td>FC-SB-2 Channel</td> </tr> <tr> <td>28</td> <td>FC-SB-2 Control Unit</td> </tr> <tr> <td>32</td> <td>Fibre Channel Services (FC-GS, FC-GS-2, FC-GS-3)</td> </tr> <tr> <td>34</td> <td>FC-SW</td> </tr> <tr> <td>36</td> <td>FC - SNMP</td> </tr> <tr> <td>64</td> <td>HIPPI - FP</td> </tr> <tr> <td>80</td> <td>BBL Control</td> </tr> <tr> <td>81</td> <td>BBL FDDI Encapsulated LAN PDU</td> </tr> <tr> <td>82</td> <td>BBL 802.3 Encapsulated LAN PDU</td> </tr> <tr> <td>88</td> <td>FC - VI</td> </tr> <tr> <td>96</td> <td>FC - AV</td> </tr> <tr> <td>255</td> <td>Vendor Unique</td> </tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 4 | ISO/IEC 8802 - 2 LLC | 5 | IP over FC | 8 | SCSI - FCP | 9 | SCSI - GPP | 17 | IPI - 3 Master | 18 | IPI - 3 Slave | 19 | IPI - 3 Peer | 21 | CP IPI - 3 Master | 22 | CP IPI - 3 Slave | 23 | CP IPI - 3 Peer | 25 | SBCCS Channel | 26 | SBCCS Control Unit | 27 | FC-SB-2 Channel | 28 | FC-SB-2 Control Unit | 32 | Fibre Channel Services (FC-GS, FC-GS-2, FC-GS-3) | 34 | FC-SW | 36 | FC - SNMP | 64 | HIPPI - FP | 80 | BBL Control | 81 | BBL FDDI Encapsulated LAN PDU | 82 | BBL 802.3 Encapsulated LAN PDU | 88 | FC - VI | 96 | FC - AV | 255 | Vendor Unique |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | ISO/IEC 8802 - 2 LLC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | IP over FC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | SCSI - FCP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | SCSI - GPP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | IPI - 3 Master | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | IPI - 3 Slave | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | IPI - 3 Peer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | CP IPI - 3 Master | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | CP IPI - 3 Slave | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | CP IPI - 3 Peer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | SBCCS Channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | SBCCS Control Unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | FC-SB-2 Channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | FC-SB-2 Control Unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | Fibre Channel Services (FC-GS, FC-GS-2, FC-GS-3) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | FC-SW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | FC - SNMP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64 | HIPPI - FP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80 | BBL Control | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 81 | BBL FDDI Encapsulated LAN PDU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 82 | BBL 802.3 Encapsulated LAN PDU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 88 | FC - VI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 96 | FC - AV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 255 | Vendor Unique | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SupportedMaximumTransmissionUnit | Uint64 | Units(Bytes) | This property is not supported. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SystemCreationClassName | String | Propagated (CIM_System.CreationClassName), MaxLen(256) | The scoping system's CreationClass Name. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 14. IBMTSSVC_FCPort properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|----------|--|--|
| SystemName | String | Propagated (CIM_System.Name), MaxLen(256) | The scoping system's Name. |
| TimeOfLastStateChange | Datetime | | This property is not supported. |
| TotalPowerOnHours | Uint64 | Deprecated (CIM_PoweredStatistical Data.TotalPowerOnHours), Units(Hours), Counter(TRUE) | This property is not supported. |
| UsageRestriction | Uint16 | | Indicates if the port is restricted for front- or back-end use. Code Semantics 0 Unknown 2 Front-end only 3 Back-end only 4 Not restricted |

IBMTSSVC_Features

The IBMTSSVC_Features class specifies the enabled capabilities of the SAN Volume Controller.

Properties

The IBMTSSVC_Features instance corresponds with the associated IBMTSSVC_Cluster instance. The IBMTSSVC_Features class extends the CIM_Capabilities class and has the properties shown in Table 15.

Table 15. IBMTSSVC_Features properties

| Property | Type | Qualifier | Description |
|-------------|---------|--|--|
| Caption | String | MaxLen(64) | Unsupported property. |
| Description | String | | A textual description of the object. |
| ElementName | String | Required(TRUE) | Unsupported property. |
| FlashCopy | Boolean | Write(TRUE), WriteRole(Administrator) | Specifies if the FlashCopy feature is enabled for the cluster. |

Table 15. IBMTSSVC_Features properties (continued)

| Property | Type | Qualifier | Description |
|-----------------|---------|--|--|
| InstanceID | String | | Opaquely identifies a unique instance of Capabilities. The InstanceID <i>must</i> be unique within a namespace. To ensure this, the value of InstanceID must be constructed in the following manner: (VendorID)(ID). |
| MaximumCapacity | Uint64 | Units | The maximum capacity of the cluster. |
| RemoteCopy | Boolean | Write(TRUE), WriteRole(Administrator) | Specifies if the RemoteCopy feature is enabled for the cluster. |

IBMTSSVC_FlashCopyJob

IBMTSSVC_FlashCopyJob class instances show the percentage of all FlashCopy operations that are in the copying state.

Properties

A job instance is used to monitor asynchronous FlashCopy operations on the device. The IBMTSSVC_FlashCopyJob class has the properties shown in Table 16.

Table 16. IBMTSSVC_FlashCopyJob properties

| Property | Type | Qualifier | Description |
|--------------------|---------|--------------|--|
| InstanceID | String | | Opaquely identifies a unique instance of ConcreteJob. The InstanceID must be unique within a namespace. In order to ensure that the name is unique, the value of InstanceID must be constructed in the following manner: (Vendor ID)(ID) |
| Caption | String | MaxLen(64), | This property is not supported. |
| DeleteOnCompletion | Boolean | Write(TRUE), | Indicates if the job is automatically deleted after completion. If this property is set to false and the job completes, the extrinsic method DeleteInstance must be used to delete the job. |

Table 16. IBMTSSVC_FlashCopyJob properties (continued)

| Property | Type | Qualifier | Description |
|------------------|----------|---|--|
| Description | String | | A textual description of the object. |
| Elapsed Time | Datetime | | This property is not supported. |
| ElementName | String | | This property is not supported. |
| ErrorCode | Uint16 | ModelCorrespondence (CIM_Job.Error Description) | This property is not supported. |
| ErrorDescription | String | ModelCorrespondence (CIM_Job.ErrorCode), | This property is not supported. |
| InstallDate | Datetime | | This property is not supported. |
| JobRunTimes | Uint32 | Write(TRUE), | |
| JobState | Uint16 | | An integer enumeration that indicates the operational state of a job. Code Semantics 2 New 3 Starting 4 Running 5 Suspended 6 Shutting Down 7 Completed 8 Terminated 9 Killed 10 Exception 11 Service 12..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| JobStatus | String | ModelCorrespondence (ManagedSystem Element) | This property is not supported. |
| LocalOrUtcTime | Uint16 | Write(TRUE), | Code Semantics 1 Local Time 2 UTC Time |
| Name | String | Required(TRUE), MaxLen(1024) | The user-friendly name for this instance of the job. |
| Notify | String | Write(TRUE), | This property is not supported. |

Table 16. IBMTSSVC_FlashCopyJob properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|----------------------------|--|---|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_Managed SystemElement) | <p>Indicates the current status of the element. Various health and operational statuses are defined. Many of the enumeration's values are self-explanatory.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherRecoveryAction | String | ModelCorrespondence (CIM_Job.Recovery Action) | Describes the recovery action when the instance's RecoveryAction property is set to 1 ("Other"). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Owner | String | ModelCorrespondence (CIM_OwningJob Element) | This property is not supported. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PercentComplete | Uint16 | MaxValue(101), MinValue(0), Units(Percent), | The percentage of the job that is complete at the time of the request. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Priority | Uint32 | Write(TRUE), | This property is not supported. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 16. IBMTSSVC_FlashCopyJob properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|--------|--|--|
| RecoveryAction | UInt16 | ModelCorrespondence (CIM_Job.Other RecoveryAction) | <p>Describes the recovery action for an unsuccessfully run job. A return code of "Other" indicates that the recovery action will be specified in the OtherRecovery Action property.</p> <p>Code Semantics</p> <p>0 Unknown</p> <p>1 Other</p> <p>2 Do Not Continue</p> <p>3 Continue With Next Job</p> <p>4 Re-run Job</p> <p>5 Run Recovery Job</p> |
| RequestStateChange | UInt32 | | This property is not supported. |
| RunDay | Sint8 | Write(TRUE), MinValue(-31), MaxValue(31), ModelCorrespondence (CIM_Job.RunMonth CIM_Job.RunDay OfWeek CIM_Job.Run StartInterval) | |
| RunDayOfWeek | Sint8 | Write(TRUE), ModelCorrespondence (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunStart Interval) | <p>Code Semantics</p> <p>-7 -Saturday</p> <p>-6 -Friday</p> <p>-5 -Thursday</p> <p>-4 -Wednesday</p> <p>-3 -Tuesday</p> <p>-2 -Monday</p> <p>-1 -Sunday</p> <p>0 ExactDayOf Month</p> <p>1 Sunday</p> <p>2 Monday</p> <p>3 Tuesday</p> <p>4 Wednesday</p> <p>5 Thursday</p> <p>6 Friday</p> <p>7 Saturday</p> |

Table 16. IBMTSSVC_FlashCopyJob properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|-----------------------|---|---|------|-----------|---|-------------|---|-----------------------|---|----------|---|----------------------|----|------|----|--------|--------|---------|--------|----------|---|-----------|---|---------|----|----------|----|----------|
| RunMonth | UInt8 | Write(TRUE), ModelCorrespondence (CIM_Job.RunDay CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval) | <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>January</td></tr> <tr><td>1</td><td>February</td></tr> <tr><td>2</td><td>March</td></tr> <tr><td>3</td><td>April</td></tr> <tr><td>4</td><td>May</td></tr> <tr><td>5</td><td>June</td></tr> <tr><td>6</td><td>July</td></tr> <tr><td>7</td><td>August</td></tr> <tr><td>8</td><td>September</td></tr> <tr><td>9</td><td>October</td></tr> <tr><td>10</td><td>November</td></tr> <tr><td>11</td><td>December</td></tr> </tbody> </table> | Code | Semantics | 0 | January | 1 | February | 2 | March | 3 | April | 4 | May | 5 | June | 6 | July | 7 | August | 8 | September | 9 | October | 10 | November | 11 | December |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | January | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | February | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | March | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | April | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | May | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | June | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | July | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | August | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | September | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | October | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | November | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | December | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RunStartInterval | Datetime | Write(TRUE), ModelCorrespondence (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ScheduledStartTime | Datetime | Deprecated (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval), Write(TRUE), | This property is not supported. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| StartTime | Datetime | | This property is not supported. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Status | String | MaxLen(10), Deprecated(CIM_ ManagedSystem Element) | This property is deprecated in lieu of OperationalStatus. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_Managed System Element) | Describes the status. Use this property when the OperationalStatus property is set to 1 ("Other"). | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SyncState | UInt16 | | <p>The synchronization state of the FlashCopy mapping.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>2</td><td>Initialized</td></tr> <tr><td>3</td><td>PrepareIn Progress</td></tr> <tr><td>4</td><td>Prepared</td></tr> <tr><td>5</td><td>ResyncIn Progress</td></tr> <tr><td>11</td><td>Idle</td></tr> <tr><td>12</td><td>Broken</td></tr> <tr><td>0x8000</td><td>Stopped</td></tr> <tr><td>0x8001</td><td>Stopping</td></tr> </tbody> </table> | Code | Semantics | 2 | Initialized | 3 | PrepareIn Progress | 4 | Prepared | 5 | ResyncIn Progress | 11 | Idle | 12 | Broken | 0x8000 | Stopped | 0x8001 | Stopping | | | | | | | | |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Initialized | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | PrepareIn Progress | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Prepared | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | ResyncIn Progress | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Idle | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Broken | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0x8000 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0x8001 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 16. IBMTSSVC_FlashCopyJob properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|----------|--|---------------------------------|
| TimeOfLastStateChange | Datetime | | This property is not supported. |
| TimeSubmitted | Datetime | | This property is not supported. |
| UntilTime | Datetime | Write(TRUE), ModelCorrespondence (CIM_Job.LocalOr UtcTime) | This property is not supported. |

IBMTSSVC_FlashCopySynchronizedSet

The IBMTSSVC_FlashCopySynchronizedSet class aggregates multiple IBMTSSVC_StorageSynchronized instances to ensure consistent copying.

Properties

The IBMTSSVC_FlashCopySynchronizedSet class extends the CIM_SynchronizedSet class and has the properties shown in Table 17.

Table 17. IBMTSSVC_FlashCopySynchronizedSet properties

| Property | Type | Qualifier | Description |
|-------------|--------|---|--|
| Caption | String | MaxLen(15), Write(TRUE), WriteRole(Administrator) | A short (one-line string) textual description. |
| CopyType | Uint16 | Experimental(TRUE) | <p>The replication policy for the synchronized set.</p> <ul style="list-style-type: none"> • Async: create and maintain an asynchronous copy of the source. • Sync: create and maintain a synchronized copy of the source. • UnSyncAssoc: create an unsynchronized copy and maintain an association to the source. <p>Code Semantics 2 Async 3 Sync 4 UnSyncAssoc .. DMTF Reserved 0x8000.. Vendor Specific</p> |
| Description | String | | A textual description of the object. |
| ElementName | String | MaxLen(15), Write(TRUE), WriteRole(Administrator), Experimental(TRUE) | The user-friendly name for this instance of SynchronizedSet. |

Table 17. IBMTSSVC_FlashCopySynchronizedSet properties (continued)

| Property | Type | Qualifier | Description |
|------------|--------|-----------|---|
| InstanceID | String | Key | Opaquely identifies a unique instance that is scoped (contained) by a system. This property <i>must</i> be unique within a namespace. To ensure this property is unique, the value of the InstanceID property must be constructed in the following manner: (Vendor ID)(ID). |
| Status | Uint32 | | The status of the SynchronizedSet. Code Semantics 2 Initialized 3 PrepareInProgress 4 Prepared 5 ResyncInProgress 11 Idle 12 Broken 0x1000 Empty 0x8001 Stopped |
| SyncState | Uint16 | | The state of synchronization for a FlashCopy mapping. Code Semantics 2 Initialized 3 PrepareInProgress 4 Prepared 5 ResyncInProgress 11 Idle 12 Broken 0x8001 Stopped 0x8002 Stopping |

IBMTSSVC_FormatVolumeJob

IBMTSSVC_FormatVolumeJob class instances show the percentage of all virtual disks (VDisks) in the "formatting" state.

Properties

A job instance is used to monitor asynchronous format volume operations on the device. The IBMTSSVC_FormatVolumeJob class has the properties shown in Table 18 on page 115.

Table 18. IBMTSSVC_FormatVolumeJob properties

| Property | Type | Qualifier | Description |
|--------------------|----------|--|---|
| InstanceID | String | | Opaquely identifies a unique instance of ConcreteJob. The InstanceID <i>must</i> be unique within a namespace. In order to ensure that the name is unique, the value of InstanceID must be constructed in the following manner: (Vendor ID)(ID). |
| Caption | String | MaxLen(64), | Unsupported property. |
| DeleteOnCompletion | Boolean | Write(TRUE), | Indicates if the job is automatically deleted after completion. If this property is set to false and the job completes, the extrinsic method DeleteInstance <i>must</i> be used to delete the job. |
| Description | String | | A textual description of the object. |
| Elapsed Time | Datetime | | Unsupported property. |
| ElementName | String | | Unsupported property. |
| ErrorCode | Uint16 | Model Correspondence (CIM_Job.Error Description) | Unsupported property. |
| ErrorDescription | String | Model Correspondence (CIM_Job.ErrorCode), | Unsupported property. |
| InstallDate | Datetime | | Unsupported property. |
| JobRunTimes | Uint32 | Write(TRUE), | |
| JobState | Uint16 | | An integer enumeration that indicates the operational state of a job. Code Semantics 2 New 3 Starting 4 Running 5 Suspended 6 Shutting Down 7 Completed 8 Terminated 9 Killed 10 Exception 11 Service 12..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| JobStatus | String | Model Correspondence (ManagedSystem Element) | Unsupported property. |

Table 18. IBMTSSVC_FormatVolumeJob properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|----------------------------|--|--|-------------|------------------|---|------------|---|----------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|----------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| LocalOrUtcTime | UInt16 | Write(TRUE), | <table border="0"> <tr> <td>Code</td> <td>Semantics</td> </tr> <tr> <td>1</td> <td>Local Time</td> </tr> <tr> <td>2</td> <td>UTC Time</td> </tr> </table> | Code | Semantics | 1 | Local Time | 2 | UTC Time | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Local Time | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | UTC Time | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name | String | Required(TRUE), MaxLen(1024) | The user friendly name for this instance of the job. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Notify | String | Write(TRUE), | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OperationalStatus | UInt16[] | ArrayType(Indexed), Model Correspondence (CIM_Managed SystemElement) | <p>The current status of the element. Various health and operational statuses are defined. Many of the enumeration's values are self-explanatory.</p> <table border="0"> <tr> <td>Code</td> <td>Semantics</td> </tr> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Other</td> </tr> <tr> <td>2</td> <td>OK</td> </tr> <tr> <td>3</td> <td>Degraded</td> </tr> <tr> <td>4</td> <td>Stressed</td> </tr> <tr> <td>5</td> <td>Predictive Failure</td> </tr> <tr> <td>6</td> <td>Error</td> </tr> <tr> <td>7</td> <td>Non-Recoverable Error</td> </tr> <tr> <td>8</td> <td>Starting</td> </tr> <tr> <td>9</td> <td>Stopping</td> </tr> <tr> <td>10</td> <td>Stopped</td> </tr> <tr> <td>11</td> <td>In Service</td> </tr> <tr> <td>12</td> <td>No Contact</td> </tr> <tr> <td>13</td> <td>Lost Communi- cation</td> </tr> <tr> <td>14</td> <td>Aborted</td> </tr> <tr> <td>15</td> <td>Dormant</td> </tr> <tr> <td>16</td> <td>Supporting Entity in Error</td> </tr> <tr> <td>17</td> <td>Completed</td> </tr> <tr> <td>18</td> <td>Power Mode</td> </tr> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communi- cation | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communi- cation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherRecoveryAction | String | Model Correspondence (CIM_Job.Recovery Action) | Describes the recovery action when the instance's RecoveryAction property is 1 ("Other"). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Owner | String | Model Correspondence (CIM_OwningJob Element) | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PercentComplete | UInt16 | MaxValue(101), MinValue(0), Units(Percent), | The percentage of the job that is complete at the time of the request. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Priority | UInt32 | Write(TRUE), | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 18. IBMTSSVC_FormatVolumeJob properties (continued)

| Property | Type | Qualifier | Description |
|----------------|--------|--|--|
| RecoveryAction | Uint16 | Model Correspondence (CIM_Job.Other RecoveryAction) | The recovery action for an unsuccessfully run job. A return code of "Other" indicates that the recovery action will be specified in the OtherRecovery Action property. Code Semantics 0 Unknown 1 Other 2 Do Not Continue 3 Continue With Next Job 4 Re-run Job 5 Run Recovery Job |
| RunDay | Sint8 | Write(TRUE), MinValue(-31), MaxValue(31), Model Correspondence (CIM_Job.RunMonth CIM_Job.RunDay OfWeek CIM_Job.Run StartInterval) | |
| RunDayOfWeek | Sint8 | Write(TRUE), Model Correspondence (CIM_Job.RunMonth CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval) | Code Semantics -7 -Saturday -6 -Friday -5 -Thursday -4 -Wednesday -3 -Tuesday -2 -Monday -1 -Sunday 0 ExactDayOf Month 1 Sunday 2 Monday 3 Tuesday 4 Wednesday 5 Thursday 6 Friday 7 Saturday |
| RunMonth | Uint8 | Write(TRUE), Model Correspondence (CIM_Job.RunDay CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval) | Code Semantics 0 January 1 February 2 March 3 April 4 May 5 June 6 July 7 August 8 September 9 October 10 November 11 December |

Table 18. IBMTSSVC_FormatVolumeJob properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|----------|---|--|
| RunStartInterval | Datetime | Write(TRUE), Model Correspondence (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval) | |
| ScheduledStartTime | Datetime | Deprecated (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval), Write(TRUE), | Unsupported property. |
| StartTime | Datetime | | Unsupported property. |
| Status | String | MaxLen(10), Deprecated(CIM_ ManagedSystem Element) | This property is deprecated in lieu of OperationalStatus. |
| StatusDescriptions | String[] | ArrayType(Indexed), Model Correspondence (CIM_Managed SystemElement) | Describes the status. Use this property when the OperationalStatus property is set to 1 ("Other"). |
| TimeOfLastState Change | Datetime | | Unsupported Property. |
| TimeSubmitted | Datetime | | Unsupported Property. |
| UntilTime | Datetime | Write(TRUE), Model Correspondence (CIM_Job.LocalOr UtcTime) | Unsupported Property. |

IBMTSSVC_HardwareIdCollection

The IBMTSSVC_HardwareIdCollection class represents a host port to which volume access can be granted.

Properties

The IBMTSSVC_HardwareIdCollection class extends the CIM_SystemSpecificCollection class and has the properties shown in Table 19.

Table 19. IBMTSSVC_HardwareIdCollection properties

| Property | Type | Qualifier | Description |
|----------|--------|------------|--|
| Caption | String | MaxLen(64) | A short textual description (one-line string) of the object. |

Table 19. IBMTSSVC_HardwareIdCollection properties (continued)

| Property | Type | Qualifier | Description |
|-------------------|----------|---|---|
| ClientType | Uint16 | Expensive(TRUE), Write(TRUE), WriteRole(Administrator) | The type of client. Code Semantics 0 Generic 1 HPUX 2 TPGS |
| Description | String | - | A textual description of the object. |
| ElementName | String | MaxLen(15), Write(TRUE), WriteRole(Administrator) | A user-friendly name for the object. |
| InstanceID | String | MaxLen(256) | The label by which the object is known. Format: cluster_ip:object_id. |
| MaxPathCount | Uint32 | Counter(TRUE), Expensive(TRUE) | The maximum number of Fibre Channel paths to this host. |
| NumberOfIOGroups | Uint32 | | The number of I/O groups that are associated with this host. |
| NumberOfPorts | Uint32 | Counter(TRUE) | The number of Fibre Channel ports that are registered for this host. |
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement. StatusDescriptions) | The current status of the element. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode |
| PathCount | Uint32 | Counter(TRUE), Expensive(TRUE) | The current number of Fibre Channel paths to this host. |

Table 19. IBMTSSVC_HardwareIdCollection properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|----------|--|---|
| PortLoginMask | String | Expensive(TRUE), Write(TRUE), WriteRole(Administrator) | The 4-character port login mask for the host. Valid mask values range from 0000 (no ports enabled) to 1111 (all ports enabled). For example, a mask of 0011 enables port 1 and port 2. The default value is 1111 (all ports enabled). |
| PortWWN | String[] | Expensive(TRUE) | The Fibre Channel ports that are registered for this host. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.OperationalStatus) | Describes the status. Use when the OperationalStatus property is set to "Other." |

IBMTSSVC_HardwareIdCollectionStorageVolumeView

The IBMTSSVC_HardwareIdCollectionStorageVolumeView class represents a host-to-VDisk mapping.

Properties

The IBMTSSVC_HardwareIdCollectionStorageVolumeView class has the properties shown in Table 20.

Table 20. IBMTSSVC_HardwareIdCollectionStorageVolumeView properties

| Property | Type | Qualifier | Description |
|-------------------|--------|------------------|---|
| SystemName | String | Key, MaxLen(256) | The system scoping identifier. |
| CollectionOID | String | Key, MaxLen(256) | The HardwareIdCollection (host) object ID. |
| CollectionName | String | Key, MaxLen(256) | The HardwareIdCollection (host) object name. |
| CollectionScsilID | String | Key, MaxLen(256) | The HardwareIdCollection (host) object SCSI ID. |
| VolumeOID | String | Key, MaxLen(256) | The StorageVolume (VDisk) object ID. |
| VolumeName | String | Key, MaxLen(256) | The StorageVolume (VDisk) object name. |
| VolumeWWPN | String | Key, MaxLen(256) | The StorageVolume (VDisk) worldwide port name (WWPN). |
| VolumeUniqueID | String | Key, MaxLen(256) | The StorageVolume (VDisk) unique identifier. |

IBMTSSVC_IOGroup

The IBMTSSVC_IOGroup class extends the CIM_ComputerSystem class.

Properties

The IBMTSSVC_IOGroup class defines an interface for a set of volumes. All nodes and volumes are associated with exactly one IOGroup. The read and write cache provided by a node is duplicated for redundancy. When I/O is performed to a volume, the node that processes the I/O will duplicate the data on the partner node in the IOGroup. This class represents the system aspect of an I/O group, whereas IOGroupSet represents the set aspect.

The IBMTSSVC_IOGroup class extends the CIM_ComputerSystem class and has the properties shown in Table 21.

Table 21. IBMTSSVC_IOGroup properties

| Property | Type | Qualifier | Description |
|-------------------|--------|---|--|
| Caption | String | MaxLen(15), Write(TRUE), WriteRole(Administrator) | A short textual description (one-line string) of the object. |
| CreationClassName | String | MaxLen(256) | The name of the class or the subclass that is used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |

Table 21. IBMTSSVC_IOGroup properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|-----------------------|---|---|------|-----------|---|---------------|---|---------|---|-------|---|---------|---|--------|---|--------|---|----------------|---|-----------------------|---|-----|---|---------------|----|----------|----|-------|----|-----|----|-------------|----|------------|----|--------------|----|-------------|----|--------------------|----|----------|----|-----------------|----|---------|
| Dedicated | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem. OtherDedicatedDescriptions) | <p>An enumeration that indicates if the computer system is a special-purpose system (dedicated to a particular use) or a general purpose system. The SAN Volume Controller is a dedicated storage device and will return {3,15} ("Storage," "Block Server").</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Not Dedicated</td></tr> <tr><td>1</td><td>Unknown</td></tr> <tr><td>2</td><td>Other</td></tr> <tr><td>3</td><td>Storage</td></tr> <tr><td>4</td><td>Router</td></tr> <tr><td>5</td><td>Switch</td></tr> <tr><td>6</td><td>Layer 3 Switch</td></tr> <tr><td>7</td><td>Central Office Switch</td></tr> <tr><td>8</td><td>Hub</td></tr> <tr><td>9</td><td>Access Server</td></tr> <tr><td>10</td><td>Firewall</td></tr> <tr><td>11</td><td>Print</td></tr> <tr><td>12</td><td>I/O</td></tr> <tr><td>13</td><td>Web Caching</td></tr> <tr><td>14</td><td>Management</td></tr> <tr><td>15</td><td>Block Server</td></tr> <tr><td>16</td><td>File Server</td></tr> <tr><td>17</td><td>Mobile User Device</td></tr> <tr><td>18</td><td>Repeater</td></tr> <tr><td>19</td><td>Bridge/Extender</td></tr> <tr><td>20</td><td>Gateway</td></tr> </tbody> </table> | Code | Semantics | 0 | Not Dedicated | 1 | Unknown | 2 | Other | 3 | Storage | 4 | Router | 5 | Switch | 6 | Layer 3 Switch | 7 | Central Office Switch | 8 | Hub | 9 | Access Server | 10 | Firewall | 11 | Print | 12 | I/O | 13 | Web Caching | 14 | Management | 15 | Block Server | 16 | File Server | 17 | Mobile User Device | 18 | Repeater | 19 | Bridge/Extender | 20 | Gateway |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Not Dedicated | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Storage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Router | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Layer 3 Switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Central Office Switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Hub | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Access Server | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Firewall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Print | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | I/O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Web Caching | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Management | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Block Server | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | File Server | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Mobile User Device | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Repeater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Bridge/Extender | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Gateway | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description | String | | A textual description of the object. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ElementName | String | MaxLen(15), Write(TRUE), WriteRole(Administrator) | The group's user-friendly name. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 21. IBMTSSVC_IOGroup properties (continued)

| Property | Type | Qualifier | Description |
|--------------------------|----------|---|--|
| EnabledDefault | Uint16 | Write(TRUE) | <p>An enumerated value that indicates an administrator's default and startup configuration for an element's EnabledStatus. By default, the element is "Enabled."</p> <p>Code Semantics</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 No Default</p> <p>8..32767</p> <p> DMTF Reserved</p> <p>32768..65535</p> <p> Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.OtherEnabledState) | <p>An integer enumeration that indicates if the element is currently shutting down or in an enabled or disabled state.</p> <p>Code Semantics</p> <p>0 Unknown</p> <p>1 Other</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shutting Down</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 In Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10 Starting</p> <p>11..32767</p> <p> DMTF Reserved</p> <p>32768..65535</p> <p> Vendor Reserved</p> |
| NumberOfHosts | Uint32 | | The number of hosts that are associated with this I/O group. |
| Identifying Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem.OtherIdentifyingInfo) | An array of free-form strings that provide explanations and details behind the entries in the OtherIdentifyingInfo array. |

Table 21. IBMTSSVC_IOGroup properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|----------------------------|--|--|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| InstallDate | Datetime | | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name | String | MaxLen(256) | The label by which the object is known. Format: cluster_ip:object_id. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NameFormat | String | MaxLen(64) | Identifies how the name of the computer system is generated. The SAN Volume Controller returns the node's id as Name, therefore this attribute is set to "Other." | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NumberOfNodes | Uint32 | Counter(TRUE) | The number of nodes in the group. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NumberOfVolumes | Uint32 | Counter(TRUE) | The number of virtual disks that are offered by the group. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | <p>No status information is available at the group level. Look for the individual nodes' status.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherDedicated Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem.Dedicated) | Describes how or why the system is dedicated when the Dedicated array includes the value 2 ("Other"). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 21. IBMTSSVC_IOGroup properties (continued)

| Property | Type | Qualifier | Description |
|------------------------------|----------|--|---|
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | Describes the element's enabled or disabled state when the EnabledState property is set to 1 ("Other"). This property <i>must</i> be set to NULL when EnabledState is any value other than 1. |
| OtherIdentifyingInfo | String[] | MaxLen(256), ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem. IdentifyingDescriptions) | The node's "Redundancy Group ID," "RedundancyGroup Name," "Partner Node Name," "Partner Node ID" and "WWWN." |
| PowerManagement Capabilities | Uint16[] | Deprecated (CIM_PowerManagement Capabilities.PowerCapabilities) | An enumerated array that describes the power management capabilities of the computer system. The use of this property is deprecated. Instead, the PowerCapabilites property in an associated PowerManagement Capabilities class must be used. Code Semantics 0 Unknown 1 Not Supported 2 Disabled 3 Enabled 4 Power Saving Modes Entered Auto-matically 5 Power State Settable 6 Power Cycling Supported 7 Timed Power On Supported |
| PrimaryOwner Contact | String | MaxLen(256), Write(TRUE) | Unsupported property. |
| PrimaryOwner Name | String | MaxLen(64), Write(TRUE) | Unsupported property. |

Table 21. IBMTSSVC_IOGroup properties (continued)

| Property | Type | Qualifier | Description |
|-----------------|----------|---|---|
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | <p>An integer enumeration that indicates if the element must be shut down, enabled, disabled, taken offline, or tested at the next opportunity. This property is provided to compare Requested and current Enabledstatus. The SAN Volume Controller does not evaluate this attribute so no action is taken when it is changed.</p> <p>Code Semantics</p> <p>2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| ResetCapability | Uint16 | | <p>Allows you to reset the computer system using the power and reset buttons. If enabled, the computer system can be reset through hardware (the power and reset buttons). If disabled, hardware reset is not allowed.</p> <p>Code Semantics</p> <p>1 Other 2 Unknown 3 Disabled 4 Enabled 5 Not Implemented</p> |
| Roles | String[] | Write(TRUE) | Unsupported property. |
| Status | String | MaxLen(10), Deprecated(CIM_Managed SystemElement. OperationalStatus) | Deprecated property - set to "Unknown." Look at OperationalStatus for status information. |

Table 21. IBMTSSVC_IOGroup properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|----------|--|--|
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.OperationalStatus) | Describes the status. Use when the OperationalStatus property is set to "Other." |
| TimeOfLastState Change | Datetime | | Unsupported property. |

IBMTSSVC_IOGroupSet

The IBMTSSVC_IOGroup class extends the CIM_ExtraCapacitySet class.

Properties

An IOGroupSet defines an interface for a set of volumes. All nodes and volumes are associated with exactly one IOGroupSet. The read and write cache provided by a node is duplicated for redundancy. When I/O is performed to a volume, the node that processes the I/O duplicates the data on the partner node in the IOGroupSet. This class represents the set aspect of an I/O group, whereas IOGroup represents the system aspect.

The IBMTSSVC_IOGroupSet class extends the CIM_ExtraCapacitySet class and has the properties shown in Table 22.

Table 22. IBMTSSVC_IOGroupSet properties

| Property | Type | Qualifier | Description |
|-----------------|---------|----------------|--|
| Caption | String | MaxLen(64) | A short textual description (one-line string) of the object. |
| Description | String | | A textual description of the object. |
| ElementName | String | Required(TRUE) | The user-friendly name for this instance of RedundancySet. Note: InstanceName does not have to be unique within a namespace. |
| InstanceID | String | | Within the scope of the instantiating Namespace, InstanceID opaquely and uniquely identifies an instance of this class. |
| LoadBalancedSet | Boolean | | Indicates if load balancing is supported by the ExtraCapacitySet. |

Table 22. IBMTSSVC_IOGroupSet properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|--------|-------------|--|
| MaxNumberSupported | Uint32 | | The largest number of elements that can participate in the ExtraCapacitySet. A value of 0 indicates there is no limit on the number of elements. |
| MinNumberNeeded | Uint32 | MinValue(1) | The smallest number of elements that must be operational in order to function. For example, in an N+1 redundancy relationship, the MinNumberNeeded property is set equal to N. |
| RedundancyStatus | Uint16 | | Provides information on the state of the RedundancySet. Code Semantics 0 Unknown 1 Other 2 Fully Redundant 3 Degraded Redundancy 4 Redundancy Lost |

IBMTSSVC_Job

The IBMTSSVC_Job class extends the CIM_ConcreteJob class.

Properties

The IBMTSSVC_Job class is used to monitor the asynchronous commands for format, migration, or copy operations on the device. The IBMTSSVC_Job class has the properties shown in Table 23.

Table 23. IBMTSSVC_Job properties

| Property | Type | Qualifier | Description |
|------------|--------|-----------|--|
| InstanceID | String | | Opaquely identifies a unique instance of ConcreteJob. The InstanceID <i>must</i> be unique within a namespace. To ensure this, the value of InstanceID must be constructed in the following manner: (Vendor ID)(ID). |

Table 23. IBMTSSVC_Job properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|----------|--|--|
| Caption | String | MaxLen(64) | Unsupported property. |
| DeleteOnCompletion | Boolean | Write(TRUE) | Indicates if the job is automatically deleted upon completion. If this property is set to false and the job completes, then the extrinsic method DeleteInstance must be used to delete the job. |
| Description | String | | A textual description of the object. |
| ElapsedTime | Datetime | | Unsupported property. |
| ElementName | String | | Unsupported property. |
| ErrorCode | Uint16 | ModelCorrespondence (CIM_Job.ErrorDescription) | Unsupported property. |
| ErrorDescription | String | ModelCorrespondence (CIM_Job.ErrorCode) | Unsupported property. |
| InstallDate | Datetime | | Unsupported property. |
| JobRunTimes | Uint32 | Write(TRUE) | |
| JobState | Uint16 | | An integer enumeration that indicates the operational state of a Job. Code Semantics 2 New 3 Starting 4 Running 5 Suspended 6 Shutting Down 7 Completed 8 Terminated 9 Killed 10 Exception 11 Service 12..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| JobStatus | String | ModelCorrespondence (ManagedSystemElement.OperationalStatus) | Unsupported property. |
| LocalOrUtcTime | Uint16 | Write(TRUE) | Code Semantics 1 Local Time 2 UTC Time |
| Name | String | Required(TRUE), MaxLen(1024) | The user-friendly name for this instance of Job. |
| Notify | String | Write(TRUE) | Unsupported property. |

Table 23. IBMTSSVC_Job properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|----------------------------|---|---|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | <p>The current status of the element. Various health and operational statuses are defined. Many of the enumeration's values are self-explanatory.</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherRecoveryAction | String | ModelCorrespondence (CIM_Job.RecoveryAction) | The recovery action when the instance's RecoveryAction property is set to "Other." | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Owner | String | ModelCorrespondence (CIM_OwningJobElement) | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PercentComplete | Uint16 | MaxValue(101), MinValue(0), Units(Percent) | The percentage of the job that is complete at the time of the request. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Priority | Uint32 | Write(TRUE) | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 23. IBMTSSVC_Job properties (continued)

| Property | Type | Qualifier | Description |
|------------------|----------|---|--|
| RecoveryAction | Uint16 | ModelCorrespondence (CIM_Job.OtherRecoveryAction) | The recovery action to be taken for an unsuccessfully run job. Code Semantics 0 Unknown 1 Other 2 Do Not Continue 3 Continue With Next Job 4 Re-run Job 5 Run Recovery Job |
| RunDay | Uint8 | Write(TRUE), MinValue(-31), MaxValue(31), ModelCorrespondence (CIM_Job.RunMonth CIM_Job.RunDayOfWeek CIM_Job.RunStartInterval) | |
| RunDayOfWeek | Uint8 | Write(TRUE), ModelCorrespondence (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunStartInterval) | Code Semantics -7 -Saturday -6 -Friday -5 -Thursday -4 -Wednesday -3 -Tuesday -2 -Monday -1 -Sunday 0 ExactDayOf Month 1 Sunday 2 Monday 3 Tuesday 4 Wednesday 5 Thursday 6 Friday 7 Saturday |
| RunMonth | Uint8 | Write(TRUE), ModelCorrespondence (CIM_Job.RunDay CIM_Job.RunDayOfWeek CIM_Job.RunStartInterval) | Code Semantics 0 January 1 February 2 March 3 April 4 May 5 June 6 July 7 August 8 September 9 October 10 November 11 December |
| RunStartInterval | Datetime | Write(TRUE), ModelCorrespondence (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunDayOfWeek CIM_Job.RunStartInterval) | |

Table 23. IBMTSSVC_Job properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|----------|--|--|
| ScheduledStartTime | Datetime | Deprecated (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunDayOfWeek CIM_Job.RunStartInterval), Write(TRUE) | Unsupported property. |
| StartTime | Datetime | | Unsupported property. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement. OperationalStatus) | This property is deprecated in lieu of OperationalStatus. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement. OperationalStatus) | Describes the status. Use this property when the OperationalStatus property is set to 1 ("Other"). |
| TimeOfLastStateChange | Datetime | | Unsupported property. |
| TimeSubmitted | Datetime | | Unsupported property. |
| UntilTime | Datetime | Write(TRUE), ModelCorrespondence (CIM_Job.LocalOrUtcTime) | Unsupported property. |

IBMTSSVC_MessageLog

The IBMTSSVC_MessageLog class extends the CIM_MessageLog class.

Properties

The IBMTSSVC_MessageLog class is The IBMTSSVC_MessageLog class extends the CIM_MessageLog class and has the properties shown in Table 24 on page 133

Table 24. IBMTSSVC_MessageLog properties

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|--|---|--|------|-----------|---|---------|---|-------|---|------------------------|---|-------------------------|---|--------------------------|---|----------------------|---|---------------------|---|--|---|-----------------------------------|---|------------------------------|----|--------------------------------|
| Capabilities | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_MessageLog.Capabilities Descriptions) | <p>An array of integers that indicates the Log capabilities.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Other</td> </tr> <tr> <td>2</td> <td>Write Record Supported</td> </tr> <tr> <td>3</td> <td>Delete Record Supported</td> </tr> <tr> <td>4</td> <td>Can Move Backward in Log</td> </tr> <tr> <td>5</td> <td>Freeze Log Supported</td> </tr> <tr> <td>6</td> <td>Clear Log Supported</td> </tr> <tr> <td>7</td> <td>Supports Addressing by Ordinal Record Number</td> </tr> <tr> <td>8</td> <td>Variable Length Records Supported</td> </tr> <tr> <td>9</td> <td>Variable Formats for Records</td> </tr> <tr> <td>10</td> <td>Can Flag Records for Overwrite</td> </tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | Write Record Supported | 3 | Delete Record Supported | 4 | Can Move Backward in Log | 5 | Freeze Log Supported | 6 | Clear Log Supported | 7 | Supports Addressing by Ordinal Record Number | 8 | Variable Length Records Supported | 9 | Variable Formats for Records | 10 | Can Flag Records for Overwrite |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Write Record Supported | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Delete Record Supported | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Can Move Backward in Log | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Freeze Log Supported | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Clear Log Supported | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Supports Addressing by Ordinal Record Number | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Variable Length Records Supported | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Variable Formats for Records | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Can Flag Records for Overwrite | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capabilities Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_MessageLog.Capabilities) | <p>An array of free-form strings that provides more detailed explanations for any of the log features indicated in the Capabilities array. Each entry of this array is related to the entry in the Capabilities array that is located at the same index.</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| Caption | String | MaxLen(64) | <p>A short textual description (one-line String) of the object.</p> | | | | | | | | | | | | | | | | | | | | | | | | |

Table 24. IBMTSSVC_MessageLog properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------------------|-------------|---|------|-----------|---|---------|---|-------|---|-------|---|---------|---|---------|---|---------|---|---------------------------------|---|-------|---|-------|---|----------------|----|-------------|----|-------------------------------|
| CharacterSet | Uint16 | | <p>An enumeration that describes the character set used to record data in the individual Log entries.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Other</td> </tr> <tr> <td>2</td> <td>ASCII</td> </tr> <tr> <td>3</td> <td>Unicode</td> </tr> <tr> <td>4</td> <td>ISO2022</td> </tr> <tr> <td>5</td> <td>ISO8859</td> </tr> <tr> <td>6</td> <td>Extended UNIX[®] Code</td> </tr> <tr> <td>7</td> <td>UTF-8</td> </tr> <tr> <td>8</td> <td>UCS-2</td> </tr> <tr> <td>9</td> <td>Bitmapped Data</td> </tr> <tr> <td>10</td> <td>OctetString</td> </tr> <tr> <td>11</td> <td>Defined by Individual Records</td> </tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | ASCII | 3 | Unicode | 4 | ISO2022 | 5 | ISO8859 | 6 | Extended UNIX [®] Code | 7 | UTF-8 | 8 | UCS-2 | 9 | Bitmapped Data | 10 | OctetString | 11 | Defined by Individual Records |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | ASCII | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Unicode | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | ISO2022 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | ISO8859 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Extended UNIX [®] Code | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | UTF-8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | UCS-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Bitmapped Data | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | OctetString | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Defined by Individual Records | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CreationClassName | String | MaxLen(256) | The name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CurrentNumberOfRecords | Uint64 | Gauge(TRUE) | The current number of entries (records) in the log. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description | String | | A textual description of the object. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ElementName | String | | 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. | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 24. IBMTSSVC_MessageLog properties (continued)

| Property | Type | Qualifier | Description |
|----------------|--------|---|---|
| EnabledDefault | Uint16 | Write(TRUE) | <p>An enumerated value that indicates an administrator's default/startup configuration for an element's EnabledStatus. By default, the element is "Enabled" (value=2).</p> <p>Code Semantics</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 No Default</p> <p>8..32767</p> <p>DMTF Reserved</p> <p>32768..65535</p> <p>Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.OtherEnabledState) | <p>An integer enumeration indicator.</p> <p>Code Semantics</p> <p>0 Unknown</p> <p>1 Other</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shutting Down</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 In Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10 Starting</p> <p>11..32767</p> <p>DMTF Reserved</p> <p>32768..65535</p> <p>Vendor Reserved</p> |
| HeaderFormat | String | | <p>If the SizeOfHeader property is non-zero, this property describes the structure and format of the log header. It is a free-form String. If the SizeOfHeader property is 0, then the information in this property is undefined.</p> |

Table 24. IBMTSSVC_MessageLog properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|----------|--------------|--|
| InstallDate | Datetime | | Indicates when the object was installed. A lack of a value does not indicate that the object is not installed. |
| IsFrozen | Boolean | | Indicates if the log is currently frozen and modifications are not allowed. |
| LastChange | Uint16 | | An enumeration that describes the last change to the MessageLog. Code Semantics 0 Unknown 1 Add 2 Delete 3 Modify 4 Log Cleared |
| MaxLogSize | Uint64 | Units(Bytes) | The maximum size, in bytes, to which the log can grow. If there is no maximum, then MaxLogSize is set to 0. |
| MaxNumberOfRecords | Uint64 | | The maximum number of records that can be captured in the log. If undefined, a value of 0 is specified. |
| MaxRecordSize | Uint64 | Units(Bytes) | The maximum size, in bytes, to which an individual log entry (record) can grow - if the Capabilities array includes a value of 7 ("Variable Length Records Supported"). If the Capabilities array does not include a 7, then the log only supports fixed length entries. |
| Name | String | MaxLen(256) | The inherited Name serves as part of the key (a unique identifier) for the MessageLog instance. |

Table 24. IBMTSSVC_MessageLog properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|----------------------------|---|---|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | <p>The current status of the element.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | <p>The element's enabled/disabled state when the EnabledState property is set to 1 ("Other"). This property <i>must</i> be set to NULL when EnabledState is any value other than 1.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherPolicy Description | String | ModelCorrespondence (CIM_MessageLog. OverwritePolicy) | <p>When the OverwritePolicy specifies a value of 1 ("Other"), the Log's behavior can be explained by this property. If OverwritePolicy is not 1, then this property's contents are undefined.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 24. IBMTSSVC_MessageLog properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | |
|---------------------|--------------------------------|--|--|-------------|------------------|---|---------|---|-------|---|-----------------|---|----------------------|---|--------------------------------|---|-------------------------|---|----------------------------|---|-----------------|
| OverwritePolicy | Uint16 | ModelCorrespondence (CIM_MessageLog.OtherPolicyDescription CIM_MessageLog.TimeWhen Outdated CIM_MessageLog.PercentageNearFull) | <p>An enumeration that describes the behavior of the log when it becomes full or near full.</p> <table border="0"> <tr> <td>Code</td> <td>Semantics</td> </tr> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Other</td> </tr> <tr> <td>2</td> <td>Wraps When Full</td> </tr> <tr> <td>3</td> <td>Clear When Near Full</td> </tr> <tr> <td>4</td> <td>Overwrite Outdated When Needed</td> </tr> <tr> <td>5</td> <td>Remove Outdated Records</td> </tr> <tr> <td>6</td> <td>Overwrite Specific Records</td> </tr> <tr> <td>7</td> <td>Never Overwrite</td> </tr> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | Wraps When Full | 3 | Clear When Near Full | 4 | Overwrite Outdated When Needed | 5 | Remove Outdated Records | 6 | Overwrite Specific Records | 7 | Never Overwrite |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | |
| 2 | Wraps When Full | | | | | | | | | | | | | | | | | | | | |
| 3 | Clear When Near Full | | | | | | | | | | | | | | | | | | | | |
| 4 | Overwrite Outdated When Needed | | | | | | | | | | | | | | | | | | | | |
| 5 | Remove Outdated Records | | | | | | | | | | | | | | | | | | | | |
| 6 | Overwrite Specific Records | | | | | | | | | | | | | | | | | | | | |
| 7 | Never Overwrite | | | | | | | | | | | | | | | | | | | | |
| PercentageNearFull | Uint8 | Units(Percent), ModelCorrespondence (CIM_MessageLog.OverwritePolicy) | If the OverwritePolicy is based on clearing records when the log is near full (value=3), this property defines the record capacity (in percentage) that is considered to be 'near full.' | | | | | | | | | | | | | | | | | | |
| RecordHeader Format | String | | If the SizeOfRecordHeader property is non-zero, this property describes the structure and format of the record headers. It is a free-form string. If the SizeOfRecordHeader property is 0, then the information in this property is undefined. | | | | | | | | | | | | | | | | | | |
| RecordLast Changed | Uint64 | | When a change is made to the log, the record number that was modified is captured. | | | | | | | | | | | | | | | | | | |

Table 24. IBMTSSVC_MessageLog properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|----------|--|--|
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | <p>An integer enumeration indicator. This property is provided to compare Requested and current Enabledstatus. The SAN Volume Controller does not evaluate this attribute so no action is taken when it is changed.</p> <p>Code Semantics</p> <p>2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| SizeOfHeader | Uint64 | Units(Bytes) | The size of the log header, in bytes. If there is no log header, then this property is set to 0. |
| SizeOfRecordHeader | Uint64 | Units(Bytes) | The size of the header for the log's individual entries, in bytes. If there are no record headers, then this property is set to 0. |
| Status | String | MaxLen(10), Deprecated(CIM_Managed SystemElement.Operational Status) | The current status of the object. This property is deprecated in lieu of OperationalStatus, which includes the same semantics in its enumeration. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.OperationalStatus) | Describes the status. Use when the OperationalStatus property is set to 1 ("Other"). |

Table 24. IBMTSSVC_MessageLog properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|----------|---|---|
| TimeOfLastChange | Datetime | | When a change is made to the log, the date/time of that modification is captured. This property can be used to event against any update to the MessageLog. |
| TimeOfLastState Change | Datetime | | This property is not supported. |
| TimeWhenOutdated | Datetime | ModelCorrespondence (CIM_MessageLog. OverwritePolicy) | If the OverwritePolicy is based on 'outdated' records (values 4 or 5), this property defines when a log entry is considered to be outdated, either by time interval or at a specific date and time. |

IBMTSSVC_MigrateVolumeJob

IBMTSSVC_MigrateVolumeJob class instances show the percentage of all four migration copy types in the "migrating" state.

Properties

A job instance is used to monitor asynchronous volume migration operations on the device. The IBMTSSVC_MigrateVolumeJob class has the properties shown in Table 25.

Table 25. IBMTSSVC_MigrateVolumeJob properties

| Property | Type | Qualifier | Description |
|--------------------|---------|--------------|---|
| InstanceID | String | | Opaquely identifies a unique instance of ConcreteJob. The InstanceID <i>must</i> be unique within a namespace. In order to ensure that the name is unique, the value of InstanceID must be constructed in the following manner: (Vendor ID)(ID) |
| Caption | String | MaxLen(64), | Unsupported property. |
| DeleteOnCompletion | Boolean | Write(TRUE), | Indicates if the job is automatically deleted after completion. If this property is set to false and the job completes, the extrinsic method DeleteInstance <i>must</i> be used to delete the job. |

Table 25. IBMTSSVC_MigrateVolumeJob properties (continued)

| Property | Type | Qualifier | Description |
|------------------|----------|---|---|
| Description | String | | A textual description of the object. |
| Elapsed Time | Datetime | | Unsupported property. |
| ElementName | String | | Unsupported property. |
| ErrorCode | Uint16 | Model Correspondence (CIM_Job.ErrorDescription) | Unsupported property. |
| ErrorDescription | String | Model Correspondence (CIM_Job.ErrorCode), | Unsupported property. |
| InstallDate | Datetime | | Unsupported property. |
| JobRunTimes | Uint32 | Write(TRUE), | |
| JobState | Uint16 | | An integer enumeration that indicates the operational state of a job. Code Semantics 2 New 3 Starting 4 Running 5 Suspended 6 Shutting Down 7 Completed 8 Terminated 9 Killed 10 Exception 11 Service 12..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| JobStatus | String | Model Correspondence (ManagedSystemElement) | Unsupported property. |
| LocalOrUtcTime | Uint16 | Write(TRUE), | Code Semantics 1 Local Time 2 UTC Time |
| MigrationType | String | | The type of volume migration operation. |
| Name | String | Required(TRUE), MaxLen(1024) | The user friendly name for this instance of the job. |
| Notify | String | Write(TRUE), | Unsupported property. |
| NumberOfExtents | String | | The number of extents. |

Table 25. IBMTSSVC_MigrateVolumeJob properties (continued)

| Property | Type | Qualifier | Description |
|---------------------|----------|--|---|
| OperationalStatus | Uint16[] | ArrayType(Indexed), Model Correspondence (CIM_Managed SystemElement) | The current status of the element. Various health and operational statuses are defined. Many of the enumeration's values are self-explanatory. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non- Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communi- cation 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode |
| OtherRecoveryAction | String | Model Correspondence (CIM_Job.Recovery Action) | The recovery action when the instance's RecoveryAction property is 1 ("Other"). |
| Owner | String | Model Correspondence (CIM_OwningJob Element) | Unsupported property. |
| PercentComplete | Uint16 | MaxValue(101), MinValue(0), Units(Percent), | The percentage of the job that is complete at the time of the request. |
| Priority | Uint32 | Write(TRUE), | Unsupported property. |

Table 25. IBMTSSVC_MigrateVolumeJob properties (continued)

| Property | Type | Qualifier | Description |
|----------------|--------|--|---|
| RecoveryAction | Uint16 | Model Correspondence (CIM_Job.Other RecoveryAction) | The recovery action for an unsuccessfully run job. A return code of "Other" indicates that the recovery action is specified in the OtherRecovery Action property. Code Semantics 0 Unknown 1 Other 2 Do Not Continue 3 Continue With Next Job 4 Re-run Job 5 Run Recovery Job |
| RunDay | Sint8 | Write(TRUE), MinValue(-31), MaxValue(31), Model Correspondence (CIM_Job.RunMonth CIM_Job.RunDay OfWeek CIM_Job.Run StartInterval) | |
| RunDayOfWeek | Sint8 | Write(TRUE), Model Correspondence (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunStart Interval) | Code Semantics -7 -Saturday -6 -Friday -5 -Thursday -4 -Wednesday -3 -Tuesday -2 -Monday -1 -Sunday 0 ExactDayOf Month 1 Sunday 2 Monday 3 Tuesday 4 Wednesday 5 Thursday 6 Friday 7 Saturday |

Table 25. IBMTSSVC_MigrateVolumeJob properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|-----------|---|---|------|-----------|---|---------|---|----------|---|-------|---|-------|---|-----|---|------|---|------|---|--------|---|-----------|---|---------|----|----------|----|----------|
| RunMonth | UInt8 | Write(TRUE), Model Correspondence (CIM_Job.RunDay CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval) | <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>January</td></tr> <tr><td>1</td><td>February</td></tr> <tr><td>2</td><td>March</td></tr> <tr><td>3</td><td>April</td></tr> <tr><td>4</td><td>May</td></tr> <tr><td>5</td><td>June</td></tr> <tr><td>6</td><td>July</td></tr> <tr><td>7</td><td>August</td></tr> <tr><td>8</td><td>September</td></tr> <tr><td>9</td><td>October</td></tr> <tr><td>10</td><td>November</td></tr> <tr><td>11</td><td>December</td></tr> </tbody> </table> | Code | Semantics | 0 | January | 1 | February | 2 | March | 3 | April | 4 | May | 5 | June | 6 | July | 7 | August | 8 | September | 9 | October | 10 | November | 11 | December |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | January | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | February | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | March | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | April | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | May | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | June | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | July | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | August | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | September | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | October | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | November | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | December | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RunStartInterval | Datetime | Write(TRUE), Model Correspondence (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ScheduledStartTime | Datetime | Deprecated (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval), Write(TRUE), | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SourceMDisk | String | | The ID of the source BackendVolume. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SourceMDiskgrp | String | | The ID of the source StoragePool. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SourceVDisk | String | | The ID of the source StorageVolume. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| StartTime | Datetime | | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Status | String | MaxLen(10), Deprecated(CIM_ ManagedSystem Element) | This property is deprecated in lieu of OperationalStatus. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| StatusDescriptions | String[] | ArrayType(Indexed), Model Correspondence (CIM_Managed SystemElement) | Describes the status. Use this property when the OperationalStatus property is set to 1 ("Other"). | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TargetMDisk | String | | The ID of the target BackendVolume. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TargetMDiskgrp | String | | The ID of the target Storagepool. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TargetVDisk | String | | The ID of the target StorageVolume. | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 25. IBMTSSVC_MigrateVolumeJob properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|----------|---|---|
| Threads | Uint16 | | The amount of threads used for the operation. |
| TimeOfLastState Change | Datetime | | Unsupported property. |
| TimeSubmitted | Datetime | | Unsupported property. |
| UntilTime | Datetime | Write(TRUE), Model Correspondence (CIM_Job.LocalOr UtcTime) | Unsupported property. |

IBMTSSVC_Node

The IBMTSSVC_Node class represents a single SAN Volume Controller node that is part of a cluster.

Properties

A cluster can contain up to eight nodes or four node pairs. The IBMTSSVC_Node class extends the CIM_ComputerSystem class and has the properties shown in Table 26.

Table 26. IBMTSSVC_Node properties

| Property | Type | Qualifier | Description |
|-------------------|--------|---|--|
| Caption | String | MaxLen(15), Write(TRUE), WriteRole(Administrator) | A short textual description (one-line string) of the object. |
| CreationClassName | String | MaxLen(256) | The name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |

Table 26. IBMTSSVC_Node properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|-----------------------|---|---|------|-----------|---|---------------|---|---------|---|-------|---|---------|---|--------|---|--------|---|----------------|---|-----------------------|---|-----|---|---------------|----|----------|----|-------|----|-----|----|-------------|----|------------|----|--------------|----|-------------|----|--------------------|----|----------|----|-----------------|----|---------|
| Dedicated | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem. OtherDedicatedDescriptions) | <p>An enumeration that indicates if the ComputerSystem is a special-purpose system (dedicated to a particular use) or a general purpose system. The SAN Volume Controller is a dedicated storage device and will return {3,15} ("Storage," "Block Server"). The following values are possible:</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Not Dedicated</td></tr> <tr><td>1</td><td>Unknown</td></tr> <tr><td>2</td><td>Other</td></tr> <tr><td>3</td><td>Storage</td></tr> <tr><td>4</td><td>Router</td></tr> <tr><td>5</td><td>Switch</td></tr> <tr><td>6</td><td>Layer 3 Switch</td></tr> <tr><td>7</td><td>Central Office Switch</td></tr> <tr><td>8</td><td>Hub</td></tr> <tr><td>9</td><td>Access Server</td></tr> <tr><td>10</td><td>Firewall</td></tr> <tr><td>11</td><td>Print</td></tr> <tr><td>12</td><td>I/O</td></tr> <tr><td>13</td><td>Web Caching</td></tr> <tr><td>14</td><td>Management</td></tr> <tr><td>15</td><td>Block Server</td></tr> <tr><td>16</td><td>File Server</td></tr> <tr><td>17</td><td>Mobile User Device</td></tr> <tr><td>18</td><td>Repeater</td></tr> <tr><td>19</td><td>Bridge/Extender</td></tr> <tr><td>20</td><td>Gateway</td></tr> </tbody> </table> | Code | Semantics | 0 | Not Dedicated | 1 | Unknown | 2 | Other | 3 | Storage | 4 | Router | 5 | Switch | 6 | Layer 3 Switch | 7 | Central Office Switch | 8 | Hub | 9 | Access Server | 10 | Firewall | 11 | Print | 12 | I/O | 13 | Web Caching | 14 | Management | 15 | Block Server | 16 | File Server | 17 | Mobile User Device | 18 | Repeater | 19 | Bridge/Extender | 20 | Gateway |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Not Dedicated | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Storage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Router | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Layer 3 Switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Central Office Switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Hub | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Access Server | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Firewall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Print | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | I/O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Web Caching | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Management | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Block Server | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | File Server | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Mobile User Device | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Repeater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Bridge/Extender | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Gateway | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description | String | | A textual description of the object. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ElementName | String | MaxLen(15), Write(TRUE), WriteRole(Administrator) | The node's user-friendly name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 26. IBMTSSVC_Node properties (continued)

| Property | Type | Qualifier | Description |
|----------------|--------|---|---|
| EnabledDefault | Uint16 | Write(TRUE) | <p>An enumerated value that indicates an administrator's default/startup configuration for an element's EnabledStatus. By default, the element is "Enabled" (value=2).</p> <p>Code Semantics</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 No Default</p> <p>8..32767 DMTF Reserved</p> <p>32768..65535 Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.OtherEnabledState) | <p>An integer enumeration indicator.</p> <p>Code Semantics</p> <p>0 Unknown</p> <p>1 Other</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shutting Down</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 In Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10 Starting</p> <p>11..32767 DMTF Reserved</p> <p>32768..65535 Vendor Reserved</p> |
| HardwareType | String | MaxLen(256) | The hardware type for this node. |

Table 26. IBMTSSVC_Node properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | |
|--------------------------|-----------|---|---|------|-----------|---|---------|---|--------|---|---------|---|--------|---|----------|---|----------|
| Identifying Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem.OtherIdentifyingInfo) | An array of free-form strings that provide explanations and details behind the entries in the OtherIdentifyingInfo array. Each entry of this array is related to the entry in OtherIdentifyingInfo that is located at the same index. | | | | | | | | | | | | | | |
| InstallDate | Datetime | | This property is not supported. | | | | | | | | | | | | | | |
| IsConfigNode | Boolean | | Indicates if this node is the config node of its cluster. When true, the node is the config node of its cluster. | | | | | | | | | | | | | | |
| Name | String | MaxLen(256) | The label by which the object is known. Format: cluster_ip:object_id | | | | | | | | | | | | | | |
| NameFormat | String | MaxLen(64) | Identifies how the ComputerSystem Name is generated. The SAN Volume Controller returns the node's id as Name, therefore this attribute is set to "Other." | | | | | | | | | | | | | | |
| NativeStatus | Uint16 | | The native operational status for the node. The following values are possible: <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Offline</td> </tr> <tr> <td>1</td> <td>Online</td> </tr> <tr> <td>2</td> <td>Pending</td> </tr> <tr> <td>3</td> <td>Adding</td> </tr> <tr> <td>4</td> <td>Deleting</td> </tr> <tr> <td>5</td> <td>Flushing</td> </tr> </tbody> </table> | Code | Semantics | 0 | Offline | 1 | Online | 2 | Pending | 3 | Adding | 4 | Deleting | 5 | Flushing |
| Code | Semantics | | | | | | | | | | | | | | | | |
| 0 | Offline | | | | | | | | | | | | | | | | |
| 1 | Online | | | | | | | | | | | | | | | | |
| 2 | Pending | | | | | | | | | | | | | | | | |
| 3 | Adding | | | | | | | | | | | | | | | | |
| 4 | Deleting | | | | | | | | | | | | | | | | |
| 5 | Flushing | | | | | | | | | | | | | | | | |

Table 26. IBMTSSVC_Node properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|----------------------------|--|---|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|----|----------|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | The operational status of the node. The following values are possible: <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> <tr><td>19</td><td>Flushing</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode | 19 | Flushing |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Flushing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherDedicated Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem. Dedicated) | Describes how or why the system is dedicated when the Dedicated array includes the value 2, ("Other"). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | The element's enabled/disabled state when the EnabledState property is set to 1 ("Other"). This property <i>must</i> be set to NULL when EnabledState is any value other than 1. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherIdentifyingInfo | String[] | MaxLen(256), ArrayType(Indexed), ModelCorrespondence (CIM_ComputerSystem. IdentifyingDescriptions), Expensive(TRUE) | The node's "Redundancy Group ID," "RedundancyGroup Name," "Partner Node Name," "Partner Node ID" and "WWWN." | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PortSpeeds | String[] | | The speed of each node port. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 26. IBMTSSVC_Node properties (continued)

| Property | Type | Qualifier | Description |
|------------------------------|----------|--|---|
| PowerManagement Capabilities | Uint16[] | Deprecated (CIM_PowerManagement Capabilities.PowerCapabilities) | <p>An enumerated array that describes the power management capabilities of the ComputerSystem. The use of this property is deprecated. Instead, the PowerCapabilites property in an associated PowerManagement Capabilities class must be used.</p> <p>Code Semantics</p> <p>0 Unknown</p> <p>1 Not Supported</p> <p>2 Disabled</p> <p>3 Enabled</p> <p>4 Power Saving Modes Entered Automatically</p> <p>5 Power State Settable</p> <p>6 Power Cycling Supported</p> <p>7 Timed Power On Supported</p> |
| PrimaryOwner Contact | String | MaxLen(256), Write(TRUE), | This property is not supported. |
| PrimaryOwner Name | String | MaxLen(64), Write(TRUE), | This property is not supported. |
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | <p>An integer enumeration indicator. The SAN Volume Controller does not evaluate this attribute so no action is taken when it is changed.</p> <p>Code Semantics</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shut Down</p> <p>5 No Change</p> <p>6 Offline</p> <p>7 Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10..32767 DMTF Reserved</p> <p>32768..65535 Vendor Reserved</p> |

Table 26. IBMTSSVC_Node properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|----------|--|---|
| ResetCapability | Uint16 | | If enabled (value = 4), the ComputerSystem can be reset through hardware (the power and reset buttons). If disabled (value = 3), hardware reset is not allowed. Code Semantics 1 Other 2 Unknown 3 Disabled 4 Enabled 5 Not Implemented |
| Roles | String[] | Write(TRUE) | This property is not supported. |
| Status | String | MaxLen(10), Deprecated(CIM_ManagedSystemElement. OperationalStatus) | Deprecated property - set to "Unknown." Look at OperationalStatus for status information. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement. OperationalStatus) | Describes the status. Use when the OperationalStatus property is set to 1 ("Other"). |
| TimeOfLastStateChange | Datetime | | This property is not supported. |
| UPSSerialNumber | String | MaxLen(256) | The serial number of the uninterruptible power supply for this node. |
| UPSUniqueID | String | MaxLen(256) | The unique identifier of the uninterruptible power supply for this node. |

IBMTSSVC_NodeVPD

The IBMTSSVC_NodeVPD class contains the vital product data (VPD) of the corresponding SAN Volume Controller IBMTSSVC_Node instance.

Properties

The IBMTSSVC_NodeVPD class extends the CIM_SettingData class and has the properties shown in Table 27.

Table 27. IBMTSSVC_NodeVPD properties

| Property | Type | Qualifier | Description |
|-------------|--------|------------|--------------------------------------|
| Caption | String | MaxLen(64) | This property is not supported. |
| Description | String | | A textual description of the object. |

Table 27. IBMTSSVC_NodeVPD properties (continued)

| Property | Type | Qualifier | Description |
|--------------|----------|----------------|--|
| ElementName | String | Required(TRUE) | This property is not supported. |
| EthernetIP | String | | The ethernet IP of the node. |
| FrontPanelID | String | | The front panel ID of the node. |
| InstanceID | String | Key | Opaquely identifies a unique instance of SettingData. The InstanceID property <i>must</i> be unique within a namespace. To ensure this, the value of the InstanceID property must be constructed in the following manner: (Vendor ID)(ID). |
| NodeVPD | String[] | | The MAC address of the node. |

IBMTSSVC_PrimordialStoragePool

The IBMTSSVC_PrimordialStoragePool class extends the CIM_StoragePool class.

Properties

The IBMTSSVC_PrimordialStoragePool class has the properties shown in Table 28.

Table 28. IBMTSSVC_PrimordialStoragePool properties

| Property | Type | Qualifier | Description |
|-------------|----------|--------------|--|
| Caption | String | MaxLen(15) | A short textual description (one-line string) of the object. |
| Description | String | | A textual description of the object. |
| ElementName | String | MaxLen(15) | The pool's user-friendly name. |
| InstallDate | Datetime | | Unsupported property. |
| InstanceID | String | | The label by which the object is known. Format: cluster_ip:P:object_id |
| Name | String | MaxLen(1024) | The pool's globally unique id. The ID format is (Vendor)(id), in case of SAN Volume Controller IBMTSSVC(id). |

Table 28. IBMTSSVC_PrimordialStoragePool properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|----------------------------|---|--|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | <p>Unsupported property. Always reported as "Unknown."</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PoolID | String | Required(TRUE), MaxLen(256) | This is numeric and only unique in terms of the hosting SAN Volume Controller cluster. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 28. IBMTSSVC_PrimordialStoragePool properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|----------|--|--|
| Primordial | Boolean | | If true, "Primordial" indicates that the containing system does not have the ability to create or delete this operational element. Higher-level StoragePools may be assembled using the Component or AllocatedFromStorage Pool associations. Although the higher-level abstractions can be created and deleted, the most basic (primordial) hardware-based StoragePools cannot. These StoragePools are physically realized as part of the system, or are actually managed by some other system and imported as if they were physically realized. |
| RemainingManagedSpace | UInt64 | Units(Bytes), ModelCorrespondence (StoragePool.TotalManagedSpace - AllocatedFromStoragePool.SpaceConsumed), Required(TRUE) | The remaining amount of raw storage (in bytes) from the TotalManagedSpace of this StoragePool. |
| Status | String | MaxLen(10), Deprecated(CIM_ManagedSystemElement.OperationalStatus) | Deprecated property - set to "Unknown." Look to OperationalStatus for status information |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.OperationalStatus) | Describes the status. Use when the OperationalStatus property is set to 1 ("Other"). |
| TotalManagedSpace | UInt64 | Units(Bytes), ModelCorrespondence (StoragePool.RemainingManagedSpace) | The total amount of raw storage (in bytes) managed by this StoragePool. |

IBMTSSVC_Privilege

IBMTSSVC_Privilege class extends the CIM_AuthorizedPrivilege class.

Properties

The IBMTSSVC_Privilege class has the properties shown in Table 29.

Table 29. IBMTSSVC_Privilege properties

| Property | Type | Qualifier | Description |
|--------------------|----------|---|--|
| Activities | UInt16[] | ModelCorrespondence (CIM_Privilege.ActivityQualifiers), ArrayType(Indexed) | An array of string values that indicate the activities that are granted or denied. These activities apply to all entities specified in the ActivityQualifiers array. Code Semantics 0 Unknown 1 Other 2 Create 3 Delete 4 Read 5 Write 6 Execute 7.. DMTF Reserved |
| ActivityQualifiers | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_Privilege.Activities CIM_Privilege.QualifierFormats) | Unsupported property. |
| Caption | String | MaxLen(64) | Unsupported property. |
| Description | String | | A textual description of the object. |
| ElementName | String | | Unsupported property. |
| InstanceID | String | | Opaquely identifies a unique instance of Privilege. The InstanceID <i>must</i> be unique within a namespace. To ensure this, the value of InstanceID <i>must</i> be constructed in the following manner: (Vendor/Admin ID):(ID) (Vendor/Admin ID) <i>must</i> include a copyrighted, trademarked or otherwise unique name that is owned by the business entity, or a registered ID. |
| PrivilegeGranted | Boolean | | Indicates if this Privilege grants (<i>true</i>) or denies (<i>false</i>) permission. The default is to grant permission. |

Table 29. IBMTSSVC_Privilege properties (continued)

| Property | Type | Qualifier | Description |
|------------------|----------|--|---|
| QualifierFormats | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_Privilege.Activity Qualifiers) | Unsupported property. Code Semantics 2 Class Name 3 <Class.> Property 4 <Class.> Method 5 Object Reference 6 Namespace 7 URL 8 Directory/File Name 9 Command Line Instruction ..15999 DMTF Reserved 16000.. Vendor Reserved |

IBMTSSVC_Product

The IBMTSSVC_Product class extends the CIM_Product class.

Properties

The IBMTSSVC_Product class represents a SAN Volume Controller unit and contains the ordering and version information. The Product instance aggregates the PhysicalElements, software, services and other components of the SAN Volume Controller.

The IBMTSSVC_Product class has the properties shown in Table 30.

Table 30. IBMTSSVC_Product properties

| Property | Type | Qualifier | Description |
|-------------------|--------|------------|---|
| Caption | String | MaxLen(64) | A short (one-line string) textual description of the object. |
| Description | String | | A textual description of the object. |
| ElementName | String | | The name of the Product. |
| IdentifyingNumber | String | MaxLen(64) | The Product identification, such as a serial number on software, a die-number on a hardware chip, or (for noncommercial Products) a project number. |

Table 30. IBMTSSVC_Product properties (continued)

| Property | Type | Qualifier | Description |
|-------------------|----------|---|--|
| Name | String | MaxLen(256), ModelCorrespondence (CIM.DMTFIPRS_Product. ProductName) | The Product name. |
| SKUNumber | String | MaxLen(64) | Unsupported property. |
| Vendor | String | MaxLen(256), ModelCorrespondence (CIM.DMTFIPRS_ Product.Vendor) | The name of the supplier, manufacturer, or reseller of the Product. Corresponds to the Vendor property in the Product object in the DMTF Solution Exchange Standard. |
| Version | String | MaxLen(64), ModelCorrespondence (CIM.DMTFIPRS_ Product.Version) | The version of the PhysicalElement. |
| WarrantyDuration | Uint32 | Units(Days), ModelCorrespondence (CIM_Product.Warranty StartDate) | Unsupported property. |
| WarrantyStartDate | Datetime | ModelCorrespondence (CIM_Product.Warranty Duration) | Unsupported property. |

IBMTSSVC_Provider

The IBMTSSVC_Provider class extends the CIM_Provider class.

Properties

The IBMTSSVC_Provider class has the properties shown in Table 31.

Table 31. IBMTSSVC_Provider properties

| Property | Type | Qualifier | Description |
|-------------------|--------|----------------------------|--|
| Caption | String | MaxLen(64), ReadRole(None) | A short textual description (one-line string) of the object. |
| CreationClassName | String | MaxLen(256) | The name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |
| Description | String | ReadRole(None) | A textual description of the object. |

Table 31. IBMTSSVC_Provider properties (continued)

| Property | Type | Qualifier | Description |
|----------------|----------|--|---|
| ElementName | String | ReadRole(None) | 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. |
| EnabledDefault | Uint16 | Write(TRUE) | An enumerated value that indicates an administrator's default/startup configuration for an element's EnabledStatus. By default, the element is "Enabled" (value=2). Code Semantics 2 Enabled 3 Disabled 5 Not Applicable 6 Enabled but Offline 7 No Default 8..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.OtherEnabledState) | An integer enumeration indicator. Code Semantics 0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 Not Applicable 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| Handle | String | Required(TRUE) | An implementation-specific string that identifies the handle to the provider. |
| InstallDate | Datetime | | Unsupported property. |

Table 31. IBMTSSVC_Provider properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|----------------------------|--|---|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| Name | String | MaxLen(256) | A user-friendly name that uniquely identifies the provider within a system. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | <p>The operational status of the service.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherEnabled State | String | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | <p>The element's enabled/disabled state when the EnabledStatus property is set to 1 ("Other"). This property <i>must</i> be set to NULL when EnabledStatus is any value other than 1.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PrimaryOwner Contact | String | MaxLen(256), Write(TRUE) | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PrimaryOwner Name | String | MaxLen(64), Write(TRUE) | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 31. IBMTSSVC_Provider properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------|----------|--|--|
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.EnabledState) | An integer enumeration indicator. Code Semantics 2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| Started | Boolean | | Indicates if this service is started. |
| StartMode | String | MaxLen(10), Deprecated (CIM_Service.EnabledDefault) | Indicates if this service is started manually or automatically. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement.OperationalStatus) | Deprecated property - set to "Unknown." Look at OperationalStatus for status information. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.OperationalStatus) | Describes the status. Use when the OperationalStatus property is set to 1 ("Other"). |
| SystemCreationClassName | String | Propagated (CIM_System.CreationClassName), MaxLen(256) | The scoping system's creation class name. |
| SystemName | String | Propagated (CIM_System.Name), MaxLen(256) | The scoping system's name. |
| TimeOfLastStateChange | Datetime | | Unsupported property. |

IBMTSSVC_RegisteredProfile

The IBMTSSVC_RegisteredProfile class represents a SAN Volume Controller unit and contains the ordering and version information.

Properties

The Product instance aggregates the PhysicalElements, software, services and other components of the SAN Volume Controller.

A RegisteredProfile describes a set of Common Information Model (CIM) Schema classes with required properties and/or methods, necessary to manage a real-world

entity or to support a usage scenario, in an interoperable fashion. RegisteredProfiles can be defined by the Distributed Management Task Force (DMTF) or other standards organizations.

Note: This class should not be confused with CIM_Profile, which collects SettingData instances to be applied as a "configuration profile" for an element.

The IBMTSSVC_RegisteredProfile class extends the CIM_RegisteredProfile class and has the properties shown in Table 32.

Table 32. IBMTSSVC_RegisteredProfile properties

| Property | Type | Qualifier | Description |
|----------------------------|----------|---|---|
| AdvertiseType Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_RegisteredProfile.AdvertiseTypes) | A free-form string that provides additional information related to the AdvertiseType. A description <i>must</i> be provided when the AdvertiseType is 1 ("Other"). |
| AdvertiseTypes | Uint16[] | Required(TRUE), ArrayType(Indexed), ModelCorrespondence (CIM_RegisteredProfile.AdvertiseTypeDescriptions) | Signifies the advertisement for the profile information. It is used by the advertising services of the WBEM infrastructure to determine what should be advertised and what types of mechanisms should be used. The property is an array so that the profile may be advertised using several mechanisms. Note: If this property is null/uninitialized, this is equivalent to specifying the value 2, "Not Advertised." Code Semantics 1 Other 2 Not Advertised 3 SLP |
| Caption | String | MaxLen(64) | A short textual description (one-line string) of the object. |
| Description | String | | A textual description of the object. |

Table 32. IBMTSSVC_RegisteredProfile properties (continued)

| Property | Type | Qualifier | Description |
|------------------------------|--------|---|---|
| ElementName | String | | 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. |
| InstanceID | String | | Opaquely and uniquely identifies an instance of this class. In order to ensure this, the value of InstanceID <i>must</i> be constructed using the following 'preferred' algorithm: <OrgID>:<LocalID> Where <OrgID> and <LocalID> are separated by a colon ':', and where <OrgID> <i>must</i> include a copyrighted, trademarked or otherwise unique name that is owned by the business entity creating/defining the InstanceID, or is a registered ID that is assigned to the business entity by a recognized global authority. |
| OtherRegistered Organization | String | MaxLen(256), ModelCorrespondence (CIM_RegisteredProfile.RegisteredOrganization) | A free-form string that provides a description of the organization when 1, "Other," is specified for the Registered Organization. |
| RegisteredName | String | Required(TRUE), MaxLen(256) | A string to identify this RegisteredProfile. It is the responsibility of the defining organization to ensure that the profile's name is unique within the scope of the organization. |

Table 32. IBMTSSVC_RegisteredProfile properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|--------------------------------------|---|--|------|-----------|---|-------|---|------|---|---------|---|-----------------------------------|---|------|---|-----|---|-------|---|-------|---|-----|----|--------------------------------------|----|------|----|----------|----|----------------|----|------|----|------|----|------|----|--------|----|-----|----|-----|
| Registered Organization | Uint16 | Required(TRUE), ModelCorrespondence (CIM_RegisteredProfile. OtherRegisteredOrganization) | <p>The organization that defines this profile.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>DMTF</td></tr> <tr><td>3</td><td>CompTIA</td></tr> <tr><td>4</td><td>Consortium for Service Innovation</td></tr> <tr><td>5</td><td>FAST</td></tr> <tr><td>6</td><td>GGF</td></tr> <tr><td>7</td><td>INTAP</td></tr> <tr><td>8</td><td>itSMF</td></tr> <tr><td>9</td><td>NAC</td></tr> <tr><td>10</td><td>Northwest Energy Efficiency Alliance</td></tr> <tr><td>11</td><td>SNIA</td></tr> <tr><td>12</td><td>TM Forum</td></tr> <tr><td>13</td><td>The Open Group</td></tr> <tr><td>14</td><td>ANSI</td></tr> <tr><td>15</td><td>IEEE</td></tr> <tr><td>16</td><td>IETF</td></tr> <tr><td>17</td><td>INCITS</td></tr> <tr><td>18</td><td>ISO</td></tr> <tr><td>19</td><td>W3C</td></tr> </tbody> </table> | Code | Semantics | 1 | Other | 2 | DMTF | 3 | CompTIA | 4 | Consortium for Service Innovation | 5 | FAST | 6 | GGF | 7 | INTAP | 8 | itSMF | 9 | NAC | 10 | Northwest Energy Efficiency Alliance | 11 | SNIA | 12 | TM Forum | 13 | The Open Group | 14 | ANSI | 15 | IEEE | 16 | IETF | 17 | INCITS | 18 | ISO | 19 | W3C |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | DMTF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | CompTIA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Consortium for Service Innovation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | FAST | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | GGF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | INTAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | itSMF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | NAC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Northwest Energy Efficiency Alliance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | SNIA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | TM Forum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | The Open Group | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | ANSI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | IEEE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | IETF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | INCITS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | ISO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | W3C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Registered Version | String | Required(TRUE) | <p>The version of this profile. The String representing the version <i>must</i> be in the form: M + "." + N + "." + U</p> <p>Where: M stands for the major version (in numeric form) that describes the profile's creation or last modification.</p> <p>N stands for the minor version (in numeric form) that describes the profile's creation or last modification.</p> <p>U stands for the update (e.g. errata, patch, ..., in numeric form) that describes the profile's creation or last modification.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

IBMTSSVC_RegisteredSubProfile

The IBMTSSVC_RegisteredProfile class extends the CIM_RegisteredSubProfile class.

Properties

A RegisteredSubProfile subclasses RegisteredProfile to indicate that a scoping profile is required to provide context. The latter is specified by the mandatory association, SubProfileRequiresProfile.

The IBMTSSVC_RegisteredProfile class has the properties shown in Table 33.

Table 33. IBMTSSVC_RegisteredSubProfile properties

| Property | Type | Qualifier | Description |
|-------------------------------|----------|--|---|
| AdvertiseType Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_RegisteredProfile. AdvertiseTypes) | A free-form string that provides additional information related to the AdvertiseType. A description <i>must</i> be provided when the AdvertiseType is 1 ("Other"). |
| AdvertiseTypes | Uint16[] | Required(TRUE), ArrayType(Indexed), ModelCorrespondence (CIM_RegisteredProfile. AdvertiseTypeDescriptions) | Signifies the advertisement for the profile information. It is used by the advertising services of the WBEM infrastructure to determine what <i>must</i> be advertised and what type of mechanisms can be used. Code Semantics 1 Other 2 Not Advertised 3 SLP |
| Caption | String | MaxLen(64) | A short textual description (one-line string) of the object. |
| Description | String | | A textual description of the object. |
| ElementName | String | | A user-friendly name for the object. |

Table 33. IBMTSSVC_RegisteredSubProfile properties (continued)

| Property | Type | Qualifier | Description |
|------------------------------|--------|--|--|
| InstanceID | String | | <p>Opaquely and uniquely identifies an instance of this class. In order to ensure this, the value of InstanceID must be constructed using the following 'preferred' algorithm: <OrgID>:<LocalID></p> <p>Where <OrgID> and <LocalID> are separated by a colon ':', and where <OrgID> <i>must</i> include a copyrighted, trademarked or otherwise unique name that is owned by the business entity creating/defining the InstanceID, or is a registered ID that is assigned to the business entity by a recognized global authority.</p> |
| OtherRegistered Organization | String | MaxLen(256), ModelCorrespondence (CIM_RegisteredProfile. RegisteredOrganization) | A free-form string that provides a description of the organization when 1 ("Other,") is specified for the Registered Organization. |
| RegisteredName | String | Required(TRUE), MaxLen(256) | A string to identify this RegisteredProfile. |

Table 33. IBMTSSVC_RegisteredSubProfile properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|--------------------------------------|---|--|------|-----------|---|-------|---|------|---|---------|---|-----------------------------------|---|------|---|-----|---|-------|---|-------|---|-----|----|--------------------------------------|----|------|----|----------|----|----------------|----|------|----|------|----|------|----|--------|----|-----|----|-----|
| Registered Organization | Uint16 | Required(TRUE), ModelCorrespondence (CIM_RegisteredProfile. OtherRegisteredOrganization) | <p>The organization that defines this profile.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>DMTF</td></tr> <tr><td>3</td><td>CompTIA</td></tr> <tr><td>4</td><td>Consortium for Service Innovation</td></tr> <tr><td>5</td><td>FAST</td></tr> <tr><td>6</td><td>GGF</td></tr> <tr><td>7</td><td>INTAP</td></tr> <tr><td>8</td><td>itSMF</td></tr> <tr><td>9</td><td>NAC</td></tr> <tr><td>10</td><td>Northwest Energy Efficiency Alliance</td></tr> <tr><td>11</td><td>SNIA</td></tr> <tr><td>12</td><td>TM Forum</td></tr> <tr><td>13</td><td>The Open Group</td></tr> <tr><td>14</td><td>ANSI</td></tr> <tr><td>15</td><td>IEEE</td></tr> <tr><td>16</td><td>IETF</td></tr> <tr><td>17</td><td>INCITS</td></tr> <tr><td>18</td><td>ISO</td></tr> <tr><td>19</td><td>W3C</td></tr> </tbody> </table> | Code | Semantics | 1 | Other | 2 | DMTF | 3 | CompTIA | 4 | Consortium for Service Innovation | 5 | FAST | 6 | GGF | 7 | INTAP | 8 | itSMF | 9 | NAC | 10 | Northwest Energy Efficiency Alliance | 11 | SNIA | 12 | TM Forum | 13 | The Open Group | 14 | ANSI | 15 | IEEE | 16 | IETF | 17 | INCITS | 18 | ISO | 19 | W3C |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | DMTF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | CompTIA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Consortium for Service Innovation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | FAST | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | GGF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | INTAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | itSMF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | NAC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 11 | SNIA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | TM Forum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | The Open Group | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | ANSI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | IEEE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 17 | INCITS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | ISO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | W3C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RegisteredVersion | String | Required(TRUE) | <p>The version of this profile. The string representing the version <i>must</i> be in the form: M + "." + N + "." + U</p> <p>Where: M stands for the major version (in numeric form) that describes the profile's creation or last modification.</p> <p>N stands for the minor version (in numeric form) that describes the profile's creation or last modification.</p> <p>U stands for the update (e.g. errata, patch, ..., in numeric form) that describes the profile's creation or last modification.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

IBMTSSVC_RemoteCluster

The IBMTSSVC_RemoteCluster class represents a separate SAN Volume Controller cluster connected through the fibre-channel network to the local cluster on which a synchronous copy partnership has been established.

Properties

The IBMTSSVC_RemoteCluster class extends the IBMTSSVC_AbstractCluster class and has the properties shown in Table 34:

Table 34. IBMTSSVC_RemoteCluster properties

| Property | Type | Qualifier | Description |
|-------------|----------|-------------|--|
| Caption | String | MaxLen(64) | A short (one-line string) textual description of the object. |
| Description | String | | A textual description of the object. |
| ElementName | String | | The name of the cluster. |
| InstallDate | Datetime | | Indicates when the object was installed. A lack of a value does not indicate that the object is not installed. |
| IP | String | | The IP address of the remote cluster. |
| Name | String | MaxLen(256) | The label for the new object |

Table 34. IBMTSSVC_RemoteCluster properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|----------|---|---|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | The current status of the element. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode .. DMTF Reserved 0x8000.. Vendor Reserved |
| Partnership Bandwidth | String | | The bandwidth used for this partnership. |
| PartnershipStatus | String | | The status of the remote cluster partnership. Can be either "Fully_Configured," "Partly_Configured," or "Offline." |
| ServiceIP | String | | The service IP address of the remote cluster. |
| Status | String | Deprecated (CIM_ManagedSystem Element.OperationalStatus), MaxLen(10) | The current status of the object. This property is deprecated in lieu of OperationalStatus, which includes the same semantics in its enumeration. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.OperationalStatus) | Describes the various OperationalStatus array values. |

Table 34. IBMTSSVC_RemoteCluster properties (continued)

| Property | Type | Qualifier | Description |
|------------|--------|-------------|---|
| SystemName | String | MaxLen(256) | The label by which the object is known. |

IBMTSSVC_RemoteServiceAccessPoint

RemoteServiceAccessPoint describes access and/or addressing information for a remote connection, that is known to a local network element.

Properties

The IBMTSSVC_RemoteServiceAccessPoint class extends the CIM_RemoteServiceAccessPoint class and has the properties shown in Table 35.

Table 35. IBMTSSVC_RemoteServiceAccessPoint properties

| Property | Type | Qualifier | Description |
|--------------------|--------|--|--|
| AccessInfo | String | ModelCorrespondence (CIM_RemoteServiceAccessPoint.InfoFormat) | Access and/or addressing information for a remote connection. This can be a host name, network address or similar information. |
| Caption | String | MaxLen(64) | A short textual description (one- line string) of the object. |
| ConsoleIP | String | Expensive(TRUE) | The IP address of the management console. |
| ConsolePort | String | Expensive(TRUE) | The port address of the management console. |
| CreationClass Name | String | MaxLen(256) | The name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |
| Description | String | | A textual description of the object. |
| ElementName | String | | 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. |

Table 35. IBMTSSVC_RemoteServiceAccessPoint properties (continued)

| Property | Type | Qualifier | Description |
|----------------|--------|---|--|
| EnabledDefault | Uint16 | Write(TRUE) | <p>An enumerated value that indicates an administrator's default/startup configuration for an element's Enabled State. By default, the element is "Enabled" (value=2).</p> <p>Code Semantics</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 No Default</p> <p>8..32767</p> <p>DMTF Reserved</p> <p>32768..65535</p> <p>Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.OtherEnabledState) | <p>An integer enumeration that indicates the enabled/disabled states of an element.</p> <p>Code Semantics</p> <p>0 Unknown</p> <p>1 Other</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shutting Down</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 In Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10 Starting</p> <p>11..32767</p> <p>DMTF Reserved</p> <p>32768..65535</p> <p>Vendor Reserved</p> |

Table 35. IBMTSSVC_RemoteServiceAccessPoint properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|--------------------------|--|--|------|-----------|---|-------|---|-----------|---|--------------|---|--------------|---|-------------|---|----------------|---|-------------|---|--------------------------|---|------------|----|---------------------|----|---------------------|----|--------------------|----|--------------------|-----|-------------|-----|------------------|-----|--------------------|-----|-------------|-----|---------------------|-----|-----|-----|------|-----|-----------|-----|-------------|-----|-------------|-----|--------|----|---------------|--------------|-----------------|
| InfoFormat | Uint16 | ModelCorrespondence (CIM_RemoteService AccessPoint.Other InfoFormatDescription) | <p>An enumerated integer that describes the format and interpretation of the AccessInfo property.</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>Host Name</td></tr> <tr><td>3</td><td>IPv4 Address</td></tr> <tr><td>4</td><td>IPv6 Address</td></tr> <tr><td>5</td><td>IPX Address</td></tr> <tr><td>6</td><td>DECnet Address</td></tr> <tr><td>7</td><td>SNA Address</td></tr> <tr><td>8</td><td>Autonomous System Number</td></tr> <tr><td>9</td><td>MPLS Label</td></tr> <tr><td>10</td><td>IPv4 Subnet Address</td></tr> <tr><td>11</td><td>IPv6 Subnet Address</td></tr> <tr><td>12</td><td>IPv4 Address Range</td></tr> <tr><td>13</td><td>IPv6 Address Range</td></tr> <tr><td>100</td><td>Dial String</td></tr> <tr><td>101</td><td>Ethernet Address</td></tr> <tr><td>102</td><td>Token Ring Address</td></tr> <tr><td>103</td><td>ATM Address</td></tr> <tr><td>104</td><td>Frame Relay Address</td></tr> <tr><td>200</td><td>URL</td></tr> <tr><td>201</td><td>FQDN</td></tr> <tr><td>202</td><td>User FQDN</td></tr> <tr><td>203</td><td>DER ASN1 DN</td></tr> <tr><td>204</td><td>DER ASN1 GN</td></tr> <tr><td>205</td><td>Key ID</td></tr> <tr><td>..</td><td>DMTF Reserved</td></tr> <tr><td>32768..65535</td><td>Vendor Reserved</td></tr> </tbody> </table> | Code | Semantics | 1 | Other | 2 | Host Name | 3 | IPv4 Address | 4 | IPv6 Address | 5 | IPX Address | 6 | DECnet Address | 7 | SNA Address | 8 | Autonomous System Number | 9 | MPLS Label | 10 | IPv4 Subnet Address | 11 | IPv6 Subnet Address | 12 | IPv4 Address Range | 13 | IPv6 Address Range | 100 | Dial String | 101 | Ethernet Address | 102 | Token Ring Address | 103 | ATM Address | 104 | Frame Relay Address | 200 | URL | 201 | FQDN | 202 | User FQDN | 203 | DER ASN1 DN | 204 | DER ASN1 GN | 205 | Key ID | .. | DMTF Reserved | 32768..65535 | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Host Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | IPv4 Address | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | IPv6 Address | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | IPX Address | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | DECnet Address | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | SNA Address | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Autonomous System Number | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | MPLS Label | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | IPv4 Subnet Address | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | IPv6 Subnet Address | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | IPv4 Address Range | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | IPv6 Address Range | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | Dial String | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 101 | Ethernet Address | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 102 | Token Ring Address | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 103 | ATM Address | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 104 | Frame Relay Address | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | URL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 201 | FQDN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 202 | User FQDN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 203 | DER ASN1 DN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 204 | DER ASN1 GN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 205 | Key ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| .. | DMTF Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32768..65535 | Vendor Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| InstallDate | Datetime | | Indicates when the object was installed. A lack of a value does not indicate that the object is not installed. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 35. IBMTSSVC_RemoteServiceAccessPoint properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|----------------------------|---|---|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|----|---------------|----------|-----------------|
| Name | String | MaxLen(256) | Uniquely identifies the ServiceAccess Point and provides an indication of the functionality that is managed. This functionality is described in more detail in the object's Description property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.StatusDescriptions) | <p>The current status of the element.</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> <tr><td>..</td><td>DMTF Reserved</td></tr> <tr><td>0x8000..</td><td>Vendor Reserved</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode | .. | DMTF Reserved | 0x8000.. | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| .. | DMTF Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0x8000.. | Vendor Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherEnabled State | String | ModelCorrespondence (CIM_EnabledLogicalElement.EnabledState) | The element's enabled/disabled state when the EnabledState property is set to 1 ("Other"). This property <i>must</i> be set to NULL when EnabledState is any value other than 1. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherInfoFormat Description | String | ModelCorrespondence (CIM_RemoteServiceAccessPoint.InfoFormat) | Describes the format when the property InfoFormat is set to 1 ("Other"). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 35. IBMTSSVC_RemoteServiceAccessPoint properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|--------------------|--|--|-------------|------------------|----------|---------|----------|----------|----------|-----------|----------|-----------|----------|---------|----------|------|----------|----------|----------|---------|-----------|--------|-----------|-------|-----------|------------------|---------------------|--------------------|
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | <p>An integer enumeration that indicates the last requested or desired state for the element. The actual state of the element is represented by EnabledState. This property is provided to compare the last requested and current enabled/disabled states. When EnabledState is set to 5 ("Not Applicable"), this property has no meaning.</p> <table border="0"> <tr> <td>Code</td> <td>Semantics</td> </tr> <tr> <td>2</td> <td>Enabled</td> </tr> <tr> <td>3</td> <td>Disabled</td> </tr> <tr> <td>4</td> <td>Shut Down</td> </tr> <tr> <td>5</td> <td>No Change</td> </tr> <tr> <td>6</td> <td>Offline</td> </tr> <tr> <td>7</td> <td>Test</td> </tr> <tr> <td>8</td> <td>Deferred</td> </tr> <tr> <td>9</td> <td>Quiesce</td> </tr> <tr> <td>10</td> <td>Reboot</td> </tr> <tr> <td>11</td> <td>Reset</td> </tr> <tr> <td>..</td> <td>DMTF Reserved</td> </tr> <tr> <td>32768..65535</td> <td>Vendor Reserved</td> </tr> </table> | Code | Semantics | 2 | Enabled | 3 | Disabled | 4 | Shut Down | 5 | No Change | 6 | Offline | 7 | Test | 8 | Deferred | 9 | Quiesce | 10 | Reboot | 11 | Reset | .. | DMTF Reserved | 32768..65535 | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Enabled | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Disabled | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Shut Down | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | No Change | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Offline | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Test | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Deferred | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Quiesce | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Reboot | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Reset | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| .. | DMTF Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32768..65535 | Vendor Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Status | String | Deprecated (CIM_ManagedSystem Element.OperationalStatus), MaxLen(10) | <p>The current status of the object. This property is deprecated in lieu of OperationalStatus, which includes the same semantics in its enumeration.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.OperationalStatus) | <p>Describes the various OperationalStatus array values. For example, if "Stopping" is the value assigned to OperationalStatus, then this property may contain an explanation as to why an object is being stopped.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SystemCreation ClassName | String | Propagated (CIM_System.Creation ClassName), MaxLen(256) | <p>The scoping System's CreationClassName.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SystemName | String | Propagated (CIM_System.Name), MaxLen(256) | <p>The scoping System's Name.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 35. IBMTSSVC_RemoteServiceAccessPoint properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|----------|-----------|---|
| TimeOfLastStateChange | Datetime | | The date/time when the element's EnabledState last changed. If the state of the element has not changed and this property is populated, then it <i>must</i> be set to a 0 interval value. If a state change was requested, but rejected or not yet processed, the property must not be updated. |

IBMTSSVC_RemoteVolume

The IBMTSSVC_RemoteVolume class represents a remote volume in a synchronous copy relationship.

Properties

The IBMTSSVC_RemoteVolume class extends the CIM_LogicalElement class and has the properties shown in Table 36.

Table 36. IBMTSSVC_RemoteVolume properties

| Property | Type | Qualifier | Description |
|-------------|----------|--------------|---|
| Caption | String | MaxLen(64) | A short textual description (one- line string) of the object. |
| ClusterID | String | | The identifier of the remote volume's cluster. |
| ClusterName | String | | The name of the remote volume's cluster. |
| Description | String | | A textual description of the object. |
| ElementName | String | | A user-friendly name for the object. |
| InstallDate | Datetime | | Unsupported property. |
| Name | String | MaxLen(1024) | The identifier of the remote volume. |

Table 36. IBMTSSVC_RemoteVolume properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|----------|---|---|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | The current status of the element. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystem Element.OperationalStatus) | The current status of the object; reported as <i>Unknown</i> . |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.OperationalStatus) | Describes the status. This property is used when the OperationalStatus property is set to 1 ("Other"). |
| SystemName | String | | The IP of the scoping cluster. |

IBMTSSVC_StorageCapabilities

IBMTSSVC_StorageCapabilities class is a subclass of Capabilities that defines the capabilities of a StorageService or StoragePool.

Properties

For example, an instance of StorageCapabilities could be associated with either a StorageConfigurationService or StoragePool by using ElementCapabilities. The IBMTSSVC_StorageCapabilities class extends the CIM_StorageCapabilities class and has the properties shown in Table 37 on page 176.

Table 37. IBMTSSVC_StorageCapabilities properties

| Property | Type | Qualifier | Description |
|--------------------------|--------|--|---|
| Caption | String | MaxLen(64) | A short textual description (one-line String) of the object. |
| DataRedundancy Default | Uint16 | MinValue(1), ModelCorrespondence (CIM_StorageCapabilities. DataRedundancyMax CIM_StorageCapabilities. DataRedundancyMin) | The default number of complete copies of data that can be maintained. |
| DataRedundancy Max | Uint16 | MinValue(1), ModelCorrespondence (CIM_StorageCapabilities. DataRedundancyMin CIM_StorageCapabilities. DataRedundancyDefault) | The maximum number of complete copies of data that can be maintained. |
| DataRedundancy Min | Uint16 | MinValue(1), ModelCorrespondence (CIM_StorageCapabilities. DataRedundancyMax CIM_StorageCapabilities. DataRedundancyDefault) | The minimum number of complete copies of data that can be maintained. |
| DeltaReservation Default | Uint16 | MinValue(0), MaxValue(100), Units(Percentage), ModelCorrespondence (CIM_StorageCapabilities. DeltaReservationMax CIM_StorageCapabilities. DeltaReservationMin) | A number between 1 (1%) and a 100 (100%) that specifies how much space must be reserved by default in a replica for caching changes. |
| DeltaReservation Max | Uint16 | MinValue(0), MaxValue(100), Units(Percentage), ModelCorrespondence (CIM_StorageCapabilities. DeltaReservationMin CIM_StorageCapabilities. DeltaReservationDefault) | A number between 1 (1%) and a 100 (100%) that specifies the maximum amount of space reserved in a replica for caching changes. |
| DeltaReservation Min | Uint16 | MinValue(0), MaxValue(100), Units(Percentage), ModelCorrespondence (CIM_StorageCapabilities. DeltaReservationMax CIM_StorageCapabilities. DeltaReservationDefault) | A number between 1 (1%) and a 100 (100%) that specifies the minimum amount of space that must be reserved in a replica for caching changes. |
| Description | String | | A textual description of the object. |
| ElementName | String | Required(TRUE) | The user-friendly name for this instance of Capabilities. |

Table 37. IBMTSSVC_StorageCapabilities properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | |
|------------------------|-------------------------------|--|--|-------------|------------------|----------|---------|----------|----------|----------|----------|----------|---------------|----------|---------------|----------|-------------|----------|-------------------------------|
| ElementType | Uint16 | | <p>An enumeration that indicates the type of element to which this StorageCapabilities applies.</p> <table border="0"> <tr> <td>Code</td> <td>Semantics</td> </tr> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Reserved</td> </tr> <tr> <td>2</td> <td>Any Type</td> </tr> <tr> <td>3</td> <td>StorageVolume</td> </tr> <tr> <td>4</td> <td>StorageExtent</td> </tr> <tr> <td>5</td> <td>StoragePool</td> </tr> <tr> <td>6</td> <td>Storage Configuration Service</td> </tr> </table> | Code | Semantics | 0 | Unknown | 1 | Reserved | 2 | Any Type | 3 | StorageVolume | 4 | StorageExtent | 5 | StoragePool | 6 | Storage Configuration Service |
| Code | Semantics | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | |
| 1 | Reserved | | | | | | | | | | | | | | | | | | |
| 2 | Any Type | | | | | | | | | | | | | | | | | | |
| 3 | StorageVolume | | | | | | | | | | | | | | | | | | |
| 4 | StorageExtent | | | | | | | | | | | | | | | | | | |
| 5 | StoragePool | | | | | | | | | | | | | | | | | | |
| 6 | Storage Configuration Service | | | | | | | | | | | | | | | | | | |
| InstanceID | String | | <p>Within the scope of the instantiating Namespace, InstanceID opaquely and uniquely identifies an instance of this class. In order to ensure this, the value of InstanceID must be constructed using the following algorithm: <OrgID>:<LocalID > Where <OrgID> and <LocalID> are separated by a colon ':'; and where <OrgID> <i>must</i> include a copyrighted, trademarked or otherwise unique name that is owned by the business entity creating/defining the InstanceID, or is a registered ID that is assigned to the business entity by a recognized global authority.</p> | | | | | | | | | | | | | | | | |
| NoSinglePointOfFailure | Boolean | ModelCorrespondence (CIM_StorageCapabilities.NoSinglePointOfFailure Default) | <p>Indicates if the associated element supports no single point of failure. A value of false means the associated element does not support no single point of failure. A value of true means the associated element supports no single point of failure.</p> | | | | | | | | | | | | | | | | |

Table 37. IBMTSSVC_StorageCapabilities properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------------|---------|---|---|
| NoSinglePointOfFailureDefault | Boolean | ModelCorrespondence (CIM_StorageCapabilities.NoSinglePointOfFailure) | The default value for the NoSinglePointOfFailure property. |
| PackageRedundancyDefault | Uint16 | ModelCorrespondence (CIM_StorageCapabilities.PackageRedundancyMin CIM_StorageCapabilities.PackageRedundancyMax) | The default number of redundant packages that will be used. |
| PackageRedundancyMax | Uint16 | ModelCorrespondence (CIM_StorageCapabilities.PackageRedundancyMin CIM_StorageCapabilities.PackageRedundancyDefault) | The maximum number of redundant packages that can be used. |
| PackageRedundancyMin | Uint16 | ModelCorrespondence (CIM_StorageCapabilities.PackageRedundancyMax CIM_StorageCapabilities.PackageRedundancyDefault) | The minimum number of redundant packages that can be used. |

IBMTSSVC_StorageConfigurationCapabilities

IBMTSSVC_StorageConfigurationCapabilities class is a subclass of Capabilities that defines the Capabilities of a StorageConfigurationService.

Properties

An instance of StorageConfigurationCapabilities is associated with a StorageConfigurationService using ElementCapabilities. The IBMTSSVC_StorageConfigurationCapabilities class extends the CIM_StorageConfigurationCapabilities class and has the properties shown in Table 38.

Table 38. IBMTSSVC_StorageConfigurationCapabilities properties

| Property | Type | Qualifier | Description |
|-------------|--------|----------------|---|
| Caption | String | MaxLen(64) | A short textual description (one-line string) of the object. |
| Description | String | | A textual description of the object. |
| ElementName | String | Required(TRUE) | The user-friendly name for this instance of Capabilities. In addition, the user-friendly name can be used as an index property for a query. (Note: Name does not have to be unique within a namespace.) |

Table 38. IBMTSSVC_StorageConfigurationCapabilities properties (continued)

| Property | Type | Qualifier | Description |
|--------------------------|--------|---|---|
| Initial ReplicationState | Uint16 | ModelCorrespondence (CIM_StorageConfigurationService.AttachReplica CIM_StorageConfigurationService.CreateReplica) | Specifies which initial Replication State is supported by a particular provider. Code Semantics 2 Initialized 3 Prepared 4 Synchronized .. DMTF Reserved 0x8000..0xFFFF Vendor Specific |
| InstanceID | String | | Within the scope of the instantiating Namespace, InstanceID opaquely and uniquely identifies an instance of this class. In order to ensure this, the value of InstanceID <i>must</i> be constructed using the following algorithm: <OrgID>: <LocalID>. Where <OrgID> and <LocalID> are separated by a colon ':', and where <OrgID> <i>must</i> include a copyrighted, trademarked or otherwise unique name that is owned by the business entity creating/defining the InstanceID, or is a registered ID that is assigned to the business entity by a recognized global authority. |

Table 38. IBMTSSVC_StorageConfigurationCapabilities properties (continued)

| Property | Type | Qualifier | Description |
|--------------------------------|----------|--|---|
| Supported Asynchronous Actions | Uint16[] | ModelCorrespondence (CIM_StorageConfiguration Capabilities.Supported SynchronousActions) | <p>An enumeration that indicates what operations are run as asynchronous jobs. If an operation is included in both this and Supported Synchronous Actions, then the underlying implementation is indicating that it may or may not create a job.</p> <p>Code Semantics</p> <p>2 Storage Pool Creation</p> <p>3 Storage Pool Deletion</p> <p>4 Storage Pool Modification</p> <p>5 Storage Element Creation</p> <p>6 Storage Element Return</p> <p>7 Storage Element Modification</p> <p>8 Replica Creation</p> <p>9 Replica Modification</p> <p>10 Replica Attachment</p> |
| SupportedCopy Types | Uint16[] | ModelCorrespondence (CIM_StorageConfiguration Service.CreateReplica.CopyType) | <p>The replication capabilities supported by the associated Storage Configuration Services.</p> <p>Code Semantics</p> <p>2 Async</p> <p>3 Sync</p> <p>4 UnSyncAssoc</p> <p>5 UnSyncUnAssoc</p> <p>.. DMTF Reserved</p> <p>0x8000..0xFFFF Vendor Specific</p> |

Table 38. IBMTSSVC_StorageConfigurationCapabilities properties (continued)

| Property | Type | Qualifier | Description |
|---------------------------------|----------|---|---|
| SupportedStorageElementFeatures | Uint16[] | ModelCorrespondence (CIM_StorageConfigurationService.CreateOrModifyElementFromStoragePool.ElementType CIM_StorageConfigurationService.CreateOrModifyElementFromStoragePool.InPools) | An enumeration that indicates features supported by the Storage Element methods. Code Semantics 2 StorageExtent Creation 3 StorageVolume Creation 4 StorageExtent Modification 5 StorageVolume Modification 6 Single InPool 7 Multiple InPools .. DMTF Reserved 0x8000..0xFFFF Vendor Specific |
| SupportedStorageElementTypes | Uint16[] | ModelCorrespondence (CIM_StorageConfigurationService.CreateOrModifyElementFromStoragePool.ElementType) | An enumeration that indicates the type of storage elements that are supported by the associated Storage Configuration Service. Code Semantics 2 StorageVolume 3 StorageExtent .. DMTF Reserved 0x8000..0xFFFF Vendor Specific |
| SupportedStoragePoolFeatures | Uint16[] | ModelCorrespondence (CIM_StorageConfigurationService.CreateOrModifyStoragePool.InPools CIM_StorageConfigurationService.CreateOrModifyStoragePool.InElements) | An enumeration that indicates features supported by the StoragePool methods. Code Semantics 2 InExtents 3 Single InPool 4 Multiple InPools .. DMTF Reserved 0x8000..0xFFFF Vendor Specific |

Table 38. IBMTSSVC_StorageConfigurationCapabilities properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|------------------------------|---|--|------|-----------|---|-----------------------|---|-----------------------|---|---------------------------|---|--------------------------|---|------------------------|---|------------------------------|---|------------------|---|----------------------|----|--------------------|
| Supported Synchronous Actions | Uint16[] | ModelCorrespondence (CIM_StorageConfiguration Capabilities.Supported AsynchronousActions) | <p>An enumeration that indicates what operations are run without the creation of a job. If an operation is included in both this and Supported Asynchronous Actions, then the underlying implementation is indicating that it may or may not create a job.</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>Storage Pool Creation</td> </tr> <tr> <td>3</td> <td>Storage Pool Deletion</td> </tr> <tr> <td>4</td> <td>Storage Pool Modification</td> </tr> <tr> <td>5</td> <td>Storage Element Creation</td> </tr> <tr> <td>6</td> <td>Storage Element Return</td> </tr> <tr> <td>7</td> <td>Storage Element Modification</td> </tr> <tr> <td>8</td> <td>Replica Creation</td> </tr> <tr> <td>9</td> <td>Replica Modification</td> </tr> <tr> <td>10</td> <td>Replica Attachment</td> </tr> </tbody> </table> | Code | Semantics | 2 | Storage Pool Creation | 3 | Storage Pool Deletion | 4 | Storage Pool Modification | 5 | Storage Element Creation | 6 | Storage Element Return | 7 | Storage Element Modification | 8 | Replica Creation | 9 | Replica Modification | 10 | Replica Attachment |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Storage Pool Creation | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Storage Pool Deletion | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Storage Pool Modification | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Storage Element Creation | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Storage Element Return | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Storage Element Modification | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Replica Creation | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Replica Modification | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Replica Attachment | | | | | | | | | | | | | | | | | | | | | | |

IBMTSSVC_StorageHardwareID

The IBMTSSVC_StorageHardwareID class identifies the host port to which access to volumes can be granted.

Properties

The IBMTSSVC_StorageHardwareID class extends the CIM_StorageHardwareID class and has the properties shown in Table 39.

Table 39. IBMTSSVC_StorageHardwareID properties

| Property | Type | Qualifier | Description |
|------------|--------|-----------------|---|
| InstanceID | String | Expensive(TRUE) | Opaquely identifies a unique instance of Identity. The InstanceID <i>must</i> be unique within a namespace. In order to ensure this, the value of InstanceID must be constructed in the format: (Vendor/Admin ID):(ID). |

Table 39. IBMTSSVC_StorageHardwareID properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|---------|--|---|
| Caption | String | | A short textual description (one-line string) of the object. |
| ClientType | Uint16 | Expensive(TRUE), Write(TRUE), WriteRole(Administrator) | The type of client. Code Semantics 0 Generic 1 HPUX 2 TPGS |
| CurrentlyAuthenticated | Boolean | | Indicates if the port is currently logged in to the fibre-channel network. |
| Description | String | | A textual description of the object. |
| ElementName | String | Expensive(TRUE) | A user-friendly name for the object. |
| IDType | Uint16 | Required(TRUE), ModelCorrespondence (CIM_StorageHardware ID.StorageID) | The type of ID property. Code Semantics 1 Other 2 PortWWN 3 NodeWWN 4 Hostname |
| OtherIDType | String | Required(TRUE), MaxLen(256), ModelCorrespondence (CIM_StorageHardwareID. IDType), Expensive(TRUE) | The ID type if IDType is set to "Other." |
| PortLoginMask | String | Expensive(TRUE), Write(TRUE), WriteRole(Administrator) | The 4-character port login mask for the host. Valid mask values range from 0000 (no ports enabled) to 1111 (all ports enabled). For example, a mask of 0011 enables port 1 and port 2. The default value is 1111 (all ports enabled). |

IBMTSSVC_StoragePool

The IBMTSSVC_StoragePool class represents a group of IBMTSSVC_BackendVolume instances that aggregate to become an IBMTSSVC_StoragePool from which IBMTSSVC_StorageVolumes can be allocated.

Properties

The IBMTSSVC_StoragePool class extends the CIM_StoragePool class and has the properties shown in Table 40 on page 184.

Table 40. IBMTSSVC_StoragePool properties

| Property | Type | Qualifier | Description |
|-------------------------|----------|---|--|
| InstanceID | String | | Labels the object instance in the format cluster_id:object_id. |
| Caption | String | MaxLen(15), Write(TRUE), WriteRole(Administrator) | A short (one-line string) textual description of the object. |
| Description | String | | A textual description of the object. |
| ElementName | String | | The name of the cluster. |
| ExtentSize | UInt16 | Units(megabytes) | The extent size of the pool. Volumes allocated from this pool have a space occupation that is a multiple of the extent size. |
| InstallDate | Datetime | | This property is not supported. |
| Name | String | MaxLen(1024) | The globally unique ID of the pool, in the format (Vendor)(id). For the SAN Volume Controller, the ID is IBMTSSVC(id). |
| NativeStatus | UInt16 | | The native operational state of the pool. Code Semantics 1 Offline 1 Online 2 Degraded |
| NumberOfBackend Volumes | UInt16 | Counter(TRUE) | The number of BackendVolumes that make up the pool. |
| NumberOfStorage Volumes | UInt16 | Counter(TRUE) | The number of StorageVolumes that are allocated from the pool. |

Table 40. IBMTSSVC_StoragePool properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|----------------------------|--|--|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.Status Descriptions) | <p>The pool's operational status. Values are 2 (OK) for online, 10 (Stopped) for offline, 1 (Other) for empty, or 1 (Other) for invalid.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PoolID | String | Required(TRUE), MaxLen(256) | The ID of the pool. This ID is numeric and only unique in terms of the hosting SAN Volume Controller cluster. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 40. IBMTSSVC_StoragePool properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|----------|--|---|
| Primordial | Boolean | | If true, indicates that the containing system does not have the ability to create or delete this operational element. This is important because higher level StoragePools may be assembled using the Component or AllocatedFrom StoragePool associations. Although the higher level abstractions can be created and deleted, the most basic (primordial), hardware-based StoragePools cannot. They are physically realized as part of the system or are actually managed by some other system and imported as if they were physically realized. |
| RemainingManagedSpace | UInt64 | Units(Bytes), ModelCorrespondence (StoragePool.TotalManagedSpace AllocatedFromStoragePool.SpaceConsumed), Required(TRUE) | The remaining amount of raw storage (in bytes) from the TotalManagedSpace of this StoragePool. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement.OperationalStatus) | Deprecated property set to "Unknown". Look at OperationalStatus for status information. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.OperationalStatus) | The status that is used when the OperationalStatus property is set to 1 (Other). |
| TotalManagedSpace | UInt64 | Units(Bytes), ModelCorrespondence (StoragePool.RemainingManagedSpace) | The total amount of raw storage (in bytes) managed by this StoragePool. |

IBMTSSVC_StorageSetting

The IBMTSSVC_StorageSetting class is roughly equivalent to a service level agreement (SLA).

Properties

It defines the characteristics, qualities of service, and goals when used in a `CreateOrModifyElementFromStoragePool` or `CreateOrModifyStoragePool` method in the `StorageConfigurationService`. It specifies a series of properties with maximum and minimum values that define the (inclusive) bounds that the object must maintain. The setting is associated to a `StorageVolume` using `ElementSetting`.

The `IBMTSSVC_StorageSetting` class extends the `CIM_StorageSetting` class and has the properties shown in Table 41.

Table 41. *IBMTSSVC_StorageSetting* properties

| Property | Type | Qualifier | Description |
|---------------------|--------|--|---|
| Caption | String | MaxLen(64) | A short textual description (one-line string) of the object. |
| DataRedundancy Goal | Uint16 | Write(TRUE), MinValue(1), ModelCorrespondence (CIM_StorageSetting.Data RedundancyMax CIM_StorageSetting.Data RedundancyMin) | The desired number of complete copies of data to be maintained. For example, on RAID 5 one copy is maintained and on RAID 1 two or more copies are maintained. Possible values are 1 to n. The bounds for redundancy are defined using the properties <code>DataRedundancy Max</code> and <code>DataRedundancy Min</code> . |
| DataRedundancy Max | Uint16 | Write(TRUE), MinValue(1), ModelCorrespondence (CIM_StorageSetting.Data RedundancyMin CIM_StorageSetting.Data RedundancyGoal) | The maximum number of complete copies of data to be maintained. For example, on RAID 5 one copy is maintained and on RAID 1 two or more copies are maintained. Possible values are 1 to n. |
| DataRedundancy Min | Uint16 | Write(TRUE), MinValue(1), ModelCorrespondence (CIM_StorageSetting.Data RedundancyMax CIM_StorageSetting.Data RedundancyGoal) | The minimum number of complete copies of data to be maintained. For example, on RAID 5 one copy is maintained and on RAID 1 two or more copies are maintained. Possible values are 1 to n. |

Table 41. IBMTSSVC_StorageSetting properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|--------|--|---|
| DeltaReservation Goal | UInt8 | Units(Percentage), MinValue(1), MaxValue(100), ModelCorrespondence (CIM_StorageSetting.Delta ReservationMinCIM_StorageSetting.Delta ReservationMax), Write(TRUE) | The amount of space that must be reserved in a replica for caching changes, specified by a number between 1 (1%) and 100 (100%). For a complete copy, use 100. The bounds for the reservation are defined using the properties DeltaReservation Max and DeltaReservation Min. |
| DeltaReservation Max | UInt8 | Units(Percentage), MinValue(1), MaxValue(100), ModelCorrespondence (CIM_StorageSetting.Delta ReservationMinCIM_StorageSetting.Delta ReservationGoal), Write(TRUE) | The maximum amount of space that must be reserved in a replica for caching changes, specified by a number between 1 (1%) and 100 (100%). For a complete copy, use 100. |
| DeltaReservation Min | UInt8 | Units(Percentage), MinValue(1), MaxValue(100), ModelCorrespondence (CIM_StorageSetting.Delta ReservationMaxCIM_StorageSetting.Delta ReservationGoal), Write(TRUE) | The minimum amount of space that must be reserved in a replica for caching changes, specified by a number between 1 (1%) and 100 (100%). For a complete copy, use 100. |
| Description | String | | A textual description of the object. |
| ElementName | String | Required(TRUE) | The user-friendly name for this instance of SettingData. In addition, the user-friendly name can be used as an index property for a search or query. The name does not have to be unique within a namespace. |

Table 41. IBMTSSVC_StorageSetting properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|---------|---|---|
| InstanceID | String | | Within the scope of the instantiating Namespace, InstanceID uniquely identifies an instance. The ID must be constructed using the following algorithm: <OrgID>:<LocalID>. <OrgID> <i>must</i> include a copyrighted, trademarked, or otherwise unique name that is owned by the business entity that is creating or defining the ID or it must be a registered ID that is assigned by a global authority. <OrgID> must not contain a colon (:). <LocalID> is chosen by the business entity and must not be reused to identify different underlying (real-world) elements. |
| NoSinglePointOfFailure | Boolean | Write(TRUE) | The desired value for No Single Point of Failure. Possible values are false (single point of failure) and true (no single point of failure). |
| PackageRedundancyGoal | Uint16 | Write(TRUE), ModelCorrespondence (CIM_StorageSetting.PackageRedundancyMax CIM_StorageSetting.PackageRedundancyMin) | The desired number of redundant packages to use. Possible values are 0 to n. For example, the storage domain package redundancy describes the number of disk spindles that can fail without data loss including, at most, one spare. A RAID 5 with a spare disk can have a PackageRedundancy of 2. |
| PackageRedundancyMax | Uint16 | Write(TRUE), ModelCorrespondence (CIM_StorageSetting.PackageRedundancyMin CIM_StorageSetting.PackageRedundancyGoal) | The maximum number of redundant packages to use. Possible values are 0 to n. |

Table 41. IBMTSSVC_StorageSetting properties (continued)

| Property | Type | Qualifier | Description |
|--------------------------|--------|--|---|
| PackageRedundancy Min | Uint16 | Write(TRUE), ModelCorrespondence (CIM_StorageSetting. PackageRedundancyMax CIM_StorageSetting. PackageRedundancyGoal) | The minimum number of redundant packages to use. Possible values are 0 to n. |

IBMTSSVC_StorageVolume

The IBMTSSVC_StorageVolume class represents a device that is presented by the cluster that can be mapped as a SCSI LUN to host systems on the SAN. A volume is formed by allocating a set of extents from a pool.

Properties

The IBMTSSVC_StorageVolume class extends the CIM_StorageVolume class and has the properties shown in Table 42.

Table 42. IBMTSSVC_StorageVolume properties

| Property | Type | Qualifier | Description | | | | | | | | | | | | |
|---------------|-------------------------|---|--|-------------|------------------|----------|---------|----------|----------|----------|-----------|----------|-------------------------|----------|------------|
| Access | Uint16 | | Describes the media. <table border="0"> <tr> <td>Code</td> <td>Semantics</td> </tr> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Readable</td> </tr> <tr> <td>2</td> <td>Writeable</td> </tr> <tr> <td>3</td> <td>Read/Write Supported</td> </tr> <tr> <td>4</td> <td>Write Once</td> </tr> </table> | Code | Semantics | 0 | Unknown | 1 | Readable | 2 | Writeable | 3 | Read/Write Supported | 4 | Write Once |
| Code | Semantics | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | |
| 1 | Readable | | | | | | | | | | | | | | |
| 2 | Writeable | | | | | | | | | | | | | | |
| 3 | Read/Write Supported | | | | | | | | | | | | | | |
| 4 | Write Once | | | | | | | | | | | | | | |
| AccessGranted | Boolean | ModelCorrespondence (CIM_Controller. AuthorizationView) | A quick interface to find devices with no AuthorizationSubject association to an AccessControl Information instance, either directly or by use of a controller. If set to true, the device has granted access to a consumer. If set to false, no access has been granted. | | | | | | | | | | | | |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|-----------------------------|---|---|------|-----------|---|-------|---|---------|---|--------------------|---|---------|---|---------|---|----------------|---|-----------|---|----------|---|----------|----|----------|----|---------------|----|---------------|----|----------------------|----|-----------------------------|----|----------------------|----|-------------|----|----------------------|----|--------|----|-----------|----|----------------|----|----------|
| Additional Availability | Uint16[] | Deprecated(CIM_AssociatedPowerManagementService.PowerState CIM_ManagedSystemElement.OperationalStatus CIM_EnabledLogicalElement.EnabledState), ModelCorrespondence (CIM_LogicalDevice.Availability) | <p>Additional availability and status of the device, beyond that specified in the Availability property. The Availability property denotes the primary status and availability of the device. In some cases, it is not sufficient to denote the complete status of the device. In those cases, the AdditionalAvailability property can be used to provide further information.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>Unknown</td></tr> <tr><td>3</td><td>Running/Full Power</td></tr> <tr><td>4</td><td>Warning</td></tr> <tr><td>5</td><td>In Test</td></tr> <tr><td>6</td><td>Not Applicable</td></tr> <tr><td>7</td><td>Power Off</td></tr> <tr><td>8</td><td>Off Line</td></tr> <tr><td>9</td><td>Off Duty</td></tr> <tr><td>10</td><td>Degraded</td></tr> <tr><td>11</td><td>Not Installed</td></tr> <tr><td>12</td><td>Install Error</td></tr> <tr><td>13</td><td>Power Save - Unknown</td></tr> <tr><td>14</td><td>Power Save - Low Power Mode</td></tr> <tr><td>15</td><td>Power Save - Standby</td></tr> <tr><td>16</td><td>Power Cycle</td></tr> <tr><td>17</td><td>Power Save - Warning</td></tr> <tr><td>18</td><td>Paused</td></tr> <tr><td>19</td><td>Not Ready</td></tr> <tr><td>20</td><td>Not Configured</td></tr> <tr><td>21</td><td>Quiesced</td></tr> </tbody> </table> | Code | Semantics | 1 | Other | 2 | Unknown | 3 | Running/Full Power | 4 | Warning | 5 | In Test | 6 | Not Applicable | 7 | Power Off | 8 | Off Line | 9 | Off Duty | 10 | Degraded | 11 | Not Installed | 12 | Install Error | 13 | Power Save - Unknown | 14 | Power Save - Low Power Mode | 15 | Power Save - Standby | 16 | Power Cycle | 17 | Power Save - Warning | 18 | Paused | 19 | Not Ready | 20 | Not Configured | 21 | Quiesced |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Running/Full Power | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Warning | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | In Test | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Not Applicable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Power Off | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Off Line | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Off Duty | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Not Installed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Install Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Power Save - Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Power Save - Low Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Power Save - Standby | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Power Cycle | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Power Save - Warning | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Paused | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Not Ready | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Not Configured | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | Quiesced | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|-----------------------------|--|--|------|-----------|---|-------|---|---------|---|--------------------|---|---------|---|---------|---|----------------|---|-----------|---|----------|---|----------|----|----------|----|---------------|----|---------------|----|----------------------|----|-----------------------------|----|----------------------|----|-------------|----|----------------------|----|--------|----|-----------|----|----------------|----|----------|
| Availability | Uint16 | Deprecated(CIM_AssociatedPowerManagementService.PowerStateCIM_ManagedSystemElement.OperationalStatusCIM_EnabledLogicalElement.EnabledStatus), ModelCorrespondence (CIM_LogicalDevice.AdditionalAvailability) | <p>The primary availability and status of the device.</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>Unknown</td></tr> <tr><td>3</td><td>Running/Full Power</td></tr> <tr><td>4</td><td>Warning</td></tr> <tr><td>5</td><td>In Test</td></tr> <tr><td>6</td><td>Not Applicable</td></tr> <tr><td>7</td><td>Power Off</td></tr> <tr><td>8</td><td>Off Line</td></tr> <tr><td>9</td><td>Off Duty</td></tr> <tr><td>10</td><td>Degraded</td></tr> <tr><td>11</td><td>Not Installed</td></tr> <tr><td>12</td><td>Install Error</td></tr> <tr><td>13</td><td>Power Save - Unknown</td></tr> <tr><td>14</td><td>Power Save - Low Power Mode</td></tr> <tr><td>15</td><td>Power Save - Standby</td></tr> <tr><td>16</td><td>Power Cycle</td></tr> <tr><td>17</td><td>Power Save - Warning</td></tr> <tr><td>18</td><td>Paused</td></tr> <tr><td>19</td><td>Not Ready</td></tr> <tr><td>20</td><td>Not Configured</td></tr> <tr><td>21</td><td>Quiesced</td></tr> </tbody> </table> | Code | Semantics | 1 | Other | 2 | Unknown | 3 | Running/Full Power | 4 | Warning | 5 | In Test | 6 | Not Applicable | 7 | Power Off | 8 | Off Line | 9 | Off Duty | 10 | Degraded | 11 | Not Installed | 12 | Install Error | 13 | Power Save - Unknown | 14 | Power Save - Low Power Mode | 15 | Power Save - Standby | 16 | Power Cycle | 17 | Power Save - Warning | 18 | Paused | 19 | Not Ready | 20 | Not Configured | 21 | Quiesced |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Running/Full Power | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Warning | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | In Test | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Not Applicable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Power Off | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Off Line | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Off Duty | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Not Installed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Install Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Power Save - Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Power Save - Low Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Power Save - Standby | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Power Cycle | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Power Save - Warning | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Paused | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Not Ready | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Not Configured | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | Quiesced | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BackendVolumeID | String | Expensive(TRUE) | The ID of the underlying BackendVolume. Only valid if Type=Image. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BackendVolume Name | String | Expensive(TRUE) | The name of the underlying BackendVolume. Only valid if Type=Image. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BlockSize | Uint64 | Units(Bytes) | The size in bytes of the blocks that form this StorageExtent. If the block size is variable, the maximum block size in bytes must be specified. If the block size is unknown or if a block concept is not valid (for example, for AggregateExtents, Memory, or LogicalDisks), enter a 1. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Caption | String | MaxLen(15), Write(TRUE), WriteRole(Administrator) | A short textual description (one-line string) of the object. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description |
|------------------|---------|-----------------|---|
| CacheMode | Uint16 | | <p>Code Semantics 0 None 1 ReadWrite</p> |
| CacheState | Uint16 | Expensive(TRUE) | <p>The cache state of the volume.</p> <p>Code Semantics 0 Empty 1 Not empty 2 Corrupt</p> |
| ConsumableBlocks | Uint64 | | <p>The maximum number of blocks, of size BlockSize, that are available for consumption when layering StorageExtents using the BasedOn association. This property is used when this StorageExtent is an Antecedent reference in a BasedOn relationship. For example, a StorageExtent can be composed of 120 blocks. However, the extent itself can use 20 blocks for redundancy data. If another StorageExtent is BasedOn this extent, only 100 blocks are available to it. This information (100 blocks are available for consumption) is indicated in the ConsumableBlocks property.</p> |
| Controlled | Boolean | | <p>A quick interface to find devices with no ControlledBy associations to controllers. If set to true, the device is connected to one or more ports by use of controllers. If set to false, the device exists but is not connected to a port.</p> |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description |
|-------------------|--------|--|--|
| CreationClassName | String | MaxLen(256) | The name of the class or the subclass that is used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |
| DataOrganization | Uint16 | | The type of data organization that is used. Code Semantics 0 Other 1 Unknown 2 Fixed Block 3 Variable Block 4 Count Key Data |
| DataRedundancy | Uint16 | ModelCorrespondence (CIM_StorageSetting.DataRedundancyGoal CIM_StorageSetting.DataRedundancyMax CIM_StorageSetting.DataRedundancyMin) | The number of complete copies of data that are maintained. |
| DeltaReservation | Uint8 | MinValue(0), MaxValue(100), Units(Percentage), ModelCorrespondence (CIM_StorageSetting.DeltaReservationGoal CIM_StorageSetting.DeltaReservationMax CIM_StorageSetting.DeltaReservationMin) | The current value for Delta reservation. |
| Description | String | | A textual description of the object. |
| DeviceID | String | MaxLen(64) | The ID of the StorageVolume. A numeric value that is only unique for instances of the StorageVolume class. |
| ElementName | String | MaxLen(15), Write(TRUE), WriteRole(Administrator) | The user-friendly name of the volume. |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description |
|----------------|---------|---|--|
| EnabledDefault | Uint16 | Write(TRUE) | <p>The default or startup configuration for an element's EnabledStatus. By default, the EnabledStatus is 2 (Enabled).</p> <p>Code Semantics</p> <p>2 Enabled 3 Disabled 5 Not Applicable 6 Enabled but Offline 7 No Default 8..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.OtherEnabledState) | <p>The operational state of the element.</p> <p>Code Semantics</p> <p>0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 Not Applicable 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> <p>If an element is being tested and is neither enabled nor disabled, In Test (7) is used. If this property does not apply to an instance of EnabledLogical Element, Not Applicable (5) is used.</p> |
| ErrorCleared | Boolean | Deprecated(CIM_ManagedSystemElement.OperationalStatus) | <p>This property is not supported.</p> |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description |
|-------------------|----------|--|--|
| ErrorDescription | String | Deprecated(CIM_Device ErrorData.ErrorDescription) | This property is not supported. |
| ErrorMethodology | String | | This property is not supported. |
| ExtentStatus | Uint16[] | | <p>StorageExtents have additional status information beyond that captured in the Availability and StatusInfo properties, inherited from the ManagedSystem Element. This additional information is captured in the VolumeStatus property.</p> <p>Code Semantics</p> <p>0 Other</p> <p>1 Unknown</p> <p>2 None/Not Applicable</p> <p>3 Broken</p> <p>4 Data Lost</p> <p>5 Dynamic Reconfig</p> <p>6 Exposed</p> <p>7 Fractionally Exposed</p> <p>8 Partially Exposed</p> <p>9 Protection Disabled</p> <p>10 Readyng</p> <p>11 Rebuild</p> <p>12 Recalculate</p> <p>13 Spare in Use</p> <p>14 Verify In Progress</p> <p>15..32767 DMTF Reserved</p> <p>32768..65535 Vendor Reserved</p> |
| FCID | String | | The FlashCopy ID of the volume. |
| FCName | String | | The FlashCopy name of the volume. |
| FlashCopyMapCount | Uint16 | | The number of FlashCopy mappings that contain this volume. |
| GroupID | String | | The ID of the scoping RedundancyGroup. |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description |
|---------------------------------|-----------|--|--|
| GroupName | String | | The name of the scoping RedundancyGroup. |
| Identifying Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_LogicalDevice.OtherIdentifyingInfo) | An array of free-form strings that provides explanations and details behind the entries in the OtherIdentifyingInfo array. Each entry of this array is related to the entry in OtherIdentifyingInfo that is located at the same index. |
| InstallDate | Date-time | | This property is not supported. |
| IsBasedOn Underlying Redundancy | Boolean | | A value of true indicates that the underlying StorageExtent(s) participate in a StorageRedundancy Group. |
| IsFormatted | Boolean | Expensive(TRUE) | A value of true indicates that the volume has been formatted by the SAN Volume Controller. |
| LastErrorCode | Uint32 | Deprecated(CIM_Device ErrorData.LastErrorCode) | This property is not supported. |
| MaxQuiesceTime | Uint64 | Deprecated(No value), Units(MilliSeconds) | This property is not supported. |
| Name | String | ModelCorrespondence (CIM_StorageVolume.NameFormat), MaxLen(1024) | A unique identifier for the volume. |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | |
|------------|---|---|---|------|-----------|---|---------|---|-------|---|--|---|---|---|-------------------------------------|---|--|---|------------|---|---|---|---|
| NameFormat | Uint16 | ModelCorrespondence (CIM_StorageVolume.Name CIM_StorageVolume. OtherNameFormat), Experimental(TRUE) | <p>Format of the Name property. For non SCSI volumes, SNVM is the most appropriate choice.</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Other</td> </tr> <tr> <td>2</td> <td>VPD83NAA6 (VPD Page 83, NAA IEEE Registered Extended)</td> </tr> <tr> <td>3</td> <td>VPD83NAA5 (VPD Page 83, NAA IEEE Registered)</td> </tr> <tr> <td>4</td> <td>VPD83Type2 (VPD Page 83, EIU-64)</td> </tr> <tr> <td>5</td> <td>VPD83Type1 (VPD Page 83, T10 Vendor Identification)</td> </tr> <tr> <td>6</td> <td>VPD83Type0</td> </tr> <tr> <td>7</td> <td>SNVM (Serial Number/ Vendor/ Model. VPD Page 83, Vendor-Specific)</td> </tr> <tr> <td>8</td> <td>NodeWWN (Node WWN, for single LUN or controller)</td> </tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | VPD83NAA6 (VPD Page 83, NAA IEEE Registered Extended) | 3 | VPD83NAA5 (VPD Page 83, NAA IEEE Registered) | 4 | VPD83Type2 (VPD Page 83, EIU-64) | 5 | VPD83Type1 (VPD Page 83, T10 Vendor Identification) | 6 | VPD83Type0 | 7 | SNVM (Serial Number/ Vendor/ Model. VPD Page 83, Vendor-Specific) | 8 | NodeWWN (Node WWN, for single LUN or controller) |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | |
| 2 | VPD83NAA6 (VPD Page 83, NAA IEEE Registered Extended) | | | | | | | | | | | | | | | | | | | | | | |
| 3 | VPD83NAA5 (VPD Page 83, NAA IEEE Registered) | | | | | | | | | | | | | | | | | | | | | | |
| 4 | VPD83Type2 (VPD Page 83, EIU-64) | | | | | | | | | | | | | | | | | | | | | | |
| 5 | VPD83Type1 (VPD Page 83, T10 Vendor Identification) | | | | | | | | | | | | | | | | | | | | | | |
| 6 | VPD83Type0 | | | | | | | | | | | | | | | | | | | | | | |
| 7 | SNVM (Serial Number/ Vendor/ Model. VPD Page 83, Vendor-Specific) | | | | | | | | | | | | | | | | | | | | | | |
| 8 | NodeWWN (Node WWN, for single LUN or controller) | | | | | | | | | | | | | | | | | | | | | | |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description |
|---------------|--------|---|--|
| NameNamespace | Uint16 | ModelCorrespondence (CIM_StorageVolume.Name CIM_StorageVolume. OtherNameNamespace) | <p>The preferred source for volume names is SCSI vital product data (VPD) Page 83 responses. Page 83 returns a list of identifiers for various device elements. The metadata for each identifier includes an association field, identifiers with association of 0 apply to volumes. Page 83 supports several namespaces specified in the type field in the identifier metadata.</p> <p>Code Semantics</p> <p>0 Unknown</p> <p>1 Other</p> <p>2 VPD83Type3n (Page 83, Type 3 NAA. NameFormat should be NAA.)</p> <p>3 VPD83Type2 (VPD Page 83, Type 2 EUI64. NameFormat EUI.)</p> <p>4 VPD83Type1 (VPD Page 83, Type 1 T10 Vendor Identification. NameFormat T10.)</p> <p>5 VPD80 (VPD page 80, Serial number. NameFormat should be Other.)</p> <p>6 NodeWWN (FC NodeWWN. NameFormat should be NAA or EUI.)</p> <p>7 SNVM (Serial Number/ Vendor/ Model. NameFormat should be SNVM.)</p> |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|----------|---|--|
| NativeStatus | Uint16 | | <p>The native operational status of the volume.</p> <p>Code Semantics 0 Offline 1 Online 2 Degraded 3 Formatting</p> |
| NoSinglePointOfFailure | Boolean | ModelCorrespondence (CIM_StorageSetting.NoSinglePointOfFailure) | Indicates if a single point of failure exists. |
| NumberOfBlocks | Uint64 | | <p>The total number of logically contiguous blocks, of size BlockSize, that form this extent. The total size of the extent can be calculated by multiplying BlockSize by NumberOfBlocks. If the BlockSize is 1, this property is the total size of the extent.</p> |
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.StatusDescriptions) | <p>The status of the volume.</p> <p>Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode</p> |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|----------|---|--|
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | The state of the element when the EnabledStatus property is set to 1 (Other). This property must be set to null when EnabledStatus is any value other than 1. |
| OtherIdentifyinInfo | String[] | MaxLen(256), ArrayType(Indexed), ModelCorrespondence (CIM_LogicalDevice. IdentifyingDescriptions) | Additional data, beyond DeviceID information, that can be used to identify a LogicalDevice. For example, the Operating System's user-friendly name for the device. |
| OtherNameFormat | String | ModelCorrespondence (CIM_StorageVolume. NameFormat) | The description of the format of the Name property when NameFormat includes the value 1 (Other). |
| OtherName Namespace | String | ModelCorrespondence (CIM_StorageVolume. NameNamespace) | The description of the namespace of the Name property when NameNamespace includes the value 1 (Other). |
| PackageRedundancy | Uint16 | ModelCorrespondence (CIM_StorageSetting. PackageRedundancyGoal CIM_StorageSetting. PackageRedundancyMax CIM_StorageSetting. PackageRedundancyMin) | The number of disk spindles that can fail without data loss. |
| PoolID | String | | The ID of the hosting storage pool. |
| PoolName | String | | The name of the pool from which this volume was allocated. |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description |
|------------------------------|----------|---|--|
| PowerManagement Capabilities | Uint16[] | Deprecated(CIM_Power ManagementCapabilities. PowerCapabilities) | <p>An enumerated array that describes the power management capabilities of the device. This property is deprecated. Instead, the PowerCapabilites property in an associated PowerManagement Capabilities class must be used.</p> <p>Code Semantics</p> <p>0 Unknown</p> <p>1 Not Supported</p> <p>2 Disabled</p> <p>3 Enabled</p> <p>4 Power Saving Modes Entered Automatically</p> <p>5 Power State Settable</p> <p>6 Power Cycling Supported</p> <p>7 Timed Power On Supported</p> |
| PowerManagement Supported | Boolean | Deprecated(CIM_Power ManagementCapabilities) | Indicates if the device can be power managed. This property is deprecated. Instead, the existence of an associated PowerManagement Capabilities class (associated using the ElementCapabilities relationship) indicates that power management is supported. |
| PowerOnHours | Uint64 | Deprecated(CIM_Powered StatisticalData.PowerOnHours), Units(Hours), Counter(TRUE) | This property is not supported. |
| PreferredNode | String | Expensive(TRUE) | The ID of the preferred node. |
| Primordial | Boolean | | Indicates if the containing system does not have the ability to create or delete this operational element. |
| Purpose | String | | The description of the media and its use. |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description |
|--------------------|----------|--|--|
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | <p>The state change for the element that must be made at the next opportunity. The SAN Volume Controller does not evaluate this attribute and therefore no action is taken when it changes.</p> <p>Code Semantics</p> <p>2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10..32767 DMTF Reserved 32768..65535 Vendor Reserved</p> |
| SCID | String | | The sync copy ID of the volume. |
| SCName | String | | The sync copy name of the volume. |
| SequentialAccess | Boolean | | Indicates if storage is sequentially accessed by a MediaAccessDevice. For example, a TapePartition is a sequentially accessed StorageExtent. StorageVolumes, DiskPartitions, and LogicalDisks are random-access extents. |
| Status | String | MaxLen(10), Deprecated(CIM_ManagedSystemElement. OperationalStatus) | Deprecated property that is set to unknown. See OperationalStatus for status information. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.OperationalStatus) | The description of the status that is used when the OperationalStatus property is set to 1 (Other). |

Table 42. IBMTSSVC_StorageVolume properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------|-----------|---|--|
| StatusInfo | Uint16 | Deprecated(CIM_Enabled LogicalElement.Enabled State) | Deprecated porperty. See CIM_Enabled LogicalElement.EnabledState instead. Code Semantics 1 Other 2 Unknown 3 Enabled 4 Disabled 5 Not Applicable |
| SystemCreationClassName | String | Propagated(CIM_System.CreationClassName), MaxLen(256) | The CreationClassName of the scoping system. |
| SystemName | String | Propagated(CIM_System.Name), MaxLen(256) | The IP address of the scoping cluster. |
| Throttle | Uint64 | Units(IOs per second), Write(TRUE), WriteRole(Administrator), Expensive(TRUE) | The maximum bandwidth of the volume. |
| TimeOfLastStateChange | Date-time | | This property is not supported. |
| TotalPowerOnHours | Uint64 | Deprecated(CIM_PoweredStatisticalData.TotalPowerOnHours), Units(Hours), Counter(TRUE) | This property is not supported. |
| Type | Uint32 | Value(Sequential Striped Router Image) | The type of volume. |
| UnitDeviceID | Uint16 | | The unit device identifier of the volume as defined by OpenVMS. |

IBMTSSVC_StorageVolumeBackendVolumeView

The IBMTSSVC_StorageVolumeBackendVolumeView class represents a mapping between a virtual disk (the storage volume) and a managed disk (the backend volume).

Properties

The IBMTSSVC_StorageVolumeBackendVolumeView class extends the CIM_LogicalElement class and has the properties shown in Table 43.

Table 43. IBMTSSVC_StorageVolumeBackendVolumeView properties

| Property | Type | Qualifier | Description |
|-----------------|--------|-----------|--|
| BackendVolumeID | Uint16 | Key | The ID of the backend volume (managed disk). |
| Count | Uint16 | | The number of storage extents that the storage volume (virtual disk) has on the backend volume (managed disk). |

Table 43. IBMTSSVC_StorageVolumeBackendVolumeView properties (continued)

| Property | Type | Qualifier | Description |
|-----------------|--------|------------------|---|
| StorageVolumeID | Uint16 | Key | The ID of the storage volume (virtual disk). |
| SystemName | String | Key, MaxLen(256) | The system scoping identifier in the format cluster_ip. |

IBMTSSVC_SyncCopyJob

IBMTSSVC_SyncCopyJob class instances show the percentage of all Global Mirrors in the "inconsistent_copying" state.

Properties

A job instance is used to monitor asynchronous Global Mirror operations on the device. The IBMTSSVC_SyncCopyJob class has the properties shown in Table 44.

Table 44. IBMTSSVC_SyncCopyJob properties

| Property | Type | Qualifier | Description |
|--------------------|----------|--|--|
| InstanceID | String | | Opaquely identifies a unique instance of ConcreteJob. The InstanceID must be unique within a namespace. In order to ensure that the name is unique, the value of InstanceID <i>must</i> be constructed in the following manner: (Vendor ID)(ID). |
| Caption | String | MaxLen(64), | Unsupported property. |
| DeleteOnCompletion | Boolean | Write(TRUE), | Indicates if the job is automatically deleted after completion. If this property is set to false and the job completes, the extrinsic method DeleteInstance <i>must</i> be used to delete the job. |
| Description | String | | A textual description of the object. |
| Elapsed Time | Datetime | | Unsupported property. |
| ElementName | String | | Unsupported property. |
| ErrorCode | Uint16 | Model Correspondence (CIM_Job.Error Description) | Unsupported property. |
| ErrorDescription | String | Model Correspondence (CIM_Job.ErrorCode), | Unsupported property. |
| InstallDate | Datetime | | Unsupported property. |
| JobRunTimes | Uint32 | Write(TRUE), | |

Table 44. IBMTSSVC_SyncCopyJob properties (continued)

| Property | Type | Qualifier | Description |
|----------------|--------|--|--|
| JobState | Uint16 | | An integer enumeration that indicates the operational state of a job. Code Semantics 2 New 3 Starting 4 Running 5 Suspended 6 Shutting Down 7 Completed 8 Terminated 9 Killed 10 Exception 11 Service 12..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| JobStatus | String | Model Correspondence (ManagedSystem Element) | Unsupported property. |
| LocalOrUtcTime | Uint16 | Write(TRUE), | Code Semantics 1 Local Time 2 UTC Time |
| Name | String | Required(TRUE), MaxLen(1024) | The user friendly name for this instance of the job. |
| Notify | String | Write(TRUE), | Unsupported property. |

Table 44. IBMTSSVC_SyncCopyJob properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|----------------------------|--|---|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|
| OperationalStatus | UInt16[] | ArrayType(Indexed), Model Correspondence (CIM_Managed SystemElement) | <p>The current status of the element. Various health and operational statuses are defined. Many of the enumeration's values are self-explanatory.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherRecoveryAction | String | Model Correspondence (CIM_Job.Recovery Action) | The recovery action when the instance's RecoveryAction property is 1 ("Other"). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Owner | String | Model Correspondence (CIM_OwningJob Element) | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PercentComplete | UInt16 | MaxValue(101), MinValue(0), Units(Percent), | The percentage of the job that is complete at the time of the request. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Priority | UInt32 | Write(TRUE), | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 44. IBMTSSVC_SyncCopyJob properties (continued)

| Property | Type | Qualifier | Description |
|----------------|--------|--|--|
| RecoveryAction | Uint16 | Model Correspondence (CIM_Job.Other RecoveryAction) | The recovery action for an unsuccessfully run job. A return code of "Other" indicates that the recovery action is specified in the OtherRecovery Action property. Code Semantics 0 Unknown 1 Other 2 Do Not Continue 3 Continue With Next Job 4 Re-run Job 5 Run Recovery Job |
| RunDay | Sint8 | Write(TRUE), MinValue(-31), MaxValue(31), Model Correspondence (CIM_Job.RunMonth CIM_Job.RunDay OfWeek CIM_Job.Run StartInterval) | |
| RunDayOfWeek | Sint8 | Write(TRUE), Model Correspondence (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunStart Interval) | Code Semantics -7 -Saturday -6 -Friday -5 -Thursday -4 -Wednesday -3 -Tuesday -2 -Monday -1 -Sunday 0 ExactDayOf Month 1 Sunday 2 Monday 3 Tuesday 4 Wednesday 5 Thursday 6 Friday 7 Saturday |
| RunMonth | Uint8 | Write(TRUE), Model Correspondence (CIM_Job.RunDay CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval) | Code Semantics 0 January 1 February 2 March 3 April 4 May 5 June 6 July 7 August 8 September 9 October 10 November 11 December |

Table 44. *IBMTSSVC_SyncCopyJob* properties (continued)

| Property | Type | Qualifier | Description |
|---------------------------|----------|---|---|
| RunStartInterval | Datetime | Write(TRUE), Model Correspondence (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval) | |
| ScheduledStartTime | Datetime | Deprecated (CIM_Job.RunMonth CIM_Job.RunDay CIM_Job.RunDay OfWeek CIM_Job.RunStart Interval), Write(TRUE), | Unsupported property. |
| StartTime | Datetime | | Unsupported property. |
| Status | String | MaxLen(10), Deprecated(CIM_ ManagedSystem Element) | This property is deprecated in lieu of OperationalStatus. |
| StatusDescriptions | String[] | ArrayType(Indexed), Model Correspondence (CIM_Managed SystemElement) | Describes the status. Use this property when the OperationalStatus property is set to 1 ("Other"). |
| TimeOfLastState Change | Datetime | | Unsupported property. |
| TimeSubmitted | Datetime | | Unsupported property. |
| UntilTime | Datetime | Write(TRUE), Model Correspondence (CIM_Job.LocalOr UtcTime) | Unsupported property. |

IBMTSSVC_SyncCopySynchronizedSet

The *IBMTSSVC_SyncCopySynchronizedSet* class aggregates multiple *StorageSynchronized* instances to ensure consistent copying.

Properties

The *IBMTSSVC_SyncCopySynchronizedSet* class extends the *CIM_SynchronizedSet* class and has the properties shown in Table 45.

Table 45. *IBMTSSVC_SyncCopySynchronizedSet* properties

| Property | Type | Qualifier | Description |
|---------------|--------|-----------|---------------------------------------|
| AuxiliaryID | String | | The ID of the auxiliary cluster. |
| AuxiliaryName | String | | The name of the auxiliary cluster. |

Table 45. IBMTSSVC_SyncCopySynchronizedSet properties (continued)

| Property | Type | Qualifier | Description |
|--------------|---------|---|---|
| Availability | Uint32 | Expensive(TRUE) | The availability of the set. Code Semantics 0 Online 1 Primary Offline 2 Secondary Offline 3 IO Channel Offline |
| Caption | String | MaxLen(15), Write(TRUE), WriteRole(Administrator) | A short (one-line string) textual description. |
| Connected | Boolean | | The status of the network connection. |
| CopyType | Uint16 | Experimental(TRUE) | The replication policy of the SynchronizedSet. Code Semantics 2 Async. Create and maintain an asynchronous copy of the source. 3 Sync. Create and maintain a synchronized copy of the source. 4 UnSyncAssoc .. DMTF Reserved 0x8000.. Vendor Specific |
| Description | String | | A textual description of the object. |
| ElementCount | Uint32 | Counter | The number of SyncCopyStorage Synchronized in this set. |
| ElementName | String | MaxLen(15), Write(TRUE), WriteRole(Administrator), Experimental(TRUE) | The user-friendly name for this instance of SynchronizedSet. In addition, the user-friendly name can be used as a property for a search or query. ElementName does not have to be unique within a namespace. |
| FreezeTime | String | Expensive(TRUE) | The time the relationship was stopped |

Table 45. IBMTSSVC_SyncCopySynchronizedSet properties (continued)

| Property | Type | Qualifier | Description |
|----------------|---------|------------------|--|
| InstanceID | String | | Opaquely identifies a unique instance of collection that is scoped (contained) by a system. The InstanceID must be unique within a namespace. In order to ensure uniqueness, the value of InstanceID must be constructed in the following format: (Vendor ID)(ID). |
| MasterID | String | | The ID of the master cluster. |
| NativeState | Uint16 | ValueMap, Values | The native state of the set. Code Semantics 0 Idling 1 Idling disconnected 2 Consistent synchronized 3 Consistent disconnected 4 Consistent stopped 5 Inconsistent copying 6 Inconsistent disconnected 7 Inconsistent disconnected 8 Empty |
| Primary | Uint32 | | Shows which side is currently the primary in the relationship. The primary volumes are the ones accessible for I/O by the clients. |
| Status | Uint32 | | The status of the SynchronizedSet. Code Semantics 4 Prepared 5 ReSyncln Progress 6 Synchronized 12 Broken 13 Fractured 0x1000 Empty 0x8101 Fractured Idle |
| SyncMaintained | Boolean | Expensive(TRUE) | Indicates if the synchronization relationship is maintained. |

Service object classes

The service classes and their properties of the CIM Agent for the SAN Volume Controller are described in the following pages.

IBMTSSVC_ClusteringService

The IBMTSSVC_ClusteringService class provides the methods for managing the SAN Volume Controller cluster, such as adding or removing nodes.

Properties

The IBMTSSVC_ClusteringService class extends the CIM_ClusteringService class and has the properties shown in Table 46.

Table 46. IBMTSSVC_ClusteringService properties

| Property | Type | Qualifier | Description |
|-------------------|--------|-------------|---|
| Caption | String | MaxLen(64) | Unsupported property. |
| CreationClassName | String | MaxLen(256) | The name of the class or subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |
| Description | String | | A textual description of the object. |
| ElementName | String | | Unsupported property. |
| EnabledDefault | Uint16 | Write(TRUE) | An enumerated value that indicates an administrator's default/startup configuration for an element's EnabledStatus. By default, the element is "Enabled." Code Semantics 2 Enabled 3 Disabled 5 Not Applicable 6 Enabled but Offline 7 No Default 8..32767 DMTF Reserved 32768..65535 Vendor Reserved |

Table 46. IBMTSSVC_ClusteringService properties (continued)

| Property | Type | Qualifier | Description |
|-------------------|----------|---|--|
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.OtherEnabledState) | An integer enumeration that indicates one of the following: Code Semantics 0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 Not Applicable 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| InstallDate | Datetime | | Unsupported property. |
| Name | String | MaxLen(256) | The label by which the object is known. |
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | The operational status of the service. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode |

Table 46. IBMTSSVC_ClusteringService properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------|----------|--|---|
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogicalElement.EnabledState) | The element's enabled/disabled state when the EnabledState property is set to 1 ("Other"). This property <i>must</i> be set to NULL when EnabledState is any value other than 1. |
| PrimaryOwnerContact | String | MaxLen(256), Write(TRUE) | Unsupported property. |
| PrimaryOwnerName | String | MaxLen(64), Write(TRUE) | Unsupported property. |
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.EnabledState) | An integer enumeration that indicates if the element must be shut down, enabled, disabled, taken offline, or tested at the next opportunity. Code Semantics 2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| Started | Boolean | | Indicates if this service is started. |
| StartMode | String | MaxLen(10), Deprecated (CIM_Service.EnabledDefault) | Indicates if this service is started manually or automatic. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement.OperationalStatus) | A deprecated property that is set to "Unknown." Look at OperationalStatus for status information. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.OperationalStatus) | Describes the status. Use when the OperationalStatus property is set to "Other." |
| SystemCreationClassName | String | Propagated(CIM_System.CreationClassName), MaxLen(256) | The scoping system's creation class name. |

Table 46. *IBMTSSVC_ClusteringService* properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|----------|---|----------------------------|
| SystemName | String | Propagated (CIM_System.Name), MaxLen(256) | The scoping system's name. |
| TimeOfLastState Change | Datetime | | Unsupported property. |

IBMTSSVC_PrivilegeManagementService

IBMTSSVC_PrivilegeManagementService class extends the CIM_PrivilegeManagementService class.

Properties

The IBMTSSVC_PrivilegeManagementService class has the properties shown in Table 47.

Table 47. *IBMTSSVC_PrivilegeManagementService* properties

| Property | Type | Qualifier | Description |
|-------------------|--------|-------------|--|
| Caption | String | MaxLen(64) | Unsupported property. |
| CreationClassName | String | MaxLen(256) | The name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |
| Description | String | | A textual description of the object. |
| ElementName | String | | Unsupported property. |

Table 47. IBMTSSVC_PrivilegeManagementService properties (continued)

| Property | Type | Qualifier | Description |
|----------------|----------|---|---|
| EnabledDefault | Uint16 | Write(TRUE) | <p>An enumerated value that indicates an administrator's default/startup configuration for an element's EnabledStatus. By default, the element is "Enabled" (value=2).</p> <p>Code Semantics</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 No Default</p> <p>8..32767</p> <p>DMTF Reserved</p> <p>32768..65535</p> <p>Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.OtherEnabledState) | <p>An integer enumeration indicator.</p> <p>Code Semantics</p> <p>0 Unknown</p> <p>1 Other</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shutting Down</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 In Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10 Starting</p> <p>11..32767</p> <p>DMTF Reserved</p> <p>32768..65535</p> <p>Vendor Reserved</p> |
| InstallDate | Datetime | | Unsupported property. |
| Name | String | MaxLen(256) | The label by which the object is known. |

Table 47. IBMTSSVC_PrivilegeManagementService properties (continued)

| Property | Type | Qualifier | Description |
|---------------------|----------|---|---|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | The operational status of the service. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode |
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | The element's enabled/disabled state when the EnabledStatus property is set to 1 ("Other"). This property must be set to NULL when EnabledStatus is any value other than 1. |
| PrimaryOwnerContact | String | MaxLen(256), Write(TRUE) | Unsupported property. |
| PrimaryOwnerName | String | MaxLen(64), Write(TRUE) | Unsupported property. |

Table 47. IBMTSSVC_PrivilegeManagementService properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------|----------|--|---|
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.EnabledState) | An integer enumeration indicator. This property is provided to compare Requested and current Enabled statuses. When EnabledStatus is set to 5 ("Not Applicable"), writing this property has no effect. The default is 5 ("No Change"). Code Semantics 2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| Started | Boolean | | Indicates if this service is started. |
| StartMode | String | MaxLen(10), Deprecated (CIM_Service.EnabledDefault) | Indicates if this service is started manually or automatic. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement.OperationalStatus) | This is a deprecated property set to "Unknown." Look at OperationalStatus for status information. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.OperationalStatus) | Describes the status. Use when the OperationalStatus property is set to 1 ("Other"). |
| SystemCreationClassName | String | Propagated (CIM_System.CreationClassName), MaxLen(256) | The scoping system's creation class name. |
| SystemName | String | Propagated (CIM_System.Name), MaxLen(256) | The scoping system's name. |
| TimeOfLastStateChange | Datetime | | Unsupported property. |

IBMTSSVC_StorageConfigurationService

The IBMTSSVC_StorageConfigurationService class provides extrinsic methods for basic storage configuration tasks.

Properties

The IBMTSSVC_StorageConfigurationService class extends the CIM_StorageConfigurationService class and has the properties shown in Table 48.

Table 48. IBMTSSVC_StorageConfigurationService properties

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | |
|-------------------|---------------------|-------------|--|------|-----------|---|---------|---|----------|---|----------------|---|---------------------|---|------------|----------|---------------|--------------|-----------------|
| Caption | String | MaxLen(64) | This property is not supported. | | | | | | | | | | | | | | | | |
| CreationClassName | String | MaxLen(256) | The name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. | | | | | | | | | | | | | | | | |
| Description | String | N/A | A textual description of the object. | | | | | | | | | | | | | | | | |
| ElementName | String | N/A | This property is not supported. | | | | | | | | | | | | | | | | |
| EnabledDefault | Uint16 | Write(TRUE) | <p>An enumerated value that indicates an administrator's default startup configuration for an element's EnabledStatus. By default, the element is "Enabled" (value=2).</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>Enabled</td> </tr> <tr> <td>3</td> <td>Disabled</td> </tr> <tr> <td>5</td> <td>Not Applicable</td> </tr> <tr> <td>6</td> <td>Enabled but Offline</td> </tr> <tr> <td>7</td> <td>No Default</td> </tr> <tr> <td>8..32767</td> <td>DMTF Reserved</td> </tr> <tr> <td>32768..65535</td> <td>Vendor Reserved</td> </tr> </tbody> </table> | Code | Semantics | 2 | Enabled | 3 | Disabled | 5 | Not Applicable | 6 | Enabled but Offline | 7 | No Default | 8..32767 | DMTF Reserved | 32768..65535 | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | |
| 2 | Enabled | | | | | | | | | | | | | | | | | | |
| 3 | Disabled | | | | | | | | | | | | | | | | | | |
| 5 | Not Applicable | | | | | | | | | | | | | | | | | | |
| 6 | Enabled but Offline | | | | | | | | | | | | | | | | | | |
| 7 | No Default | | | | | | | | | | | | | | | | | | |
| 8..32767 | DMTF Reserved | | | | | | | | | | | | | | | | | | |
| 32768..65535 | Vendor Reserved | | | | | | | | | | | | | | | | | | |

Table 48. IBMTSSVC_StorageConfigurationService properties (continued)

| Property | Type | Qualifier | Description |
|-------------------|----------|---|---|
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.OtherEnabledState) | An integer enumeration indicator. Code Semantics 0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 Not Applicable 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| InstallDate | Datetime | | This property is not supported. |
| Name | String | MaxLen(256) | The label by which the object is known. |
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | The operational status of the service. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode |

Table 48. IBMTSSVC_StorageConfigurationService properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------|----------|--|--|
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogicalElement.EnabledState) | The element's enabled/disabled state when the EnabledStatus property is set to 1 ("Other"). This property <i>must</i> be set to NULL when the EnabledStatus property is any value other than 1. |
| PrimaryOwnerContact | String | MaxLen(256), Write(TRUE) | This property is not supported. |
| PrimaryOwnerName | String | MaxLen(64), Write(TRUE) | This property is not supported. |
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.EnabledState) | An integer enumeration indicator. Code Semantics 2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10..32767 DMTF Reserved 32768..65535 Vendor Reserved |
| Started | Boolean | N/A | Indicates if this service is started. |
| StartMode | String | MaxLen(10), Deprecated (CIM_Service.EnabledDefault) | Indicates if this service is started manually or automatically. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement.OperationalStatus) | Deprecated property - set to "Unknown." Look at the OperationalStatus property for status information. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.OperationalStatus) | Describes the status. Used when the OperationalStatus property is set to 1 ("Other"). |
| SystemCreationClassName | String | Propagated (CIM_System.CreationClassName), MaxLen(256) | The scoping system's creation class name. |
| SystemName | String | Propagated (CIM_System.Name), MaxLen(256) | The scoping system's name. |

Table 48. IBMTSSVC_StorageConfigurationService properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|----------|-----------|---|
| TimeOfLastStateChange | Datetime | N/A | This property is not supported. |
| UnitDeviceID | Uint16 | N/A | The unit device ID that is defined by OpenVMS for the volume. |

IBMTSSVC_StorageHardwareIDManagementService

This service provides extrinsic methods to manage HardwareAccounts and Hosts for the SAN Volume Controller.

Properties

The IBMTSSVC_StorageHardwareIDManagementService class extends the CIM_StorageHardwareIDManagementService class and has the properties shown in Table 49.

Table 49. IBMTSSVC_StorageHardwareIDManagementService properties

| Property | Type | Qualifier | Description |
|-------------------|--------|-------------|--|
| Caption | String | MaxLen(64) | Unsupported property. |
| CreationClassName | String | MaxLen(256) | The name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |
| Description | String | | A textual description of the object. |
| ElementName | String | | Unsupported property. |
| EnabledDefault | Uint16 | Write(TRUE) | An enumerated value that indicates the default or startup EnabledStatus. By default, the element is Enabled (2). Code Semantics 2 Enabled 3 Disabled 5 Not Applicable 6 Enabled but Offline 7 No Default 8..32767 DMTF Reserved 32768..65535 Vendor Reserved |

Table 49. IBMTSSVC_StorageHardwareIDManagementService properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------------|--|--|------|-----------|---|---------|---|-------|---|---------|---|----------|---|---------------|---|----------------|---|---------------------|---|---------|---|----------|---|---------|----|----------|-----------|---------------|--------------|-----------------|
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLogical Element.OtherEnabledState) | <p>The operational state of the element.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>Enabled</td></tr> <tr><td>3</td><td>Disabled</td></tr> <tr><td>4</td><td>Shutting Down</td></tr> <tr><td>5</td><td>Not Applicable</td></tr> <tr><td>6</td><td>Enabled but Offline</td></tr> <tr><td>7</td><td>In Test</td></tr> <tr><td>8</td><td>Deferred</td></tr> <tr><td>9</td><td>Quiesce</td></tr> <tr><td>10</td><td>Starting</td></tr> <tr><td>11..32767</td><td>DMTF Reserved</td></tr> <tr><td>32768..65535</td><td>Vendor Reserved</td></tr> </tbody> </table> <p>If an element is being tested and is neither enabled or disabled, then In Test (7) is used. If this property does not apply to an instance of EnabledLogical Element, then Not Applicable (5) is used.</p> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | Enabled | 3 | Disabled | 4 | Shutting Down | 5 | Not Applicable | 6 | Enabled but Offline | 7 | In Test | 8 | Deferred | 9 | Quiesce | 10 | Starting | 11..32767 | DMTF Reserved | 32768..65535 | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Enabled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Disabled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Shutting Down | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Not Applicable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Enabled but Offline | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | In Test | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Deferred | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Quiesce | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11..32767 | DMTF Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32768..65535 | Vendor Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| InstallDate | Datetime | | Unsupported property. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name | String | MaxLen(256) | The name of the object. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 49. IBMTSSVC_StorageHardwareIDManagementService properties (continued)

| Property | Type | Qualifier | Description |
|----------------------|----------|---|---|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem Element.StatusDescriptions) | The operational status of the service. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Completed 18 Power Mode |
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLogical Element.EnabledState) | The state of the element when the EnabledStatus property is set to 1 (Other). This property must be set to null when EnabledStatus is any value other than 1. |
| PrimaryOwner Contact | String | MaxLen(256), Write(TRUE) | Unsupported property. |
| PrimaryOwner Name | String | MaxLen(64), Write(TRUE) | Unsupported property. |

Table 49. IBMTSSVC_StorageHardwareIDManagementService properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------|----------|--|---|
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLogicalElement.EnabledState) | <p>The state change for the element that must be made at the next opportunity. When EnabledStatus is set to 5 (No Change), then this property has no effect. By default, the RequestedStatus is 5 (No Change).</p> <p>Code Semantics</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shut Down</p> <p>5 No Change</p> <p>6 Offline</p> <p>7 Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10..32767 DMTF Reserved</p> <p>32768..65535 Vendor Reserved</p> |
| Started | Boolean | | Indicates if the service is started. |
| StartMode | String | MaxLen(10), Deprecated (CIM_Service.EnabledDefault) | Indicates if the service is started manually or automatically. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystemElement.OperationalStatus) | This property is deprecated and set to "Unknown." See OperationalStatus for status information. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystemElement.OperationalStatus) | The description of the status that is used when the OperationalStatus property is set to 1 (Other). |
| SystemCreationClassName | String | Propagated(CIM_System.CreationClassName), MaxLen(256) | The scoping system's creation class name. |
| SystemName | String | Propagated(CIM_System.Name), MaxLen(256) | The name of the scoping system. |
| TimeOfLastStateChange | Datetime | | Unsupported property. |

Security object classes

This section describes the security classes and their properties of the CIM Agent for the SAN Volume Controller.

This section describes the security classes and their properties of the CIM Agent for the SAN Volume Controller.

IBMTS_Account

The IBMTS_Account class extends the CIM_Account class.

Properties

The IBMTS_Account class represents a single user account on the Common Information Model Object Model (CIMOM) and stores the authentication (user name and password) and authorization (global and system roles) information.

The IBMTS_Account class has the properties shown in Table 50.

Table 50. IBMTS_Account properties

| Property | Type | Qualifier | Description |
|--------------------|----------|-----------------------------|--|
| Caption | String | MaxLen(64) | A short (one-line string) textual description of the object. |
| CreationClass Name | String | MaxLen(256), ReadRole(None) | The name of the class or the subclass used in creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified. |
| Description | String | | A textual description of the object. |
| Descriptions | String[] | MaxLen(1024) | Contains descriptions of the object that the user can read. In the case of an LDAP-derived instance, the description attribute might have multiple values that cannot be placed in the inherited Description property. |
| ElementName | String | | The name of the object. This property enables each instance to define a user-friendly name in addition to its key properties or identity data, and description information. |
| Host | String[] | | The name(s) of the system(s) to which the account applies. The host name can be a fully-qualified DNS name or it can be an unqualified host name. |

Table 50. IBMTS_Account properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|-------------------------|---|---|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|-------------------------|----|----------|----|------------|
| InstallDate | Date-time | | The date when the object was installed. Lack of this value does not mean that the object is not installed. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LocalityName | String[] | | The name of the selected locality, such as the name of a city, county or other geographic region. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name | String | MaxLen(1024) ReadRole(None) | The name of the object instance. The value of this property can be set to be the same as that of the UserID property or, in the case of an LDAP-derived instance, the Name property value can be set to the DistinguishedName of the LDAP-accessed object instance. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ObjectClass | String[] | | In the case of an LDAP-derived instance, this property value(s) can be set to the objectClass attribute values. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operational Status | UInt16[] | Experimental(TRUE), ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem) | <p>The current status of the element.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity Error</td></tr> <tr><td>17</td><td>Complete</td></tr> <tr><td>18</td><td>Power Mode</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity Error | 17 | Complete | 18 | Power Mode |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Complete | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 50. IBMTS_Account properties (continued)

| Property | Type | Qualifier | Description |
|--------------------------|----------|---|---|
| Organization Name | String[] | Required(TRUE) | The name of the organization related to the account. |
| OU | String[] | | The name of an organizational unit related to the account. |
| Status Descriptions | String[] | Experimental(TRUE), ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem) | The status of the element when OperationalStatus is set to 1. |
| SeeAlso | String[] | | The distinguished Name of other Directory objects that might resemble the real-world objects. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystem) | The current status of the object. |
| SystemCreation ClassName | String | Propagated (CIM_System.CreationsClassName), MaxLen(256), ReadRole(None) | The cluster configuration node (CCN) of the system. |
| SystemName | String | Propagated (CIM_System.Name), MaxLen(256), ReadRole(None) | The name of the system. |
| UserCertificate | String[] | Octetstring(TRUE) | A public key certificate for the user. |
| UserID | String | MaxLen(256) | The identifier for a user of the system. |
| UserPassword | String[] | Octetstring(TRUE) | Contains an encrypted password for an authorized user to access the resources in a specified directory. |

IBMTS_AccountManagementService

The IBMTS_AccountManagementService class provides the methods for managing the accounts on the Common Information Model Object Manager (CIMOM).

Properties

The IBMTS_AccountManagementService class extends the CIM_AccountManagementService class and has the properties shown in Table 51.

Table 51. IBMTS_AccountManagementService properties

| Property | Type | Qualifier | Description |
|-------------------|--------|-----------------------------|---|
| Caption | String | MaxLen(64), ReadRole(None) | A short (one-line string) textual description of the object. |
| CreationClassName | String | MaxLen(256), ReadRole(None) | The name of the class or subclass used to create an instance. |

Table 51. IBMTS_AccountManagementService properties (continued)

| Property | Type | Qualifier | Description |
|---------------------|--------|---|---|
| SystemCreationClass | String | Propogated (CIM_System.Creation) MaxLen(256), ReadRole(None) | The system's creation class name. |
| SystemName | String | Propogated (CIM_System.Name) MaxLen(256), ReadRole(None) | The system's name. |
| Description | String | ReadRole(None) | A textual description of the object. |
| ElementName | String | ReadRole(None) | The name of the instance. |
| EnabledDefault | Uint16 | Write(TRUE) | The administrator's default or startup configuration for an element's Enabled Status. By default, the element is Enabled (value = 2). Code Semantics 2 Enabled 3 Disabled 5 Not Applicable 6 Enabled but Offline 7 No Default 8...32767 DMTF Reserved 32768... Vendor Reserved |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLog) | Indicates if the element is currently shutting down or in an enabled or disabled state. Code Semantics 0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 Not Applicable 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11...32767 DMTF Reserved 32768... Vendor Reserved |

Table 51. IBMTS_AccountManagementService properties (continued)

| Property | Type | Qualifier | Description |
|---------------------|-----------|--|--|
| InstallDate | Date-time | | The date on which the CIM client created the object in the CIMOM's repository. |
| Name | String | MaxLen(256), ReadRole(None) | The unique label, in the context of the hosting system, by which the AccessControl Information is known. |
| OperationalStatus | Uint16[] | Experimental(TRUE), ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem) | The operational status of the cluster. Code Semantics 0 Unknown 1 Other 2 OK 3 Degraded 4 Stressed 5 Predictive Failure 6 Error 7 Non-Recoverable Error 8 Starting 9 Stopping 10 Stopped 11 In Service 12 No Contact 13 Lost Communication 14 Aborted 15 Dormant 16 Supporting Entity in Error 17 Complete 18 Power Mode |
| OtherEnabledStatus | String | ModelCorrespondence (CIM_EnabledLog) | The element's enabled or disabled state when EnabledStatus is set to 1. This value must be null when EnabledStatus is set to a value other than 1. |
| StatusDescriptions | String[] | Experimental(TRUE), ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem) | The status of the cluster when OperationalStatus is set to 1. |
| PrimaryOwnerContact | String | Experimental(TRUE), MaxLen(256), Write(TRUE) | The method of contact for the primary owner of the account, such as a phone number or e-mail address. |

Table 51. IBMTS_AccountManagementService properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|-----------|---|---|
| PrimaryOwnerName | String | Experimental(TRUE), MaxLen(64), Write(TRUE) | The name of the primary owner. |
| RequestedStatus | Uint16 | Write(TRUE), ModelCorrespondence (CIM_EnabledLog) | Sets the state (shut down, enabled, taken offline, or tested) of the element at the next operation. Code Semantics 2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10...32767 DMTF Reserved 32768... Vendor Reserved |
| Started | Boolean | | Indicates that the Service is started or stopped for the account. |
| StartMode | String | MaxLen(10), Deprecated (CIM_Service.Enable) | Indicates if the Service is automatically started by a system, operating system, or specific user request. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystem) | The current status of the Service instance. |
| TimeOfLastStateChange | Date-time | Experimental(TRUE) | The time the last change of state occurred. |

IBMTS_Certificate

The SecurityProvider generates one instance of this class.

Properties

IBMTS_Certificate class has the properties shown in Table 52.

Table 52. IBMTS_Certificate properties

| Property | Type | Qualifier | Description |
|------------|--------|-------------|---|
| Algorithm | String | | Algorithm of the certificate. |
| AltSubject | String | MaxLen(256) | Alternate subject identifier for certificate. |
| Caption | String | MaxLen(64) | A short, textual description (one line string) of the object. |

Table 52. IBMTS_Certificate properties (continued)

| Property | Type | Qualifier | Description |
|------------------------------|----------|--|---|
| Description | String | | A textual description of the object. |
| ElementName | String | | A name for the object. This property allows you to define a name in addition to its key properties/identity data and description information. |
| Expires | Datetime | | The date and time the credential expires. Use a value of all nines if this information is not applicable. Note: This property does not define how the expiration is set. The property can be set to either a specific date/time or an interval. |
| Issued | Datetime | | The date and time the credential was issued. Use a value of all zeros if this information is not applicable. |
| PublicKey | Uint8[] | OctetString (TRUE) | The DER-encoded raw public key. |
| Property | Type | Qualifier | Description. |
| ServiceCreation ClassName | String | Propagated(CIM_CertificateAuthority) MaxLen(256) | The scoping Service's CCN. |
| ServiceName | String | Propagated(CIM_CertificateAuthority. Name), MaxLen(256) | The scoping Service's Name. |
| Subject | String | MaxLen(256) | Certificate subject identifier. |
| SystemCreation ClassName | String | Propagated(CIM_CertificateAuthority. SystemCreation ClassName), MaxLen(256) | The scoping System's CCN. |
| SystemName | String | Propagated(CIM_CertificateAuthority. SystemName), MaxLen(256) | The scoping System's Name. |
| Type | String | | The type of certificate. |
| Validity | Uint32 | | The validity of the certificate. |

IBMTS_CertificateSetting

This class sets data to create new certificates.

Properties

IBMTS_CertificateSetting class has the properties shown in Table 53.

Table 53. IBMTS_CertificateSetting Properties

| Property | Type | Qualifier | Description |
|------------------------|---------|----------------|---|
| AutoGeneration Enabled | Boolean | | Automatically generates a new certificate after the old one expires. |
| Caption | String | MaxLen(64) | Unsupported property. |
| Description | String | | A textual description of the object. |
| ElementName | String | Required(TRUE) | Unsupported property. |
| InstanceID | String | | Identifies a unique instance of SettingData. The InstanceID must be unique within a namespace. Use the following algorithm to define the InstanceID: (Vendor ID)(ID) |
| ServerCertificate Name | String | | |
| SignerCertificate Name | String | | |
| Validity | UInt32 | | Validity of the certificate in days. |

IBMTS_CIMXMLCommunicationMechanism

The IBMTS_CIMXMLCommunicationMechanism adds properties that are specific to the CIM-XML protocol.

Properties

The IBMTS_CIMXMLCommunicationMechanism properties are shown in Table 54

Table 54. IBMTS_CIMXMLCommunicationMechanism properties

| Property | Type | Qualifier | Description |
|---------------------------------------|----------|---|--|
| Authentication Mechanism Descriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ObjectManager) | A description of the supported mechanisms. An entry in this descriptions array must be provided when 1 = Other is specified. |

Table 54. IBMTS_CIMXMLCommunicationMechanism properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------------------|----------|---|---|
| Authentication Mechanisms Supported | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ObjectManager), Required(TRUE) | The type of authentication supported by the ObjectManager. Code Semantics 0 Unknown 1 Other 2 None 3 Basic 4 Digest |
| Caption | String | MaxLen(64) | A short (one-line string) textual description of the object. |
| CIMValidated | Boolean | Required(TRUE) | Indicates if the CIM server is strictly validating. |
| CIMXMLProtocol Version | Uint16 | Deprecated (CIM_CIMXML), Required(TRUE) | The CIM-XML protocol version supported by the ObjectManager. Code Semantics 0 Unknown 1 1.0 |
| Communication Mechanism | Uint16 | Required(TRUE), ModelCorrespondence (CIM_ObjectManager) | The encoding and protocol which can be used to communicate with the ObjectManager. Code Semantics 0 Unknown 1 Other 2 CIM-XML |
| CreationClassName | String | MaxLen(256) | The name of the class or subclass used to create an instance. |
| Description | String | | A textual description of the object. |
| ElementName | String | ReadRole(None) | The name of the instance. |

Table 54. IBMTS_CIMXMLCommunicationMechanism properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------------|----------|---|--|
| EnabledDefault | Uint16 | Write(TRUE) | <p>The administrator's default or startup configuration for an element's Enabled Status. By default, the element is Enabled (value = 2).</p> <p>Code Semantics</p> <p>2 Enabled 3 Disabled 5 Not Applicable 6 Enabled but Offline 7 No Default 8...32767 DMTF Reserved 32768... Vendor Reserved</p> |
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLog) | <p>Indicates if the element is currently shutting down or in an enabled or disabled state.</p> <p>Code Semantics</p> <p>0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 Not Applicable 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11...32767 DMTF Reserved 32768... Vendor Reserved</p> |
| FunctionalProfile Description | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ObjectManager) | A description of the supported operations of the ObjectManager. |

Table 54. IBMTS_CIMXMLCommunicationMechanism properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------------|-----------|--|--|
| FunctionalProfile Supply | Uint16[] | Required(TRUE), ArrayType(Indexed), ModelCorrespondence (CIM_ObjectManager) | An enumerated array that describes the types of operations supported by the ObjectManager. Code Semantics 0 Unknown 1 Other 2 Basic Read 3 Basic Write 4 Schema Manipulating 5 Instance Manipulating 6 Associated Traversal 7 Query Execution 8 Qualifier Declaration 9 Indication |
| InstallDate | Date-time | | The date on which the CIM client created the object in the CIMOM's repository. |
| MultipleOperation Supply | Boolean | Required(TRUE) | Indicates if the ObjectManager supports multiple operation requests (true) or only simple requests (false). |
| Name | String | MaxLen(256) | The unique label, in the context of the hosting system, by which the AccessControl Information is known. |

Table 54. IBMTS_CIMXMLCommunicationMechanism properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|----------------------------|---|--|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|----------|----|------------|----|---------------|--------|-----------------|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem) | <p>The operational status of the cluster.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Complete</td></tr> <tr><td>18</td><td>Power Mode</td></tr> <tr><td>..</td><td>DMTF Reserved</td></tr> <tr><td>0x8000</td><td>Vendor Reserved</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Complete | 18 | Power Mode | .. | DMTF Reserved | 0x8000 | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Complete | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| .. | DMTF Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0x8000 | Vendor Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherCommunicationMechanism | String | ModelCorrespondence (CIM_ObjectManager) | A description of the supported protocols when 1 = Other, is specified in the Communication Mechanism. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherEnabledState | String | ModelCorrespondence (CIM_EnabledLog) | The element's enabled or disabled state when EnabledStatus is set to 1. This value must be null when EnabledStatus is set to a value other than 1. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 54. IBMTS_CIMXMLCommunicationMechanism properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|-----------|---|--|
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLog) | Sets the state (shut down, enabled, taken offline, or tested) of the element at the next operation. Code Semantics 2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10 Reboot 11 Reset .. DMTF Reserved 32768... Vendor Reserved |
| Status | String | Deprecated (CIM_ManagedSystem), MaxLen(10) | The current status of the Service instance. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem) | The various OperationalStatus array values. |
| SystemCreation Class | String | Propogated (CIM_System.Creation) MaxLen(256) | The system's creation class name. |
| SystemName | String | Propogated (CIM_System.Name) MaxLen(256) | The system's name. |
| TimeOfLast StateChange | Date-time | | The time the last change of state occurred. |
| Version | String | Required(TRUE) | The CIM-XML protocol version supported by the ObjectManager. |

IBMTS_IndicationFilter

The IBMTS_IndicationFilter extends the CIM_IndicationFilter class.

Properties

The IBMTS_IndicationFilter has the properties shown in Table 55.

Table 55. IBMTS_IndicationFilter properties

| Property | Type | Qualifier | Description |
|----------|--------|------------|--|
| Caption | String | MaxLen(64) | A short (one-line string) textual description of the object. |

Table 55. *IBMTS_IndicationFilter* properties (continued)

| Property | Type | Qualifier | Description |
|---------------------|--------|--|--|
| CreationClassName | String | MaxLen(256) | The name of the class or subclass used to create an instance. |
| SystemCreationClass | String | MaxLen(256) | The system's creation class name. |
| SystemName | String | MaxLen(256) | The system's name. |
| Description | String | | A textual description of the object. |
| ElementName | String | | The name of the instance. |
| Query | String | Required(TRUE), ModelCorrespondence (CIM_IndicationFilter) | A query expression that defines the condition(s) under which indications will be generated. |
| QueryLanguage | String | Required(TRUE) | The language in which the query is expressed. |
| SourceNamespace | String | | The path to a local namespace where the indications originate. |
| Name | String | MaxLen(256) | The unique label, in the context of the hosting system, by which the AccessControl Information is known. |

IBMTS_NameSpace

The *IBMTS_NameSpace* extends the *CIM_NameSpace* class.

Properties

The *IBMTS_NameSpace* has the properties shown in Table 56.

Table 56. *IBMTS_NameSpace* properties

| Property | Type | Qualifier | Description |
|----------|--------|------------|--|
| Caption | String | MaxLen(64) | A short (one-line string) textual description of the object. |

Table 56. IBMTS_NameSpace properties (continued)

| Property | Type | Qualifier | Description |
|-------------------------|--------|--|--|
| ClassInfo | Uint16 | Deprecated (CIM_Namespace), Required(TRUE), Write(TRUE), ModelCorrespondence (CIM_Namespace) | The organization of the namespace. Code Semantics 0 Unknown 1 Other 2 CIM 1.0 3 CIM 2.0 4 CIM 2.1 5 CIM 2.2 6 CIM 2.3 7 CIM 2.4 8 CIM 2.5 9 CIM 2.6 10 CIM 2.7 11 CIM 2.8 200 DMI Recast 201 SNMP Recast 202 CMIP Recast |
| ClassType | Uint16 | Write(TRUE), ModelCorrespondence (CIM_Namespace) | The schema of the namespace. Code Semantics 0 Unknown 1 Other 2 CIM 1.0 200 DMI Recast 201 SNMP Recast 202 CMIP Recast |
| ClassTypeVersion | String | Write(TRUE), ModelCorrespondence (CIM_Namespace) | The objects in the namespace. |
| CreationClassName | String | MaxLen(256) | The name of the class or subclass used to create an instance. |
| Description | String | | A textual description of the object. |
| DescriptionOf ClassInfo | String | Deprecated (CIM_Namespace), Write(TRUE), ModelCorrespondence (CIM_Namespace) | Provides detailed information about the object. |
| DescriptionOf ClassType | String | Write(TRUE), ModelCorrespondence (CIM_Namespace) | Provides detailed information about the object. |
| ElementName | String | | The name of the instance. |
| Name | String | MaxLen(256) | The unique label, in the context of the hosting system, by which the AccessControl Information is known. |
| ObjectManager Creation | String | Propogated (CIM_ObjectManager), MaxLen(256) | The ObjectManager's CreationClassName. |

Table 56. IBMTS_NameSpace properties (continued)

| Property | Type | Qualifier | Description |
|---------------------|--------|---|-----------------------------------|
| ObjectManagerName | String | Propogated (CIM_ObjectManager), MaxLen(256) | The ObjectManager's name. |
| SystemCreationClass | String | Propogated (CIM_ObjectManager), MaxLen(256) | The system's creation class name. |
| SystemName | String | Propogated (CIM_ObjectManager), MaxLen(256) | The system's name. |

IBMTS_ObjectManager

The IBMTS_ObjectManager class represents the Common Information Model Object Manager (CIMOM) itself.

Properties

The IBMTS_ObjectManager class extends the CIM_ObjectManager class and has the properties shown in Table 57.

Table 57. IBMTS_ObjectManager properties

| Property | Type | Qualifier | Description |
|----------------|--------|----------------|---|
| Caption | String | MaxLen(64) | A short (one-line string) textual description of the object. |
| Description | String | | A textual description of the object. |
| ElementName | String | ReadRole(None) | The name of the instance. |
| EnabledDefault | Uint16 | Write(TRUE) | The administrator's default or startup configuration for an element's Enabled Status. Code Semantics 2 Enabled 3 Disabled 5 Not Applicable 6 Enabled but Offline 7 No Default 8..32767 DMTF Reserved 32768... Vendor Reserved |

Table 57. IBMTS_ObjectManager properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|---|--|-------------|------------------|----------|---------|----------|-------|----------|---------|----------|----------|----------|---------------|----------|----------------|----------|---------------------|----------|---------|----------|----------|----------|---------|-----------|----------|------------------|---------------|-----------------|-----------------|
| EnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLog) | <p>Indicates if the element is currently shutting down or in an enabled or disabled state.</p> <table border="0"> <tr> <td>Code</td> <td>Semantics</td> </tr> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>1</td> <td>Other</td> </tr> <tr> <td>2</td> <td>Enabled</td> </tr> <tr> <td>3</td> <td>Disabled</td> </tr> <tr> <td>4</td> <td>Shutting Down</td> </tr> <tr> <td>5</td> <td>Not Applicable</td> </tr> <tr> <td>6</td> <td>Enabled but Offline</td> </tr> <tr> <td>7</td> <td>In Test</td> </tr> <tr> <td>8</td> <td>Deferred</td> </tr> <tr> <td>9</td> <td>Quiesce</td> </tr> <tr> <td>10</td> <td>Starting</td> </tr> <tr> <td>11..32767</td> <td>DMTF Reserved</td> </tr> <tr> <td>32768...</td> <td>Vendor Reserved</td> </tr> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | Enabled | 3 | Disabled | 4 | Shutting Down | 5 | Not Applicable | 6 | Enabled but Offline | 7 | In Test | 8 | Deferred | 9 | Quiesce | 10 | Starting | 11..32767 | DMTF Reserved | 32768... | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Enabled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Disabled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Shutting Down | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Not Applicable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Enabled but Offline | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | In Test | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Deferred | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Quiesce | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11..32767 | DMTF Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32768... | Vendor Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GatherStatistical Data | Boolean | Write(TRUE) | Indicates if the CIM_CIMOM StatisticalData object has gathered statistical data and if the data is accessible. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| InstallDate | Date-time | | The date on which the CIM client created the object in the CIMOM's repository. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name | String | MaxLen(256) | Identifies the Service and provides an indication of the functionality that is managed. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 57. IBMTS_ObjectManager properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|----------------------------|---|--|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|----------|----|------------|----|---------------|--------|-----------------|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem) | <p>The operational status of the cluster.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Complete</td></tr> <tr><td>18</td><td>Power Mode</td></tr> <tr><td>..</td><td>DMTF Reserved</td></tr> <tr><td>0x8000</td><td>Vendor Reserved</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Complete | 18 | Power Mode | .. | DMTF Reserved | 0x8000 | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Complete | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| .. | DMTF Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0x8000 | Vendor Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherEnabledStatus | String | ModelCorrespondence (CIM_EnabledLog) | The element's enabled or disabled state when EnabledStatus is set to 1. This value must be null when EnabledStatus is set to a value other than 1. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PrimaryOwner Contact | String | Write(TRUE), MaxLen(256) | The method of contact for the primary owner of the account, such as a phone number or an e-mail address. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PrimaryOwner Name | String | MaxLen(64), Write(TRUE) | The name of the primary owner. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 57. IBMTS_ObjectManager properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------------|---------------|---|--|
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLog) | Sets the state (shut down, enabled, taken offline, or tested) of the element at the next operation. Code Semantics 2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10 Reboot 11 Reset .. DMTF Reserved 32768... Vendor Reserved |
| Started | Boolean | | Indicates if the Service is started or stopped for the account. |
| StartMode | String | MaxLen(10), Deprecated (CIM_Service.Enabled) | Indicates if the Service is automatically started by a system, operating system, or specific user request. |
| Status | String | MaxLen(10), Deprecated (CIM_ManagedSystem) | The current status of the Service instance. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem) | The status of the cluster when OperationalStatus is set to 1. |
| SystemCreation ClassName | String | MaxLen(256) | The class creation name of the scoping system. |
| SystemName | String | Propagated (CIM_System.Name), MaxLen(256) | The name of the scoping system. |
| SystemCreation Class | String | Propagated (CIM_System.Class), MaxLen(256) | The class creation of the scoping system. |
| TimeOfLast StateChange | Date- time | | The date and time when the element's EnableState last changed. |
| Version | String | Experimental(TRUE) | The VRMF level of the Common Information Model (CIM) Agent. |

IBMTS_RegisteredProfile

The IBMTS_RegisteredProfile extends the CIM_RegisteredProfile class.

Properties

The IBMTS_RegisteredProfile has the properties shown in Table 58.

Table 58. IBMTS_RegisteredProfile properties

| Property | Type | Qualifier | Description |
|---------------------------------|----------|--|---|
| AdvertiseType Description | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_RegisteredProfile) | Provides information about the AdvertiseType. |
| AdvertiseTypes | UInt16[] | Required(TRUE), ArrayType(Indexed), ModelCorrespondence (CIM_RegisteredProfile) | Signifies the advertisement for the profile information. Code Semantics 1 Other 2 Not Advertise 3 SLP |
| Caption | String | MaxLen(64) | A short (one-line string) textual description of the object. |
| Description | String | | A textual description of the object. |
| ElementName | String | | The name of the instance. |
| InstanceID | String | | Identifies an instance of this class. |
| OtherRegistered Organization | String | ModelCorrespondence (CIM_ObjectManager), MaxLen(256) | A description of the organization when 1 equals Other is specified for the Registered Organization. |
| RegisteredName | String | Required(TRUE), MaxLen(256) | The name of this RegisteredProfile. |

Table 58. IBMTS_RegisteredProfile properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|--------------------------------------|---|--|-------------|------------------|---|-------|---|------|---|---------|---|-----------------------------------|---|------|---|-----|---|-------|---|-------|---|-----|----|--------------------------------------|----|------|----|----------|----|----------------|----|------|----|------|----|------|----|--------|----|-----|----|-----|
| Registered Organization | Uint16 | Required(TRUE), ModelCorrespondence (CIM_Namespace) | The organization of the namespace. <table border="0"> <tr> <td>Code</td> <td>Semantics</td> </tr> <tr> <td>1</td> <td>Other</td> </tr> <tr> <td>2</td> <td>DMTF</td> </tr> <tr> <td>3</td> <td>CompTIA</td> </tr> <tr> <td>4</td> <td>Consortium for Service Innovation</td> </tr> <tr> <td>5</td> <td>FAST</td> </tr> <tr> <td>6</td> <td>GGF</td> </tr> <tr> <td>7</td> <td>INTAP</td> </tr> <tr> <td>8</td> <td>itSMF</td> </tr> <tr> <td>9</td> <td>NAC</td> </tr> <tr> <td>10</td> <td>Northwest Energy Efficiency Alliance</td> </tr> <tr> <td>11</td> <td>SNIA</td> </tr> <tr> <td>12</td> <td>TM Forum</td> </tr> <tr> <td>13</td> <td>The Open Group</td> </tr> <tr> <td>14</td> <td>ANSI</td> </tr> <tr> <td>15</td> <td>IEEE</td> </tr> <tr> <td>16</td> <td>IETF</td> </tr> <tr> <td>17</td> <td>INCITS</td> </tr> <tr> <td>18</td> <td>ISO</td> </tr> <tr> <td>19</td> <td>W3C</td> </tr> </table> | Code | Semantics | 1 | Other | 2 | DMTF | 3 | CompTIA | 4 | Consortium for Service Innovation | 5 | FAST | 6 | GGF | 7 | INTAP | 8 | itSMF | 9 | NAC | 10 | Northwest Energy Efficiency Alliance | 11 | SNIA | 12 | TM Forum | 13 | The Open Group | 14 | ANSI | 15 | IEEE | 16 | IETF | 17 | INCITS | 18 | ISO | 19 | W3C |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | DMTF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | CompTIA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Consortium for Service Innovation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | FAST | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | GGF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | INTAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | itSMF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | NAC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Northwest Energy Efficiency Alliance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | SNIA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | TM Forum | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | The Open Group | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | ANSI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | IEEE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | IETF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | INCITS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | ISO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | W3C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RegisteredVersion | String | Required(TRUE) | The version of this profile. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

IBMTS_System

The IBMTS_System extends the CIM_System class.

Properties

The IBMTS_System has the properties shown in Table 59.

Table 59. IBMTS_System properties

| Property | Type | Qualifier | Description |
|-------------------|--------|----------------|--|
| Caption | String | MaxLen(64) | A short (one-line string) textual description of the object. |
| CreationClassName | String | MaxLen(256) | The name of the class used in creation of an instance. |
| Name | String | MaxLen(256) | Serves as key of a System instance. |
| Description | String | | A textual description of the object. |
| ElementName | String | ReadRole(None) | Specifies the name of the instance. |

Table 59. IBMTS_System properties (continued)

| Property | Type | Qualifier | Description |
|-------------------|-----------|--------------------------------------|--|
| EnabledDefault | Uint16 | Write(TRUE) | <p>The administrator's default or startup configuration for an element's Enabled Status. By default, the element is Enabled (value = 2).</p> <p>Code Semantics</p> <p>0 Unknown 1 Other 2 Enabled 3 Disabled 4 Shutting Down 5 Not Applicable 6 Enabled but Offline 7 In Test 8 Deferred 9 Quiesce 10 Starting 11...32767 DMTF Reserved 32768... Vendor Reserved</p> |
| OtherEnabledState | Uint16 | ModelCorrespondence (CIM_EnabledLog) | Indicates if the element is currently shutting down or in an enabled or disabled state. |
| InstallDate | Date-time | | The date on which the CIM client created the object in the CIMOM's repository. |
| NameFormat | String | MaxLen(64) | The scope for numerous components. |

Table 59. IBMTS_System properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|----------------------------|---|--|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--------------------|----|---------|----|---------|----|----------------------------|----|----------|----|------------|----|---------------|--------|-----------------|
| OperationalStatus | Uint16[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem) | <p>The operational status of the cluster.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Complete</td></tr> <tr><td>18</td><td>Power Mode</td></tr> <tr><td>..</td><td>DMTF Reserved</td></tr> <tr><td>0x8000</td><td>Vendor Reserved</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Complete | 18 | Power Mode | .. | DMTF Reserved | 0x8000 | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Complete | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| .. | DMTF Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0x8000 | Vendor Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PrimaryOwner Contact | String | MaxLen(256), Write(TRUE) | The contact method for the primary owner of the account, such as a phone number or an e-mail address. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PrimaryOwner Name | String | MaxLen(64), Write(TRUE) | The name of the primary owner. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 59. IBMTS_System properties (continued)

| Property | Type | Qualifier | Description |
|------------------------|-----------|---|--|
| RequestedState | Uint16 | ModelCorrespondence (CIM_EnabledLog) | Sets the state (shut down, enabled, taken offline, or tested) of the element at the next operation. Code Semantics 2 Enabled 3 Disabled 4 Shut Down 5 No Change 6 Offline 7 Test 8 Deferred 9 Quiesce 10 Reboot 11 Reset .. DMTF Reserved 32768... Vendor Reserved |
| Roles | String[] | Write(TRUE) | Specifies the administrator defined roles. |
| Status | String | Deprecated (CIM_ManagedSystem), MaxLen(10) | The current status of the object. |
| StatusDescriptions | String[] | ArrayType(Indexed), ModelCorrespondence (CIM_ManagedSystem) | The various OperationalStatus array values. |
| TimeOfLast StateChange | Date-time | | The time the last change of state occurred. |

IBMTS_Truststore

The Truststore class represents a container that hosts certificates. The Common Information Model (CIM) Agent uses exactly one truststore residing on the CIM Agent server.

Properties

The IBMTS_Truststore class has the properties shown in Table 60.

Table 60. IBMTS_Truststore Properties

| Property | Type | Qualifier | Description |
|-------------|--------|------------|---|
| Caption | String | | A short, textual description (one line string) of the object. |
| Description | String | MaxLen(64) | A textual description of the object. |

Table 60. IBMTS_Truststore Properties (continued)

| Property | Type | Qualifier | Description |
|-------------|--------|----------------|---|
| ElementName | String | Required(TRUE) | <p>The name for this instance of SettingData. This name can also be used as an index property for a query.</p> <p>Note: The name does not have to be unique within a NameSpace.</p> |
| InstanceID | String | | <p>Within the scope of the instantiating Namespace, InstanceID uniquely identifies an instance of this class. Use the following algorithm to ensure uniqueness within the NameSpace:</p> <p><OrgID>:<LocalID></p> <p>Where <OrgID> includes a copyrighted, trademarked, or otherwise unique name owned by the business entity creating/defining the InstanceID. It could also be a registered ID assigned to the business entity by a recognized global authority.</p> <p>If you choose not to use this algorithm, then you must ensure that this InstanceID is not reused across any InstanceID's that are used for this instance's NameSpace.</p> |

IBMTS_TruststoreManagementService

The SecurityProvider generates one instance of this class.

Properties

IBMTS_TruststoreManagementService class has the properties shown in Table 61 on page 251.

Table 61. IBMTS_TruststoreManagementService properties

| Property | Type | Qualifier | Description |
|-------------------------|---------|---|--|
| CreationClassName | String | MaxLen(256) | The name of the class or subclass used in the creation of an instance. When used with other key properties of this class, all instances of this class and its subclass can be uniquely identified. |
| Name | String | MaxLen(1024) | The label by which the object is known. When subclassed, this property can be overridden as a key property. |
| SystemCreationClassName | String | Propagated(CIM_System.CreationClassName), MaxLen(256) | The scoping system's CreationClassName. |
| SystemName | String | Propagated(CIM_System.Name), MaxLen(256) | The scoping system's Name. |
| AutoGenerationEnabled | Boolean | | A boolean that indicates how the automatic generation is enabled (true) or disabled (false). |
| Caption | String | MaxLen(64) | A short textual description (one line string) of the object. |
| DefaultValidity | UInt32 | | The set default validity. |
| Description | String | | A textual description of the object. |
| ElementName | String | | Allows each instance to define a unique name in addition to the key properties/identity data and description information. |

Table 61. IBMTS_TruststoreManagementService properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | |
|---------------------|---------------------|-------------|---|------|-----------|---|---------|---|----------|---|----------------|---|---------------------|---|------------|-----------------|---------------|---------------------|-----------------|
| EnabledDefault | Uint16 | Write(TRUE) | <p>An enumerated value that indicates an administrator's default/startup configuration for an element's Enabled State. By default the element is "Enabled" (value=2).</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>Enabled</td> </tr> <tr> <td>3</td> <td>Disabled</td> </tr> <tr> <td>5</td> <td>Not Applicable</td> </tr> <tr> <td>6</td> <td>Enabled but Offline</td> </tr> <tr> <td>7</td> <td>No Default</td> </tr> <tr> <td>8..32767</td> <td>DMTF Reserved</td> </tr> <tr> <td>32768..65535</td> <td>Vendor Reserved</td> </tr> </tbody> </table> | Code | Semantics | 2 | Enabled | 3 | Disabled | 5 | Not Applicable | 6 | Enabled but Offline | 7 | No Default | 8..32767 | DMTF Reserved | 32768..65535 | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | |
| 2 | Enabled | | | | | | | | | | | | | | | | | | |
| 3 | Disabled | | | | | | | | | | | | | | | | | | |
| 5 | Not Applicable | | | | | | | | | | | | | | | | | | |
| 6 | Enabled but Offline | | | | | | | | | | | | | | | | | | |
| 7 | No Default | | | | | | | | | | | | | | | | | | |
| 8..32767 | DMTF Reserved | | | | | | | | | | | | | | | | | | |
| 32768..65535 | Vendor Reserved | | | | | | | | | | | | | | | | | | |

Table 61. IBMTS_TruststoreManagementService properties (continued)

| Property | Type | Qualifier | Description |
|--------------|--------|---|--|
| EnabledState | Uint16 | Model Correspondence (CIM_Enabled LogicalElement) | <p>An integer enumeration that indicates the enabled/disabled states of an element. It can also indicate the transitions between these requested states. For example, shutting down (value=4) and starting (value=10) are transient states between enabled and disabled.</p> <p>Enabled: Indicates that the element either is or can be running commands. All queued commands will process and new requests will be queued.</p> <p>Disabled: Indicates that the element will not run commands and drops any new requests.</p> <p>Shutting down: Indicates that the element is in the process of going to a Disabled state.</p> <p>Not Applicable: Indicates that the element does not support being enabled or disabled.</p> <p>Enabled but Offline: Indicates that the element might be completing commands and will drop any new requests.</p> <p>Test: Indicates that the element is in a test state.</p> |

Table 61. IBMTS_TruststoreManagementService properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------------|------|-----------|---|
| EnabledState (continued) | | | <p>Deferred: Indicates that the element might be completing commands and will queue any new requests.</p> <p>Quiesce: Indicates that the element is enabled but in restricted mode. The element's behavior is similar to the Enabled state. However, only a restricted set of commands will process and all other requests are queued.</p> <p>Starting: Indicates that the element is in the process of going to an Enabled state and all new requests are queued.</p> <p>Code Semantics</p> <p>0 Unknown</p> <p>1 Other</p> <p>2 Enabled</p> <p>3 Disabled</p> <p>4 Shutting Down</p> <p>5 Not Applicable</p> <p>6 Enabled but Offline</p> <p>7 In Test</p> <p>8 Deferred</p> <p>9 Quiesce</p> <p>10 Starting</p> <p>11..32767</p> <p>DMTF Reserved</p> <p>32768..65535</p> <p>Vendor Reserved</p> |

Table 61. IBMTS_TruststoreManagementService properties (continued)

| Property | Type | Qualifier | Description |
|-------------|--------|--------------------|---|
| HealthState | Uint16 | Experimental(TRUE) | <p>Indicates the current health of the element, but not its subcomponents. The possible values range from 0 to 30. A 5 indicates the element is entirely healthy and a 30 means that the element is completely nonfunctional.</p> <p>Nonrecoverable Error: The element has completely failed and recovery is not possible. All functionality provided by this element has been lost.</p> <p>Critical Failure: The element is nonfunctional and recovery might not be possible.</p> <p>Major Failure: The element is failing. It is possible that some or all of the functionality of this component is degraded or not working</p> <p>Minor Failure: All functionality is available but some may be degraded.</p> <p>Degraded/Warning: The element is in working order and all functionality is provided. However, the element is not working to the best of its abilities. For example, the element might not be operating at optimal performance or it might be reporting recoverable errors.</p> |

Table 61. IBMTS_TruststoreManagementService properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|--------------------------|-----------|---|------|-----------|---|---------|---|----|----|--|--|----------------------|----|---------------|----|---------------|----|------------------|----|--|--|--------------------------|----|------------------|
| HealthState (continued) | | | <p>OK: The element is fully functional and operating within normal operational parameters without error.</p> <p>Unknown: The implementation cannot report on the HealthState at this time.</p> <p>DMTF Reserved: The unused portion of the continuum has been reserved for future HealthStates.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Unknown</td> </tr> <tr> <td>5</td> <td>OK</td> </tr> <tr> <td>10</td> <td></td> </tr> <tr> <td></td> <td>Degraded/ Warning</td> </tr> <tr> <td>15</td> <td>Minor Failure</td> </tr> <tr> <td>20</td> <td>Major Failure</td> </tr> <tr> <td>25</td> <td>Critical Failure</td> </tr> <tr> <td>30</td> <td></td> </tr> <tr> <td></td> <td>Non-recoverable error</td> </tr> <tr> <td>..</td> <td>DMTF Reserved</td> </tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 5 | OK | 10 | | | Degraded/ Warning | 15 | Minor Failure | 20 | Major Failure | 25 | Critical Failure | 30 | | | Non-recoverable error | .. | DMTF Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | OK | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Degraded/ Warning | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Minor Failure | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Major Failure | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | Critical Failure | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Non-recoverable error | | | | | | | | | | | | | | | | | | | | | | | | |
| .. | DMTF Reserved | | | | | | | | | | | | | | | | | | | | | | | | |
| InstallDate | Datetime | | A datetime value that indicates when the object was installed. If there is no value, that does not mean the object is not installed. | | | | | | | | | | | | | | | | | | | | | | |

Table 61. IBMTS_TruststoreManagementService properties (continued)

| Property | Type | Qualifier | Description |
|-------------------|----------|--|---|
| OperationalStatus | Uint16[] | ArrayType(Indexed), Model Correspondence (CIM_Managed SystemElement) | <p>Indicates the current status(es) of the element. Various operational statuses are defined.</p> <p>Stressed: Indicates that the element is functioning, but needs attention. Examples of "Stressed" states are overload and overheated.</p> <p>Predictive Failure: Indicates that an element is functioning nominally but a failure is predicted in the near future.</p> <p>In Service: An element is being configured, maintained, cleaned or otherwise administered.</p> <p>No Contact: Indicates that the monitoring system has knowledge of this element, but has never been able to establish communications with it.</p> <p>Lost Communication: Indicates that the ManagedSystem element is known to exist and has been previously contacted, but is currently unreachable.</p> <p>Aborted: The element has abruptly stopped. The element's state and configuration might need to be updated.</p> <p>Dormant: Indicates that the element is inactive or quiesced.</p> |

Table 61. IBMTS_TruststoreManagementService properties (continued)

| Property | Type | Qualifier | Description |
|----------------------------------|------|-----------|--|
| OperationalStatus (continued) | | | <p>Supporting Entity in Error: The element may be ok, but there is an error on an element that this element is dependent upon. For example, a network service or endpoint cannot function as a result of lower layer networking problems.</p> <p>Complete: Indicates the element has completed its operation.</p> <p>Completed and OK: The operation finished successfully.</p> <p>Completed and Error: The operation failed.</p> <p>Completed and Degraded: The operation finished, but did not complete ok or report an error.</p> <p>Power Mode: Indicates the element has additional power model information contained in the associated PowerManagement Service</p> |

Table 61. IBMTS_TruststoreManagementService properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|----------------------------|---|--|------|-----------|---|---------|---|-------|---|----|---|----------|---|----------|---|--------------------|---|-------|---|-----------------------|---|----------|---|----------|----|---------|----|------------|----|------------|----|--|--|--------------------|----|---------|----|---------|----|----------------------------|----|-----------|----|------------|----|---------------|--------|-----------------|
| OperationalStatus (continued) | | | <p>Operational Status: Replaces the Status property on the ManagedSystem Element to provide a consistent approach to enumerations, address implementation needs for an array property and provide a migration path from today's environment to the future environment.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr><td>0</td><td>Unknown</td></tr> <tr><td>1</td><td>Other</td></tr> <tr><td>2</td><td>OK</td></tr> <tr><td>3</td><td>Degraded</td></tr> <tr><td>4</td><td>Stressed</td></tr> <tr><td>5</td><td>Predictive Failure</td></tr> <tr><td>6</td><td>Error</td></tr> <tr><td>7</td><td>Non-Recoverable Error</td></tr> <tr><td>8</td><td>Starting</td></tr> <tr><td>9</td><td>Stopping</td></tr> <tr><td>10</td><td>Stopped</td></tr> <tr><td>11</td><td>In Service</td></tr> <tr><td>12</td><td>No Contact</td></tr> <tr><td>13</td><td></td></tr> <tr><td></td><td>Lost Communication</td></tr> <tr><td>14</td><td>Aborted</td></tr> <tr><td>15</td><td>Dormant</td></tr> <tr><td>16</td><td>Supporting Entity in Error</td></tr> <tr><td>17</td><td>Completed</td></tr> <tr><td>18</td><td>Power Mode</td></tr> <tr><td>..</td><td>DMTF Reserved</td></tr> <tr><td>0x8000</td><td>Vendor Reserved</td></tr> </tbody> </table> | Code | Semantics | 0 | Unknown | 1 | Other | 2 | OK | 3 | Degraded | 4 | Stressed | 5 | Predictive Failure | 6 | Error | 7 | Non-Recoverable Error | 8 | Starting | 9 | Stopping | 10 | Stopped | 11 | In Service | 12 | No Contact | 13 | | | Lost Communication | 14 | Aborted | 15 | Dormant | 16 | Supporting Entity in Error | 17 | Completed | 18 | Power Mode | .. | DMTF Reserved | 0x8000 | Vendor Reserved |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | Unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Degraded | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Stressed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Predictive Failure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Non-Recoverable Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Starting | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Stopping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Stopped | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | In Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | No Contact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Lost Communication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Aborted | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Dormant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Supporting Entity in Error | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Completed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Power Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| .. | DMTF Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0x8000 | Vendor Reserved | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OtherEnabledState | String | Model Correspondence (CIM_Enabled LogicalElement) | The element's enabled/disabled state when the EnabledState property is set to 1 ("Other"). This property <i>must</i> be set to NULL when EnabledState is any value other than 1. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 61. IBMTS_TruststoreManagementService properties (continued)

| Property | Type | Qualifier | Description |
|---------------------|----------|---|---|
| PrimaryOwnerContact | String | | The contact method for the primary owner of the Service. Examples are a phone number or an email address. |
| PrimaryOwnerName | String | | The name of the primary owner for the service. The primary owner is the initial support contact for the Service. |
| RequestedState | Uint16 | | An integer enumeration that indicates the last requested or desired state for the element. The actual state of the element is represented by EnabledState. This property is provided to compare the last requested and current enabled/disabled states. Note: When EnabledState is set to 5 ("Not Applicable"), this property has no meaning. By default, the element's RequestedState is 5 ("No Change"). Refer to the EnabledState's property description for explanations of the values in the RequestedState enumeration. |
| Started | Boolean | | Indicates if the Service has been started (true) or stopped (false). |
| StartMode | String | Deprecated (CIM_Service.EnabledDefault), MaxLen(10) | Indicates if the service is started automatically or upon request. |
| Status | String | Deprecated (CIM_ManagedSystemElement.OperationalStatus) MaxLen(10) | The current status of the object. |
| StatusDescriptions | String[] | ArrayType(Indexed), Model Correspondence (CIM_ManagedSystemElement) | The OperationalStatus array values. |

Table 61. IBMTS_TruststoreManagementService properties (continued)

| Property | Type | Qualifier | Description |
|-----------------------|----------|-----------|--|
| TimeOfLastStateChange | Datetime | | The date/time the element's EnabledState last changed. If the state of the element has not changed and this property is populated, it must be set to a 0 interval value. If the state change was requested, but rejected or not yet processed, the property must not be updated. |

Association object classes

This section describes the association classes and their properties of the CIM Agent for the SAN Volume Controller.

IBMTSSVC_AllocatedFromStoragePool

The IBMTSSVC_AllocatedFromStoragePool class connects an IBMTSSVC_StorageVolume instance to an IBMTSSVC_StoragePool from which the volume is allocated.

References

The IBMTSSVC_AllocatedFromStoragePool class extends the CIM_AllocatedFromStoragePool class and has the references shown in Table 62.

Table 62. IBMTSSVC_AllocatedFromStoragePool references

| Name | Reference | Qualifier | Description |
|------------|------------------------|-----------|--------------------|
| Antecedent | IBMTSSVC_StoragePool | | The storage pool |
| Dependent | IBMTSSVC_StorageVolume | | The storage volume |

Properties

The IBMTSSVC_AllocatedFromStoragePool class has the properties shown in Table 63.

Table 63. IBMTSSVC_AllocatedFromStoragePool properties

| Property | Type | Qualifier | Description |
|---------------|--------|---|----------------------|
| SpaceConsumed | Uint64 | Units(Bytes), Required(TRUE), ModelCorrespondence (CIM_StoragePool.TotalManagedSpace CIM_StoragePool.RemainingManagedSpace) | Unsupported property |

IBMTSSVC_AuthorizedCollection

The IBMTSSVC_AuthorizedCollection class associates a Host with a Privilege. AuthorizedSubject is one of the elements in the authorization chain between a Host and a StorageVolume.

References

The IBMTSSVC_AuthorizedCollection class extends the CIM_AuthorizedSubject class and has the references shown in Table 64.

Table 64. IBMTSSVC_AuthorizedCollection references

| Name | Reference | Qualifier | Description |
|--------------------|--------------------------------|-----------|---------------|
| Privilege | IBMTSSVC_Privilege | | The Privilege |
| Privileged Element | IBMTSSVC_HardwareId Collection | | The Host |

IBMTSSVC_AuthorizedStorageHardwareID

The IBMTSSVC_AuthorizedStorageHardwareID class associates a Host with a Privilege. AuthorizedSubject is one of the elements in the authorization chain between a Host and a StorageVolume.

References

The IBMTSSVC_AuthorizedStorageHardwareID class extends the CIM_AuthorizedSubject class and has the references shown in Table 65.

Table 65. IBMTSSVC_AuthorizedStorageHardwareID references

| Name | Reference | Qualifier | Description |
|--------------------|-----------------------------|-----------|-----------------------|
| Privilege | IBMTSSVC_Privilege | | The Privilege |
| Privileged Element | IBMTSSVC_Storage HardwareID | | The StorageHardwareID |

IBMTSSVC_AuthorizedSubject

The IBMTSSVC_AuthorizedSubject class associates a Host with a Privilege. AuthorizedSubject is one of the elements in the authorization chain between a Host and a Storage Volume.

References

The IBMTSSVC_AuthorizedSubject class extends the CIM_AuthorizedSubject class and has the references shown in Table 66.

Table 66. IBMTSSVC_AuthorizedSubject references

| Name | Reference | Qualifier | Description |
|-------------------|--------------------|-----------|-------------------------------|
| Privilege | IBMTSSVC_Privilege | | The Privilege |
| Privilege Element | CIM_ManagedElement | | The Host or StorageHardwareID |

IBMTSSVC_authorizedTarget

The IBMTSSVC_authorizedTarget class associates an Privilege with a ProtocolController. authorizedTarget is one of the elements in the authorization chain between a StorageHardwareID and a StorageVolume.

References

The IBMTSSVC_authorizedTarget class extends the CIM_authorizedTarget class and has the references shown in Table 67.

Table 67. IBMTSSVC_authorizedTarget references

| Name | Reference | Qualifier | Description |
|---------------|---------------------|-----------|--|
| Privilege | IBMTSSVC_Privilege | | The Privilege affecting the target resource |
| TargetElement | IBMTSSVC_Controller | | The target set of resources to which the Privilege applies |

IBMTSSVC_AvailableHardwareID

The IBMTSSVC_AvailableHardwareID class associates the AccountManagementService to CandidateStorageHardwareIDs.

References

The IBMTSSVC_AvailableHardwareID class extends the CIM_ConcreteDependency class and has the references shown in Table 68.

Table 68. IBMTSSVC_AvailableHardwareID references

| Name | Reference | Qualifier | Description |
|------------|---|-----------|--|
| Antecedent | IBMTSSVC_StorageHardwareIDManagementService | | The StorageHardwareIDManagementService |
| Dependent | IBMTSSVC_CandidateStorageHardwareID | | The CandidateStorageHardwareID |

IBMTSSVC_BackendControllerForVolume

The IBMTSSVC_BackendControllerForVolume class associates BackendControllers with their Volumes.

References

The IBMTSSVC_BackendControllerForVolume class extends the CIM_Component class and has the references shown in Table 69.

Table 69. IBMTSSVC_BackendSCSILUN references

| Name | Reference | Qualifier | Description |
|-----------------|----------------------------|-----------|--|
| Group Component | IBMTSSVC_BackendController | Aggregate | The BackendController |
| Part Component | IBMTSSVC_BackendVolume | | The BackendVolume controlled by the Antecedent |

IBMTSSVC_BasedOn

The IBMTSSVC_BasedOn class associates StorageVolumes with the BackendVolumes where their data resides.

References

The IBMTSSVC_BasedOn class extends the CIM_BasedOn class and has the references shown in Table 70.

Table 70. IBMTSSVC_BasedOn references

| Name | Reference | Qualifier | Description |
|------------|------------------------|-----------|--|
| Antecedent | IBMTSSVC_BackendVolume | | The BackendVolume containing data from the Dependent |
| Dependent | IBMTSSVC_StorageVolume | | The StorageVolume |

Properties

The IBMTSSVC_BasedOn class has the properties shown in Table 71.

Table 71. IBMTSSVC_BasedOn properties

| Property | Type | Qualifier | Description |
|-----------------|--------|-----------|---|
| EndingAddress | Uint64 | | Unsupported property |
| ExtentCount | Uint64 | | The number of extents that are allocated on the BackendVolume for the StorageVolume |
| OrderIndex | Uint64 | | Unsupported property |
| StartingAddress | Uint64 | | Unsupported property |

IBMTSSVC_ClusterController

The IBMTSSVC_ClusterController class defines the Cluster scope of the Controller.

References

The IBMTSSVC_ClusterController class extends the CIM_SystemDevice class and has the references shown in Table 72.

Table 72. IBMTSSVC_ClusterController references

| Name | Reference | Qualifier | Description |
|-----------------|---------------------|---------------------|----------------|
| Group Component | IBMTSSVC_Cluster | Aggregate, Min, Max | The Cluster |
| Part Component | IBMTSSVC_Controller | Weak | The Controller |

IBMTSSVC_ClusterDumps

The IBMTSSVC_ClusterDumps class extends the CIM_ElementSettingData class.

References

The IBMTSSVC_ClusterDumps class has the references shown in Table 73.

Table 73. IBMTSSVC_ClusterDumps references

| Name | Reference | Qualifier | Description |
|----------------|------------------|-----------|-------------|
| ManagedElement | IBMTSSVC_Cluster | | The Cluster |
| SettingData | IBMTSSVC_Dumps | | The Dumps |

Properties

The IBMTSSVC_ClusterDumps class has the properties shown in Table 74.

Table 74. IBMTSSVC_ClusterDumps properties

| Property | Type | Qualifier | Description |
|-----------|--------|-----------|---|
| IsCurrent | Uint16 | | Indicates that the referenced setting is currently being used in the operation of the element or that the setting is unknown. Code Semantics 0 Unknown 1 Is Current 2 Is Not Current |
| IsDefault | Uint16 | | Indicates that the referenced setting is a default setting for the element or that the setting is unknown. Code Semantics 0 Unknown 1 Is Default 2 Is Not Default |

IBMTSSVC_ClusteringCandidate

The IBMTSSVC_ClusteringCandidate class associates an IBMTSSVC_CandidateNode instance with an IBMTSSVC_Cluster instance.

References

The IBMTSSVC_ClusteringCandidate class extends the CIM_Dependency class and has the references shown in Table 75.

Table 75. IBMTSSVC_ClusteringCandidate references

| Name | Reference | Qualifier | Description |
|------------|------------------------|-----------|--|
| Antecedent | IBMTSSVC_CandidateNode | | A node that is not a member of this or any other cluster |
| Dependent | IBMTSSVC_Cluster | | The cluster |

IBMTSSVC_ClusteringServiceForSystem

The IBMTSSVC_ClusteringServiceForSystem class associates an IBMTSSVC_Cluster instance with an IBMTSSVC_ClusteringService instance.

References

The IBMTSSVC_ClusteringServiceForSystem class extends the CIM_HostedClusterService class and has the references shown in Table 76.

Table 76. IBMTSSVC_ClusteringServiceForSystem references

| Name | Target | Qualifier | Description |
|------------|-----------------------------|-----------|---|
| Antecedent | IBMTSSVC_Cluster | Min, Max | The Cluster |
| Dependent | IBMTSSVC_Clustering Service | Weak | The ClusteringService that is hosted on the Cluster |

IBMTSSVC_ClusterMaskingCapabilities

The IBMTSSVC_ClusterMaskingCapabilities class associates an IBMTSSVC_Cluster instance with its DeviceMaskingCapabilities.

References

The IBMTSSVC_ClusterMaskingCapabilities class extends the CIM_ElementCapabilities class and has the references shown in Table 77.

Table 77. IBMTSSVC_ClusterMaskingCapabilities references

| Name | Reference | Qualifier | Description |
|----------------|--|-----------|---|
| ManagedElement | IBMTSSVC_Cluster | Min, Max | The IBMTSSVC_ControllerMaskingCapabilities for this cluster |
| Capabilities | IBMTSSVC_ControllerMaskingCapabilities | | The Capabilities object associated with the element |

IBMTSSVC_ClusterPort

The IBMTSSVC_ClusterPort defines the cluster scope of the fibre-channel port.

References

The IBMTSSVC_ClusterPort class extends the CIM_SystemDevice class and has the references shown in Table 78.

Table 78. IBMTSSVC_ClusterPort references

| Name | Reference | Qualifier | Description |
|-----------------|------------------|---------------------|------------------------|
| Group Component | IBMTSSVC_Cluster | Aggregate, Min, Max | The Cluster |
| Part Component | IBMTSSVC_FCPort | Weak | The fibre-channel port |

IBMTSSVC_ClusterScopeCandidateVolume

The IBMTSSVC_ClusterScopeCandidateVolume class associates IBMTSSVC_Cluster instance with an IBMTSSVC_CandidateVolume instance.

References

The IBMTSSVC_ClusterScopeCandidateVolume class extends the CIM_Dependency class and has the references shown in Table 79.

Table 79. IBMTSSVC_ClusterScopeCandidateVolume references

| Name | Reference | Qualifier | Description |
|------------|--------------------------|-----------|---------------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |
| Dependent | IBMTSSVC_CandidateVolume | | The CandidateVolume |

IBMTSSVC_ClusterScopeChassis

The IBMTSSVC_ClusterScopeChassis class defines the cluster scope of the IBMTSSVC_Chassis instance.

References

The IBMTSSVC_ClusterScopeChassis class extends the CIM_Dependency class and has the references shown in Table 80.

Table 80. IBMTSSVC_ClusterScopeChassis references

| Name | Reference | Qualifier | Description |
|------------|------------------|-----------|-------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |
| Dependent | IBMTSSVC_Chassis | | The Chassis |

IBMTSSVC_ClusterScopeFCSet

The IBMTSSVC_ClusterScopeFCSet class defines the cluster scope of an IBMTSSVC_FlashCopySynchronizedSet instance.

References

The IBMTSSVC_ClusterScopeFCSet class extends the CIM_Dependency class and has the references shown in Table 81.

Table 81. IBMTSSVC_ClusterScopeFCSet references

| Name | Reference | Qualifier | Description |
|------------|-----------------------------------|-----------|--|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |
| Dependent | IBMTSSVC_FlashCopySynchronizedSet | | The FlashCopy SynchronizedSet instance |

IBMTSSVC_ClusterScopeIOGroup

The IBMTSSVC_ClusterScopeIOGroup defines the cluster scope of the I/O group.

References

The IBMTSSVC_ClusterScopeIOGroup class extends the CIM_Dependency class and has the references shown in Table 82.

Table 82. IBMTSSVC_ClusterScopeIOGroup references

| Name | Reference | Qualifier | Description |
|------------|------------------|-----------|---------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |
| Dependent | IBMTSSVC_IOGroup | | The I/O group |

IBMTSSVC_ClusterScopeNodeVPD

The IBMTSSVC_ClusterScopeNodeVPD class defines the cluster scope of an IBMTSSVC_NodeVPD instance.

References

The IBMTSSVC_ClusterScopeNodeVPD class extends the CIM_Dependency class and has the references shown in Table 83.

Table 83. IBMTSSVC_ClusterScopeNodeVPD references

| Name | Reference | Qualifier | Description |
|------------|------------------|-----------|----------------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |
| Dependent | IBMTSSVC_NodeVPD | | The NodeVPD instance |

IBMTSSVC_ClusterScopePrivilege

The IBMTSSVC_ClusterScopePrivilege class defines the cluster scope of an IBMTSSVC_Privilege instance.

References

The IBMTSSVC_ClusterScopePrivilege class extends the CIM_Dependency class and has the references shown in Table 84.

Table 84. IBMTSSVC_ClusterScopePrivilege references

| Name | Reference | Qualifier | Description |
|------------|--------------------|-----------|---------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |
| Dependent | IBMTSSVC_Privilege | | The Privilege |

IBMTSSVC_ClusterScopeProduct

The IBMTSSVC_ClusterScopeProduct class defines the cluster scope of an IBMTSSVC_Product instance.

References

The IBMTSSVC_ClusterScopeProduct class extends the CIM_Dependency class and has the references shown in Table 85 on page 269.

Table 85. IBMTSSVC_ClusterScopeProduct references

| Name | Reference | Qualifier | Description |
|------------|------------------|-----------|----------------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |
| Dependent | IBMTSSVC_Product | | The Product instance |

IBMTSSVC_ClusterScopeSCSet

The IBMTSSVC_ClusterScopeSCSet class defines the Cluster scope of an IBMTSSVC_SyncCopySynchronizedSet instance.

References

The IBMTSSVC_ClusterScopeSCSet class extends the CIM_Dependency class and has the references shown in Table 86.

Table 86. IBMTSSVC_ClusterScopeSCSet references

| Name | Reference | Qualifier | Description |
|------------|----------------------------------|-----------|--------------------------------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |
| Dependent | IBMTSSVC_SyncCopySynchronizedSet | | The SyncCopySynchronizedSet instance |

IBMTSSVC_ClusterScopeStorageVolumeBackendVolumeView

The IBMTSSVC_ClusterScopeStorageVolumeBackendVolumeView class defines the cluster scope of the IBMTSSVC_StorageVolumeBackendVolumeView instance.

References

The IBMTSSVC_ClusterScopeStorageVolumeBackendVolumeView class extends the CIM_Dependency class and has the references shown in Table 87.

Table 87. IBMTSSVC_ClusterScopeStorageVolumeBackendVolumeView

| Name | Reference | Qualifier | Description |
|------------|---|-----------|--------------|
| Antecedent | IBMTSSVC_Cluster | | The cluster |
| Dependent | IBMTSSVC_StorageVolumeBackendVolumeView | | The instance |

IBMTSSVC_ClusterVolume

The IBMTSSVC_ClusterVolume class defines the cluster scope of an IBMTSSVC_StorageVolume instance.

References

The IBMTSSVC_ClusterScopeVolume class extends the CIM_Dependency class and has the references shown in Table 88.

Table 88. IBMTSSVC_ClusterVolume references

| Name | Reference | Qualifier | Description |
|------------|------------------|-----------|-------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |

Table 88. IBMTSSVC_ClusterVolume references (continued)

| Name | Reference | Qualifier | Description |
|-----------|----------------------------|-----------|-------------------|
| Dependent | IBMTSSVC_Storage Volume | | The StorageVolume |

IBMTSSVC_ComponentCS

The IBMTSSVC_ComponentCS class associates the cluster and its nodes.

References

The IBMTSSVC_ComponentCS class extends the CIM_ComponentCS class and has the references shown in Table 89.

Table 89. IBMTSSVC_ComponentCS references

| Name | Reference | Qualifier | Description |
|--------------------|------------------|-----------|-------------|
| Group Component | IBMTSSVC_Cluster | Aggregate | The Cluster |
| Part Component | IBMTSSVC_Node | | The Node |

IBMTSSVC_ComputerSystemPackage

The IBMTSSVC_ComputerSystemPackage class connects an IBMTSSVC_Node instance with the corresponding IBMTSSVC_Chassis instance.

References

The IBMTSSVC_ComputerSystemPackage class extends the CIM_ComputerSystemPackage class and has the references shown in Table 90.

Table 90. IBMTSSVC_ComputerSystemPackage references

| Name | Reference | Qualifier | Description |
|------------|------------------|-----------|-------------|
| Antecedent | IBMTSSVC_Chassis | | The Chassis |
| Dependent | IBMTSSVC_Node | | The Node |

Properties

The IBMTSSVC_ComputerSystemPackage class has the properties shown in Table 91.

Table 91. IBMTSSVC_ComputerSystemPackage properties

| Property | Type | Qualifier | Description |
|--------------|--------|-----------|-----------------------|
| PlatformGUID | String | | Unsupported property. |

IBMTSSVC_ConnectedBackendController

The IBMTSSVC_ConnectedBackendController class connects an IBMTSSVC_Cluster instance to an IBMTSSVC_BackendController instance that is visible in the fibre-channel SAN.

References

The IBMTSSVC_ConnectedBackendController class extends the CIM_Dependency class and has the references shown in Table 92.

Table 92. IBMTSSVC_ConnectedBackendController references

| Name | Reference | Qualifier | Description |
|------------|-----------------------------|-----------|---|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |
| Dependent | IBMTSSVC_Backend Controller | | The Backend Controller that is connected to the Cluster |

IBMTSSVC_ControllerConfigurationServiceForSystem

The IBMTSSVC_ControllerConfigurationServiceForSystem class connects an IBMTSSVC_Cluster instance to the corresponding IBMTSSVC_ControllerConfigurationService instance.

References

The IBMTSSVC_ControllerConfigurationServiceForSystem class extends the CIM_HostedService class and has the references shown in Table 93.

Table 93. IBMTSSVC_ControllerConfigurationServiceForSystem references

| Name | Reference | Qualifier | Description |
|------------|--|-----------|--|
| Antecedent | IBMTSSVC_Cluster | Min, Max | The system that the service should be used for |
| Dependent | IBMTSSVC_Controller ConfigurationService | Weak | The Controller Configuration Service that provides services for the system |

IBMTSSVC_ControllerConfServiceMaskingCapabilities

The IBMTSSVC_ControllerConfServiceMaskingCapabilities class associates an IBMTSSVC_ControllerConfService instance with its DeviceMaskingCapabilities.

References

The IBMTSSVC_ControllerConfServiceMaskingCapabilities class extends the CIM_ElementCapabilities class and has the references shown in Table 94.

Table 94. IBMTSSVC_ControllerConfService MaskingCapabilities references

| Name | Reference | Qualifier | Description |
|-----------------|--|-----------|--|
| Managed Element | IBMTSSVC_Controller ConfigurationService | Min, Max | The IBMTSSVC_ControllerMasking Capabilities for this service |
| Capabilities | IBMTSSVC_Controller MaskingCapabilities | | The Capabilities object associated with the element |

IBMTSSVC_CopyCandidate

The IBMTSSVC_CopyCandidate class associates an IBMTSSVC_CandidateVolume instance with an IBMTSSVC_StorageVolume instance, both of which must have the same characteristics.

References

The IBMTSSVC_CopyCandidate class extends the CIM_Dependency class and has the references shown in Table 95.

Table 95. IBMTSSVC_CopyCandidate references

| Name | Reference | Qualifier | Description |
|------------|--------------------------|-----------|---|
| Antecedent | IBMTSSVC_CandidateVolume | Key | The Candidate Volume that is a potential auxiliary for a sync copy relationship with the Storage Volume |
| Dependent | IBMTSSVC_StorageVolume | Key | The Storage Volume |

IBMTSSVC_ElementConformsToProfile

The IBMTSSVC_ElementConformsToProfile extends the CIM_ElementConformsToProfile class.

References

The IBMTSSVC_ElementConformsToProfile class has the references shown in Table 96.

Table 96. IBMTSSVC_ComponentCS references

| Name | Reference | Qualifier | Description |
|---------------------|----------------------------|-----------|--|
| Conformant Standard | IBMTSSVC_RegisteredProfile | | The Registered Profile to which the Managed Element conforms |
| Managed Element | IBMTSSVC_Cluster | | The Managed Element that conforms to the Registered Profile |

IBMTSSVC_FlashCopyStorageSynchronized

The IBMTSSVC_FlashCopyStorageSynchronized class aggregates a source IBMTSSVC_StorageVolume instance and a target IBMTSSVC_StorageVolume instance for a FlashCopy relationship.

References

The source and target volumes can reside on different IBMTSSVC_RedundancyGroup instances, but must be managed by the same IBMTSSVC_Cluster instance. The IBMTSSVC_FlashCopyStorageSynchronized class extends the CIM_StorageSynchronized class and has the references shown in Table 97 on page 273.

Table 97. IBMTSSVC_FlashCopyStorageSynchronized references

| Name | Reference | Qualifier | Description |
|---------------|-------------------------|----------------|--|
| SystemElement | IBMTSSVC_Storage Volume | MappingStrings | The storage volume that is the source for the replication. |
| SyncedElement | IBMTSSVC_Storage Volume | MappingStrings | The storage volume that is the target for the replication. |

Properties

The IBMTSSVC_FlashCopyStorageSynchronized class has the properties shown in Table 98.

Table 98. IBMTSSVC_FlashCopyStorageSynchronized properties

| Property | Type | Qualifier | Description | | | | | | | | | | | | |
|-----------------|--|--|---|-------------|------------------|----------|--|----------|--|----------|--|-----------|---------------|-----------------|-----------------|
| AutoDelete | Boolean | Write(TRUE), WriteRole (Administrator) | Indicates if this mapping is automatically deleted after the copy is complete. If set to true, the mapping is deleted after the copy is complete. If the copy has already completed, the mapping is immediately deleted. | | | | | | | | | | | | |
| CopyRate | Uint16 | Write(TRUE), WriteRole (Administrator) | Specifies the copy rate (%) for the SAN Volume Controller. | | | | | | | | | | | | |
| CopyType | Uint16 | | <p>The replication policy.</p> <table border="0"> <tr> <td>Code</td> <td>Semantics</td> </tr> <tr> <td>2</td> <td>Async. Create and maintain an asynchronous copy of the source.</td> </tr> <tr> <td>3</td> <td>Sync. Create and maintain a synchronized copy of the source.</td> </tr> <tr> <td>4</td> <td>UnSyncAssoc. Create an un-synchronized copy and maintain an association to the source.</td> </tr> <tr> <td>..</td> <td>DMTF reserved</td> </tr> <tr> <td>0x8000..</td> <td>Vendor specific</td> </tr> </table> | Code | Semantics | 2 | Async. Create and maintain an asynchronous copy of the source. | 3 | Sync. Create and maintain a synchronized copy of the source. | 4 | UnSyncAssoc. Create an un-synchronized copy and maintain an association to the source. | .. | DMTF reserved | 0x8000.. | Vendor specific |
| Code | Semantics | | | | | | | | | | | | | | |
| 2 | Async. Create and maintain an asynchronous copy of the source. | | | | | | | | | | | | | | |
| 3 | Sync. Create and maintain a synchronized copy of the source. | | | | | | | | | | | | | | |
| 4 | UnSyncAssoc. Create an un-synchronized copy and maintain an association to the source. | | | | | | | | | | | | | | |
| .. | DMTF reserved | | | | | | | | | | | | | | |
| 0x8000.. | Vendor specific | | | | | | | | | | | | | | |

Table 98. IBMTSSVC_FlashCopyStorageSynchronized properties (continued)

| Property | Type | Qualifier | Description |
|----------------------------|---------|--|--|
| DependentMappings Count | UInt32 | | The number of FlashCopy mappings that are dependent on this mapping. |
| ElementName | String | Write(TRUE), WriteRole (Administrator) | The user-friendly name of the association. |
| Name | String | | The name of the association. |
| Progress | UInt32 | Units(percent) | The status of the ongoing copy process. |
| ReplicaType | UInt16 | | The type of replication relationship. The SAN Volume Controller replicas are FullCopy (0). Code Semantics 0 FullCopy 1 BeforeDelta 2 AfterDelta 3 Log 4 NotSpecified .. DMTF reserved 0x8000.. Vendor specific |
| StartTime | String | | The start time of the FlashCopy mapping. |
| SyncedElementName | String | | The name of the synced element. |
| SynchronizedSet | String | | The name of the SynchronizedSet with which the StorageSynchronized is associated. |
| SynchronizedSetID | String | | The identifier of the SynchronizedSet with which the StorageSynchronized is associated. |
| SyncMaintained | Boolean | | Indicates if synchronization is maintained. |

Table 98. IBMTSSVC_FlashCopyStorageSynchronized properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | |
|-------------------|--------------------|-----------|---|------|-----------|---|-------------|---|--------------------|---|----------|---|-------------------|----|------|----|--------|--------|---------|--------|----------|
| SyncState | Uint16 | | The synchronization state of the FlashCopy mapping. <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>Initialized</td> </tr> <tr> <td>3</td> <td>PrepareIn Progress</td> </tr> <tr> <td>4</td> <td>Prepared</td> </tr> <tr> <td>5</td> <td>ResyncIn Progress</td> </tr> <tr> <td>11</td> <td>Idle</td> </tr> <tr> <td>12</td> <td>Broken</td> </tr> <tr> <td>0x8000</td> <td>Stopped</td> </tr> <tr> <td>0x8001</td> <td>Stopping</td> </tr> </tbody> </table> | Code | Semantics | 2 | Initialized | 3 | PrepareIn Progress | 4 | Prepared | 5 | ResyncIn Progress | 11 | Idle | 12 | Broken | 0x8000 | Stopped | 0x8001 | Stopping |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | |
| 2 | Initialized | | | | | | | | | | | | | | | | | | | | |
| 3 | PrepareIn Progress | | | | | | | | | | | | | | | | | | | | |
| 4 | Prepared | | | | | | | | | | | | | | | | | | | | |
| 5 | ResyncIn Progress | | | | | | | | | | | | | | | | | | | | |
| 11 | Idle | | | | | | | | | | | | | | | | | | | | |
| 12 | Broken | | | | | | | | | | | | | | | | | | | | |
| 0x8000 | Stopped | | | | | | | | | | | | | | | | | | | | |
| 0x8001 | Stopping | | | | | | | | | | | | | | | | | | | | |
| SystemElementName | String | | The name of the system element. | | | | | | | | | | | | | | | | | | |
| WhenSynced | Date-time | | This property is not supported. | | | | | | | | | | | | | | | | | | |

IBMTSSVC_FlashCopySynchronizedMember

The IBMTSSVC_FlashCopySynchronizedMember class associates an IBMTSSVC_FlashCopySynchronizedSet with its members, which are multiple IBMTSSVC_FlashCopySynchronization instances.

References

The IBMTSSVC_FlashCopySynchronizedMember class extends the CIM_SynchronizedMember class and has the references shown in Table 99.

Table 99. IBMTSSVC_FlashCopySynchronizedMember references

| Name | Reference | Qualifier | Description |
|------------|---------------------------------------|-----------|------------------------------|
| Collection | IBMTSSVC_FlashCopySynchronizedSet | Aggregate | The FlashCopySynchronizedSet |
| Member | IBMTSSVC_FlashCopyStorageSynchronized | | The member of the set |

IBMTSSVC_HardwareIDOnSystem

The IBMTSSVC_HardwareIDOnSystem associates a cluster with its storage hardware IDs.

References

The IBMTSSVC_HardwareIDOnSystem class extends the CIM_Dependency class and has the references shown in Table 100.

Table 100. IBMTSSVC_HardwareIDOnSystem references

| Name | Reference | Qualifier | Description |
|-----------|------------------|-----------|-------------|
| Dependent | IBMTSSVC_Cluster | | The Cluster |

Table 100. IBMTSSVC_HardwareIDOnSystem references (continued)

| Name | Reference | Qualifier | Description |
|------------|----------------------------|-----------|-------------------------|
| Antecedent | IBMTSSVC_StorageHardwareID | | The Storage Hardware ID |

IBMTSSVC_HostedAccessPoint

The IBMTSSVC_HostedAccessPoint extends the CIM_HostedAccessPoint class.

References

The IBMTSSVC_HostedAccessPoint class has the references shown in Table 101.

Table 101. IBMTSSVC_HostedAccessPoint references

| Name | Reference | Qualifier | Description |
|------------|-----------------------------------|-----------|---|
| Dependent | IBMTSSVC_System | Min, Max | The hosting system |
| Antecedent | IBMTSSVC_RemoteServiceAccessPoint | Weak | The SAP(s) that are hosted on this system |

IBMTSSVC_HostedFlashCopyJob

The IBMTSSVC_HostedFlashCopyJob class associates an IBMTSSVC_FlashCopyJob instance with the IBMTSSVC_Cluster instance on which the job is running.

References

The IBMTSSVC_HostedFlashCopyJob class extends the CIM_Dependency class and has the references shown in Table 102.

Table 102. IBMTSSVC_HostedFlashCopyJob references

| Name | Reference | Qualifier | Description |
|------------|-----------------------|-----------|-------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |
| Dependent | IBMTSSVC_FlashCopyJob | | The Job |

IBMTSSVC_HostedFormatVolumeJob

IBMTSSVC_HostedFormatVolumeJob class associates an IBMTSSVC_FormatVolumeJob instance with the IBMTSSVC_Cluster instance on which the job is running.

References

IBMTSSVC_HostedFormatVolumeJob class extends the CIM_Dependency class and has the references shown in Table 103.

Table 103. IBMTSSVC_HostedFormatVolumeJob references

| Name | Reference | Qualifier | Description |
|------------|------------------|-----------|-------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |

Table 103. IBMTSSVC_HostedFormatVolumeJob references (continued)

| Name | Reference | Qualifier | Description |
|-----------|--------------------------|-----------|-------------|
| Dependent | IBMTSSVC_FormatVolumeJob | | The Job |

IBMTSSVC_HostedJob

The IBMTSSVC_HostedJob class associates an IBMTSSVC_Job instance with the IBMTSSVC_Cluster instance on which the job is running.

References

The IBMTSSVC_HostedJob class extends the CIM_Dependency class and has the references shown in Table 104.

Table 104. IBMTSSVC_HostedJob references

| Name | Reference | Qualifier | Description |
|------------|------------------|-----------|-------------|
| Antecedent | IBMTSSVC_Cluster | Key | The Cluster |
| Dependent | IBMTSSVC_Job | Key | The Job |

IBMTSSVC_HostedMigrateVolumeJob

IBMTSSVC_HostedMigrateVolumeJob class associates an IBMTSSVC_MigrateVolumeJob instance with the IBMTSSVC_Cluster instance on which the job is running.

References

IBMTSSVC_HostedMigrateVolumeJob class extends the CIM_Dependency class and has the references shown in Table 105.

Table 105. IBMTSSVC_HostedMigrateVolumeJob references

| Name | Reference | Qualifier | Description |
|------------|---------------------------|-----------|-------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |
| Dependent | IBMTSSVC_MigrateVolumeJob | | The Job |

IBMTSSVC_HostedPrimordialPool

The IBMTSSVC_HostedPrimordialPool associates a cluster with its primordial storage pools.

References

The IBMTSSVC_HostedPrimordialPool class extends the CIM_HostedStoragePool class and has the references shown in Table 106.

Table 106. IBMTSSVC_HostedPrimordialPool references

| Name | Reference | Qualifier | Description |
|-----------------|------------------|---------------------|-------------|
| Group Component | IBMTSSVC_Cluster | Aggregate, Max, Min | The Cluster |

Table 106. IBMTSSVC_HostedPrimordialPool references (continued)

| Name | Reference | Qualifier | Description |
|----------------|-------------------------------|-----------|----------------------------|
| Part Component | IBMTSSVC_PrimitiveStoragePool | | The Primitive Storage Pool |

IBMTSSVC_HostedStoragePool

The IBMTSSVC_HostedStoragePool class connects an IBMTSSVC_Cluster instance with the corresponding IBMTSSVC_StoragePool instance.

References

The IBMTSSVC_HostedStoragePool class extends the CIM_HostedStoragePool class and has the references shown in Table 107.

Table 107. IBMTSSVC_HostedStoragePool references

| Name | Reference | Qualifier | Description |
|-----------------|----------------------|---------------------|-----------------|
| Group Component | IBMTSSVC_Cluster | Min, Max, Aggregate | The Cluster |
| Part Component | IBMTSSVC_StoragePool | | The StoragePool |

IBMTSSVC_HostedSyncCopyJob

The IBMTSSVC_HostedSyncCopyJob class associates an IBMTSSVC_SyncCopyJob instance with the IBMTSSVC_Cluster instance on which the job is running.

References

The IBMTSSVC_HostedSyncCopyJob class extends the CIM_Dependency class and has the references shown in Table 108.

Table 108. IBMTSSVC_HostedSyncCopyJob references

| Name | Reference | Qualifier | Description |
|------------|-----------------------|-----------|-------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |
| Dependent | IBMTSSVC_SyncCopy Job | | The Job |

IBMTSSVC_HwIDCollectionOnSystem

The IBMTSSVC_HwIDCollectionOnSystem associates a cluster with its hardware ID.

References

The IBMTSSVC_HwIDCollectionOnSystem class extends the CIM_Dependency class and has the references shown in Table 109.

Table 109. IBMTSSVC_HwIDCollectionOnSystem references

| Name | Reference | Qualifier | Description |
|------------|------------------|-----------|-------------|
| Antecedent | IBMTSSVC_Cluster | | The Cluster |

Table 109. IBMTSSVC_HwIDCollectionOnSystem references (continued)

| Name | Reference | Qualifier | Description |
|-----------|-------------------------------|-----------|-----------------|
| Dependent | IBMTSSVC_HardwareIdCollection | | The hardware ID |

IBMTSSVC_IndicationFiltersConformsToProfile

The IBMTSSVC_IndicationFiltersConformsToProfile class associates IndicationFilters and the InBand profile.

References

The IBMTSSVC_IndicationFiltersConformsToProfile class extends the CIM_ElementConformsToProfile class and has the references shown in Table 110.

Table 110. IBMTSSVC_IndicationFiltersConformsToProfile references

| Name | Reference | Qualifier | Description |
|---------------------|----------------------------|-----------|---|
| Conformant Standard | IBMTSSVC_RegisteredProfile | | The RegisteredProfile to which the ManagedElement conforms |
| ManagedElement | IBMTS_IndicationFilter | | The IndicationFilter that conforms to the RegisteredProfile |

IBMTSSVC_IndicationFiltersConformsToSubProfile

The IBMTSSVC_IndicationFiltersConformsToSubProfile class associates IndicationFilters and the InBand subprofile.

References

The IBMTSSVC_IndicationFiltersConformsToSubProfile class extends the CIM_ElementConformsToProfile class and has the references shown in Table 111.

Table 111. IBMTSSVC_IndicationFiltersConformsToSubProfile references

| Name | Reference | Qualifier | Description |
|---------------------|-------------------------------|-----------|--|
| Conformant Standard | IBMTSSVC_RegisteredSubProfile | | The RegisteredSub Profile to which the ManagedElement conforms |
| Managed Element | IBMTS_IndicationFilter | | The IndicationFilter that conforms to the RegisteredProfile |

IBMTSSVC_IOGroupIdentity

The IBMTSSVC_IOGroupIdentity class extends the CIM_ConcreteIdentity class.

References

The IBMTSSVC_IOGroupIdentity class has the references shown in Table 112.

Table 112. IBMTSSVC_IOGroupIdentity references

| Name | Reference | Qualifier | Description |
|---------------|---------------------|-----------|---------------------------------|
| SystemElement | IBMTSSVC_IOGroup | | An aspect of the ManagedElement |
| SameElement | IBMTSSVC_IOGroupSet | | An aspect of the ManagedElement |

IBMTSSVC_IOGroupPort

The IBMTSSVC_IOGroupPort associates an I/O group with its Fibre Channel ports.

References

The IBMTSSVC_IOGroupPort class extends the CIM_SystemDevice class and has the references shown in Table 113.

Table 113. IBMTSSVC_IOGroupPort references

| Name | Reference | Qualifier | Description |
|-----------------|------------------|---------------------|---|
| Group Component | IBMTSSVC_IOGroup | Aggregate, Max, Min | The parent system in the Association |
| Part Component | IBMTSSVC_FCPort | Weak | The LogicalDevice that is a component of a System |

IBMTSSVC_ManagesCollection

The IBMTSSVC_ManagesCollection associates a HardwareIdCollection with the StorageHardwareIDManagementService to indirectly manage it.

References

The IBMTSSVC_ManagesCollection class extends the CIM_ConcreteDependency class and has the references shown in Table 114.

Table 114. IBMTSSVC_ManagesCollection references

| Name | Reference | Qualifier | Description |
|------------|---|-----------|--|
| Antecedent | IBMTSSVC_StorageHardwareIDManagementService | | The StorageHardwareIDManagementService |
| Dependent | IBMTSSVC_HardwareIdCollection | | The hardware ID collection |

IBMTSSVC_ManagesController

The IBMTSSVC_ManagesController class associates a Controller with the ControllerConfigurationService to manage it.

References

The IBMTSSVC_ManagesController class extends the CIM_ConcreteDependency class and has the references shown in Table 115.

Table 115. IBMTSSVC_ManagesController references

| Name | Reference | Qualifier | Description |
|------------|---|-----------|---|
| Antecedent | IBMTSSVC_Controller ConfigurationService | | The ControllerConfiguration Service |
| Dependent | IBMTSSVC_Controller | | The Controller |

IBMTSSVC_ManagesHardwareID

The IBMTSSVC_ManagesHardwareID class associates a HardwareID with the StorageHardwareIDManagementService to manage it.

References

The IBMTSSVC_ManagesHardwareID class extends the CIM_ConcreteDependency class and has the references shown in Table 116.

Table 116. IBMTSSVC_ManagesHardwareID references

| Name | Reference | Qualifier | Description |
|------------|---|-----------|--|
| Antecedent | IBMTSSVC_Storage HardwareID ManagementService | | The StorageHardware IDManagementService |
| Dependent | IBMTSSVC_Controller StorageHardwareID | | The StorageHardwareID |

IBMTSSVC_ManagesPrivilege

The IBMTSSVC_ManagesPrivilege class associates a Privilege with the LunMaskPrivilegeService to manage it.

References

The IBMTSSVC_ManagesPrivilege class extends the CIM_ConcreteDependency class and has the references shown in Table 117.

Table 117. IBMTSSVC_ManagesPrivilege references

| Name | Reference | Qualifier | Description |
|------------|---|-----------|-------------------------------------|
| Antecedent | IBMTSSVC_Privilege ManagementService | | The Privilege Management Service |
| Dependent | IBMTSSVC_Privilege | | The Privilege |

IBMTSSVC_MemberOfCollection

The IBMTSSVC_MemberOfCollection class associates a Host with its StorageHardwareID (fibre-channel ports).

References

The IBMTSSVC_MemberOfCollection class extends the CIM_MemberOfCollection class and has the references shown in Table 118.

Table 118. IBMTSSVC_MemberOfCollection references

| Name | Reference | Qualifier | Description |
|------------|-----------------------------------|-----------|---|
| Collection | IBMTSSVC_Hardware IdCollection | Aggregate | The Host |
| Member | IBMTSSVC_Storage HardwareID | | The Storage Hardware ID (fibre-channel port) |

IBMTSSVC_MemberOfIOGroup

The IBMTSSVC_MemberOfIOGroup class associates a node with the IOGroupSet to which it belongs.

References

The IBMTSSVC_MemberOfIOGroup class extends the CIM_MemberOfCollection class and has the references shown in Table 119.

Table 119. IBMTSSVC_MemberOfIOGroup references

| Name | Reference | Qualifier | Description |
|------------|---------------------|-----------|---------------------|
| Collection | IBMTSSVC_IOGroupSet | Aggregate | The RedundancyGroup |
| Member | IBMTSSVC_Node | | The Node |

IBMTSSVC_NodeDumps

The IBMTSSVC_NodeDumps class shows the dumps found on a specific node.

References

The IBMTSSVC_NodeDumps class extends the CIM_ElementSettingData class and has the references shown in Table 120.

Table 120. IBMTSSVC_NodeDumps references

| Name | Reference | Qualifier | Description |
|----------------|----------------|-----------|-------------|
| ManagedElement | IBMTSSVC_Node | | The Node |
| SettingData | IBMTSSVC_Dumps | | The Dumps |

Properties

The IBMTSSVC_NodeDumps class has the properties shown in Table 121 on page 283.

Table 121. IBMTSSVC_NodeDumps

| Name | Type | Qualifier | Description |
|-----------|--------|-----------|--|
| IsCurrent | Uint16 | | An enumerated integer that indicates that the referenced setting is currently being used in the operation of the element or that the setting is unknown. Code Semantics 0 Unknown 1 Is Current® 2 Is Not Current |
| IsDefault | Uint16 | | An enumerated integer that indicates that the referenced setting is a default setting for the element or that the setting is unknown. Code Semantics 0 Unknown 1 Is Default 2 Is Not Default |

IBMTSSVC_PartnershipCandidate

The IBMTSSVC_PartnershipCandidate class associates the Cluster with the available remote clusters.

References

The IBMTSSVC_PartnershipCandidate class extends the CIM_Dependency class and has the references shown in Table 122.

Table 122. IBMTSSVC_PartnershipCandidate references

| Name | Reference | Qualifier | Description |
|------------|----------------------------|-----------|--------------------|
| Antecedent | IBMTSSVC_Cluster | | The local Cluster |
| Dependent | IBMTSSVC_Candidate Cluster | | The remote Cluster |

IBMTSSVC_PoolCapabilities

The IBMTSSVC_PoolCapabilities class associates a storage pool with a storage capabilities instance.

References

The IBMTSSVC_PoolCapabilities class extends the CIM_ElementCapabilities class and has the references shown in Table 123 on page 284.

Table 123. IBMTSSVC_PoolCapabilities references

| Name | Reference | Qualifier | Description |
|----------------|-------------------------------|-----------|---|
| ManagedElement | IBMTSSVC_StoragePool | Min, Max | The managed element |
| Capabilities | IBMTSSVC_Storage Capabilities | | The Capabilities object associated with the element |

IBMTSSVC_PrimordialPoolCapabilities

The IBMTSSVC_PrimordialPoolCapabilities class extends the CIM_ElementCapabilities class.

References

The IBMTSSVC_PrimordialPoolCapabilities class has the references shown in Table 124.

Table 124. IBMTSSVC_PrimordialPoolCapabilities references

| Name | Reference | Qualifier | Description |
|----------------|---------------------------------|-----------|---|
| ManagedElement | IBMTSSVC_Primordial StoragePool | Min, Max | The managed element |
| Capabilities | IBMTSSVC_Storage Capabilities | | The Capabilities object associated with the element |

IBMTSSVC_PrimordialPoolComponent

The IBMTSSVC_PrimordialPoolComponent class associates a PrimordialPool with the BackendVolumes from which it is assembled.

References

The IBMTSSVC_PrimordialPoolComponent class extends the CIM_ConcreteComponent class and has the references shown in Table 125.

Table 125. IBMTSSVC_PrimordialPoolComponent references

| Name | Reference | Qualifier | Description |
|-----------------|---------------------------------|-----------|----------------------------|
| Group Component | IBMTSSVC_Primordial StoragePool | Aggregate | The Primordial StoragePool |
| Part Component | IBMTSSVC_Backend Volume | | The BackendVolume |

IBMTSSVC_PrimordialPoolForController

The IBMTSSVC_PrimordialPoolForController class associates a BackendController with the corresponding PrimordialPool.

References

The IBMTSSVC_PrimordialPoolForController class extends the CIM_Dependency class and has the references shown in Table 126 on page 285.

Table 126. IBMTSSVC_PrimordialPoolForController references

| Name | Reference | Qualifier | Description |
|------------|--------------------------------|-----------|-----------------------------|
| Antecedent | IBMTSSVC_BackendController | | The BackendController |
| Dependent | IBMTSSVC_PrimordialStoragePool | | The primordial storage pool |

IBMTSSVC_PrivilegeServiceForSystem

The IBMTSSVC_PrivilegeServiceForSystem class associates a Cluster with its PrivilegeManagementService.

References

The IBMTSSVC_PrivilegeServiceForSystem class extends the CIM_HostedService class and has the references shown in Table 127.

Table 127. IBMTSSVC_PrivilegeServiceForSystem references

| Name | Reference | Qualifier | Description |
|------------|-------------------------------------|-----------|--|
| Antecedent | IBMTSSVC_Cluster | Min, Max | The system for which the service should be used |
| Dependent | IBMTSSVC_PrivilegeManagementService | Weak | The Privilege Management Service that provides services for the system |

IBMTSSVC_ProductPhysicalComponent

The IBMTSSVC_ProductPhysicalComponent class associates an IBMTSSVC_Product instance with the corresponding IBMTSSVC_Chassis instance.

References

The IBMTSSVC_ProductPhysicalComponent class extends the CIM_ProductPhysicalComponent class and has the references shown in Table 128.

Table 128. IBMTSSVC_ProductPhysicalComponent references

| Name | Reference | Qualifier | Description |
|-----------------|------------------|----------------|-------------|
| Group Component | IBMTSSVC_Product | Max, Aggregate | The Product |
| Part Component | IBMTSSVC_Chassis | | The Chassis |

IBMTSSVC_ProtocolControllerForPort

The IBMTSSVC_ProtocolControllerForPort class associates a Controller with the fibre-channel ports through which it can be accessed.

References

A Controller instance has a corresponding RedundancyGroup. The RedundancyGroup associates one or two nodes, and a node associates fibre-channel ports. ControllerFCPort provides a shortcut for traversing from a Controller to the fibre-channel ports.

The IBMTSSVC_ProtocolControllerForPort class extends the CIM_ProtocolControllerForPort class and has the references shown in Table 129.

Table 129. IBMTSSVC_ProtocolControllerForPort references

| Name | Reference | Qualifier | Description |
|------------|---------------------|--------------|-------------------------|
| Antecedent | IBMTSSVC_Controller | Experimental | The protocol controller |
| Dependent | IBMTSSVC_FCPort | Experimental | The port |

Properties

The IBMTSSVC_ProtocolControllerForPort class has the properties shown in Table 130.

Table 130. IBMTSSVC_ProtocolControllerForPort

| Name | Type | Qualifier | Description |
|----------------|--------|--------------------|---|
| AccessPriority | Uint16 | Experimental(TRUE) | The priority given to accesses of the device through this controller. The highest priority path will have the lowest value for this parameter. No priorities, constant value of 0. |
| AccessState | Uint16 | Experimental(TRUE) | Indicates whether the Controller is actively commanding or accessing the Device. This information is necessary when a LogicalDevice can be commanded by or accessed through multiple Controllers. Code Semantics 0 Unknown 1 Active 2 Inactive |

Table 130. IBMTSSVC_ProtocolControllerForPort (continued)

| Name | Type | Qualifier | Description |
|--------------|--------|--------------------|---|
| DeviceNumber | String | Experimental(TRUE) | Address of the associated Device in the context of the antecedent Controller. Because the port has no specialid in the controller's context, this is a constant value of 0. |

IBMTSSVC_ProtocolControllerForUnit

The IBMTSSVC_ProtocolControllerForUnit class associates a StorageVolume with Controller instances through which it is exposed to clients.

References

The IBMTSSVC_ProtocolControllerForUnit class extends the CIM_ProtocolControllerForUnit class and has the references shown in Table 131.

Table 131. IBMTSSVC_ProtocolControllerForUnit references

| Name | Reference | Qualifier | Description |
|------------|-------------------------|--------------|-------------------------|
| Antecedent | IBMTSSVC_Controller | Experimental | The protocol controller |
| Dependent | IBMTSSVC_Storage Volume | Experimental | The volume |

Properties

The IBMTSSVC_ProtocolControllerForUnit class has the properties shown in Table 132.

Table 132. IBMTSSVC_ProtocolControllerForUnit

| Property | Type | Qualifier | Description |
|----------------|--------|--------------------|--|
| AccessPriority | Uint16 | Experimental(TRUE) | The priority given to accesses of the device through this controller. The highest priority path will have the lowest value for this parameter. No priorities, constant value of 0. |

Table 132. IBMTSSVC_ProtocolControllerForUnit (continued)

| Property | Type | Qualifier | Description |
|--------------|--------|--------------------|---|
| AccessState | Uint16 | Experimental(TRUE) | Indicates whether the Controller is actively commanding or accessing the Device. This information is necessary when a Logical Device can be commanded by or accessed through multiple Controllers. Code Semantics 0 Unknown 1 Active 2 Inactive |
| DeviceNumber | String | Experimental(TRUE) | Address of the associated Device in the context of the antecedent Controller. This is the LUN number. |
| UniqueID | String | | The unique ID of the volume shown on SCSI inquiry. |

IBMTSSVC_ProviderInObjectManager

The IBMTSSVC_ProviderInObjectManager class associates the CIM Object Manager with its providers.

References

The IBMTSSVC_ProviderInObjectManager class extends the CIM_Component class and has the references shown in Table 133.

Table 133. IBMTSSVC_ProviderInObjectManager references

| Name | Reference | Qualifier | Description |
|-----------------|-------------------------|-----------|-------------|
| Group Component | IBMTSSVC_Object Manager | Aggregate | |
| Part Component | IBMTSSVC_Provider | | |

IBMTSSVC_RemotePartnership

The IBMTSSVC_RemotePartnership class associates the Cluster with the selected remote clusters.

References

The IBMTSSVC_RemotePartnership class extends the CIM_Dependency class and has the references shown in Table 134 on page 289.

Table 134. IBMTSSVC_RemotePartnership references

| Name | Reference | Qualifier | Description |
|------------|-------------------------|-----------|--------------------|
| Antecedent | IBMTSSVC_Cluster | | The local Cluster |
| Dependent | IBMTSSVC_Remote Cluster | | The remote Cluster |

IBMTSSVC_RemoteSystemVolume

The IBMTSSVC_RemoteSystemVolume class associates the IBMTS_RemoteCluster instance with potential IBMTSSVC_CandidateVolumes.

References

The IBMTSSVC_RemoteSystemVolume class extends the CIM_Component class and has the references shown in Table 135.

Table 135. IBMTSSVC_RemoteSystemVolume references

| Name | Target | Qualifier | Description |
|-----------------|-------------------------|-----------|---|
| Group Component | IBMTSSVC_Remote Cluster | Aggregate | The Remote Cluster |
| PartComponent | IBMTSSVC_Remote Volume | | The potential sync copy auxiliary volume. |

IBMTSSVC_RequiresProfile

The IBMTSSVC_RequiresProfile class extends the CIM_SubProfileRequiresProfile class.

References

The IBMTSSVC_RequiresProfile class has the references shown in Table 136.

Table 136. IBMTSSVC_RequiresProfile references

| Name | Reference | Qualifier | Description |
|------------|--------------------------------|-----------|--|
| Antecedent | IBMTSSVC_Registered Profile | Min | The Registered Profile that is referenced or required by the subprofile. |
| Dependent | IBMTSSVC_Registered SubProfile | | A Registered SubProfile that requires a scoping profile for context. |

IBMTSSVC_SAPAvailableForElement

The IBMTSSVC_SAPAvailableForElement class associates a service access point with the device for which it offers a management interface.

References

The IBMTSSVC_SAPAvailableForElement class extends the CIM_SAPAvailableForElement class and has the references shown in Table 137 on page 290.

Table 137. IBMTSSVC_SAPAvailableForElement references

| Name | Reference | Qualifier | Description |
|----------------|-----------------------------------|-----------|---|
| AvailableSAP | IBMTSSVC_RemoteServiceAccessPoint | Min | The Service Access Point that is available. |
| ManagedElement | IBMTSSVC_Cluster | | The ManagedElement for which the Service Access Point is available. |

IBMTSSVC_StorageConfigurationServiceCapabilities

The IBMTSSVC_StorageConfigurationServiceCapabilities class associates an instance of IBMTSSVC_StorageConfigurationService with its DeviceMaskingCapabilities.

References

The IBMTSSVC_StorageConfigurationServiceCapabilities class extends the CIM_ElementCapabilities class and has the references shown in Table 138.

Table 138. IBMTSSVC_StorageConfigurationServiceCapabilities references

| Name | Reference | Qualifier | Description |
|----------------|---|-----------|---|
| ManagedElement | IBMTSSVC_StorageConfigurationService | Min, Max | The IBMTSSVC_StorageConfigurationService for this cluster |
| SettingData | IBMTSSVC_StorageConfigurationCapabilities | | The Capabilities object associated with the element |

IBMTSSVC_StorageConfigurationServiceForSystem

The IBMTSSVC_StorageConfigurationServiceForSystem class associates an IBMTSSVC_Cluster instance with its corresponding IBMTSSVC_StorageConfigurationService instance.

References

The IBMTSSVC_StorageConfigurationServiceForSystem class extends the CIM_HostedService class and has the references shown in Table 139.

Table 139. IBMTSSVC_StorageConfigurationServiceForSystem references

| Name | Reference | Qualifier | Description |
|------------|--------------------------------------|-----------|---------------------------------|
| Antecedent | IBMTSSVC_Cluster | Min, Max | The Cluster |
| Dependent | IBMTSSVC_StorageConfigurationService | Weak | The StorageConfigurationService |

IBMTSSVC_StorageHardwareIDManagementServiceForSystem

The IBMTSSVC_StorageHardwareIDManagementServiceForSystem class associates a Cluster with its StorageHardwareIDManagementService.

References

The IBMTSSVC_StorageHardwareIDManagementServiceForSystem class extends the CIM_HostedService class and has the references shown in Table 140.

Table 140. IBMTSSVC_StorageHardwareIDManagementServiceForSystem references

| Name | Reference | Qualifier | Description |
|------------|---|-----------|---|
| Antecedent | IBMTSSVC_Cluster | Min, Max | The system for which the service should be used. |
| Dependent | IBMTSSVC_StorageHardwareIDManagementService | Weak | The StorageHardwareIDManagementService that provides services for the system. |

IBMTSSVC_StoragePoolComponent

The IBMTSSVC_StoragePoolComponent class associates the IBMTSSVC_StoragePool instances to the IBMTSSVC_BackendVolume instances from which the StoragePool is assembled.

References

The IBMTSSVC_StoragePoolComponent class extends the CIM_ConcreteComponent class and has the references shown in Table 141.

Table 141. IBMTSSVC_StoragePoolComponent references

| Name | Reference | Qualifier | Description |
|-----------------|------------------------|-----------|---------------------|
| Group Component | IBMTSSVC_StoragePool | Aggregate | The storage pool |
| Part Component | IBMTSSVC_BackendVolume | | The back-end volume |

IBMTSSVC_SyncCopyStorageSynchronized

The IBMTSSVC_SyncCopyStorageSynchronized class associates an IBMTSSVC_StorageVolume instance with an IBMTSSVC_CandidateVolume or another IBMTSSVC_StorageVolume instance for a synchronous copy relationship.

References

The IBMTSSVC_SyncCopyStorageSynchronized class extends the CIM_StorageSynchronized class and has the references shown in Table 142.

Table 142. IBMTSSVC_SyncCopyStorageSynchronized references

| Name | Reference | Qualifier | Description |
|---------------|--------------------|----------------|---|
| SystemElement | CIM_LogicalElement | MappingStrings | The StorageVolume that is the master in the relationship |
| SyncedElement | CIM_LogicalElement | MappingStrings | The StorageVolume that is the auxiliary in the relationship |

Properties

The IBMTSSVC_SyncCopyStorageSynchronized class has the properties shown in Table 143.

Table 143. IBMTSSVC_SyncCopyStorageSynchronized properties

| Property | Type | Qualifier | Description |
|-------------------------|---------|--|--|
| BackgroundCopy Priority | Uint16 | Write(TRUE), WriteRole(Administrator) | The background copy priority, in the range 1 to 100. The default is 50. |
| Connected | Boolean | | The status of the connection between the StorageVolumes |
| CopyType | Uint16 | | The Replication Policy. Code Semantics 2 Async. Create and maintain an asynchronous copy of the source. 3 Sync. Create and maintain a synchronized copy of the source. 4 UnSyncAssoc. Create an un-synchronized copy and maintain an association to the source. .. DMTF Reserved 0x8000.. Vendor Specific |
| ElementName | String | Write(TRUE), WriteRole(Administrator) | The user-friendly name of this association |
| FreezeTime | String | | The time when the copy relationship was removed |
| Name | String | | The name of the association |

Table 143. IBMTSSVC_SyncCopyStorageSynchronized properties (continued)

| Property | Type | Qualifier | Description | | | | | | | | | | | | | | | | | | |
|-------------|---------------------------|-----------------|--|------|-----------|---|----------|---|---------------------|---|-------------------------|---|-------------------------|---|--------------------|----|----------------------|----------|---------------------------|---|----------------------|
| NativeState | Uint16 | | <p>The native state of the copy relationship</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Idling</td> </tr> <tr> <td>1</td> <td>Idling disconnected</td> </tr> <tr> <td>2</td> <td>Consistent synchronized</td> </tr> <tr> <td>3</td> <td>Consistent disconnected</td> </tr> <tr> <td>4</td> <td>Consistent stopped</td> </tr> <tr> <td>5</td> <td>Inconsistent copying</td> </tr> <tr> <td>6</td> <td>Inconsistent disconnected</td> </tr> <tr> <td>7</td> <td>Inconsistent stopped</td> </tr> </tbody> </table> | Code | Semantics | 0 | Idling | 1 | Idling disconnected | 2 | Consistent synchronized | 3 | Consistent disconnected | 4 | Consistent stopped | 5 | Inconsistent copying | 6 | Inconsistent disconnected | 7 | Inconsistent stopped |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | |
| 0 | Idling | | | | | | | | | | | | | | | | | | | | |
| 1 | Idling disconnected | | | | | | | | | | | | | | | | | | | | |
| 2 | Consistent synchronized | | | | | | | | | | | | | | | | | | | | |
| 3 | Consistent disconnected | | | | | | | | | | | | | | | | | | | | |
| 4 | Consistent stopped | | | | | | | | | | | | | | | | | | | | |
| 5 | Inconsistent copying | | | | | | | | | | | | | | | | | | | | |
| 6 | Inconsistent disconnected | | | | | | | | | | | | | | | | | | | | |
| 7 | Inconsistent stopped | | | | | | | | | | | | | | | | | | | | |
| Primary | Uint32 | | <p>Indicates which of the StorageVolumes is currently the primary in the copy relationship. The primary volume is the one accessible for I/O by the clients.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Master</td> </tr> <tr> <td>1</td> <td>Auxiliary</td> </tr> </tbody> </table> | Code | Semantics | 0 | Master | 1 | Auxiliary | | | | | | | | | | | | |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | |
| 0 | Master | | | | | | | | | | | | | | | | | | | | |
| 1 | Auxiliary | | | | | | | | | | | | | | | | | | | | |
| Progress | Uint32 | Units (Percent) | The progress of the copy process, if one is ongoing | | | | | | | | | | | | | | | | | | |
| ReplicaType | Uint16 | | <p>The type of the replica. SAN Volume Controller replicas are always FullCopy (0).</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>FullCopy</td> </tr> <tr> <td>1</td> <td>BeforeDelta</td> </tr> <tr> <td>2</td> <td>AfterDelta</td> </tr> <tr> <td>3</td> <td>Log</td> </tr> <tr> <td>4</td> <td>NotSpecified</td> </tr> <tr> <td>..</td> <td>DMTF Reserved</td> </tr> <tr> <td>0x8000..</td> <td>Vendor Specific</td> </tr> </tbody> </table> | Code | Semantics | 0 | FullCopy | 1 | BeforeDelta | 2 | AfterDelta | 3 | Log | 4 | NotSpecified | .. | DMTF Reserved | 0x8000.. | Vendor Specific | | |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | |
| 0 | FullCopy | | | | | | | | | | | | | | | | | | | | |
| 1 | BeforeDelta | | | | | | | | | | | | | | | | | | | | |
| 2 | AfterDelta | | | | | | | | | | | | | | | | | | | | |
| 3 | Log | | | | | | | | | | | | | | | | | | | | |
| 4 | NotSpecified | | | | | | | | | | | | | | | | | | | | |
| .. | DMTF Reserved | | | | | | | | | | | | | | | | | | | | |
| 0x8000.. | Vendor Specific | | | | | | | | | | | | | | | | | | | | |
| Status | | | <p>The status of the relationship.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Semantics</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Online</td> </tr> <tr> <td>1</td> <td>Primary Offline</td> </tr> <tr> <td>2</td> <td>Secondary Offline</td> </tr> </tbody> </table> | Code | Semantics | 0 | Online | 1 | Primary Offline | 2 | Secondary Offline | | | | | | | | | | |
| Code | Semantics | | | | | | | | | | | | | | | | | | | | |
| 0 | Online | | | | | | | | | | | | | | | | | | | | |
| 1 | Primary Offline | | | | | | | | | | | | | | | | | | | | |
| 2 | Secondary Offline | | | | | | | | | | | | | | | | | | | | |

Table 143. IBMTSSVC_SyncCopyStorageSynchronized properties (continued)

| Property | Type | Qualifier | Description |
|------------------------------|-----------|-----------|---|
| SyncedElement ClusterID | String | | The ID of the SyncedElement's cluster |
| SyncedElement ClusterName | String | | The name of the SyncedElement's cluster |
| SyncedElementID | String | | The ID of the SyncedElement |
| SyncedElementName | String | | The name of the SyncedElement |
| SynchronizedSet | String | | The name of the SynchronizedSet with which the StorageSynchronized is associated |
| SynchronizedSetID | String | | The ID of the SynchronizedSet with which the StorageSynchronized is associated |
| SyncMaintained | Boolean | | Indicates whether synchronization is maintained |
| SyncState | UInt16 | | The state of the synchronization Code Semantics 4 Prepared 5 ReSync InProgress 6 Synchronized 12 Broken 13 Fractured 0x8101 Fractured Idle |
| SystemElement ClusterID | String | | The ID of the SystemElement's cluster |
| SystemElement ClusterName | String | | The name of the SystemElement's cluster |
| SystemElementID | String | | The ID of the SystemElement |
| SystemElementName | String | | The name of the SystemElement |
| WhenSynced | Date-time | | Unsupported property |

IBMTSSVC_SyncCopySynchronizedMember

The IBMTSSVC_SyncCopySynchronizedMember class associates an IBMTSSVC_FlashCopySynchronizedSet instance with its member IBMTSSVC_SyncCopySynchronized instances.

References

The IBMTSSVC_SyncCopySynchronizedMember class extends the CIM_SynchronizedMember class and has the references shown in Table 144.

Table 144. IBMTSSVC_SyncCopySynchronizedMember references

| Name | Reference | Qualifier | Description |
|------------|--------------------------------------|-----------|----------------------------------|
| Collection | IBMTSSVC_SyncCopySynchronizedSet | Aggregate | The SyncCopySynchronizedSet |
| Member | IBMTSSVC_SyncCopyStorageSynchronized | | The aggregated member of the set |

IBMTSSVC_SystemBackendVolume

The IBMTSSVC_SystemBackendVolume class connects an IBMTSSVC_Cluster instance with the IBMTSSVC_BackendVolume instances that are visible in the fibre-channel SAN.

References

The IBMTSSVC_SystemBackendVolume class extends the CIM_SystemDevice class and has the references shown in Table 145.

Table 145. IBMTSSVC_SystemBackendVolume references

| Name | Reference | Qualifier | Description |
|-----------------|------------------------|---------------------|-------------------|
| Group Component | IBMTSSVC_Cluster | Min, Max, Aggregate | The Cluster |
| Part Component | IBMTSSVC_BackendVolume | Weak | The BackendVolume |

IBMTSSVC_SystemCandidateVolume

The IBMTSSVC_SystemCandidateVolume class associates a Cluster or RemoteCluster and its Candidate Volumes.

References

The IBMTSSVC_SystemCandidateVolume class extends the CIM_SystemDevice class and has the references shown in Table 146.

Table 146. IBMTSSVC_SystemCandidateVolume references

| Name | Reference | Qualifier | Description |
|-----------------|--------------------------|---------------------|-------------------------|
| Group Component | IBMTSSVC_RemoteCluster | Aggregate, Max, Min | The aggregating cluster |
| Part Component | IBMTSSVC_CandidateVolume | Weak | The Candidate Volume |

IBMTSSVC_SystemController

The IBMTSSVC_SystemController class associates an I/O group with the corresponding Controller instances.

References

The IBMTSSVC_SystemController class extends the CIM_SystemDevice class and has the references shown in Table 147.

Table 147. IBMTSSVC_SystemController references

| Name | Reference | Qualifier | Description |
|-----------------|---------------------|---------------------|----------------|
| Group Component | IBMTSSVC_IOGroup | Min, Max, Aggregate | The I/O group |
| Part Component | IBMTSSVC_Controller | Weak | The Controller |

IBMTSSVC_SystemFCPort

The IBMTSSVC_SystemFCPort class associates a node to its fibre-channel ports.

References

The IBMTSSVC_SystemFCPort class extends the CIM_SystemDevice class and has the references shown in Table 148.

Table 148. IBMTSSVC_SystemFCPort references

| Name | Reference | Qualifier | Description |
|-----------------|-----------------|---------------------|------------------------|
| Group Component | IBMTSSVC_Node | Min, Max, Aggregate | The node |
| Part Component | IBMTSSVC_FCPort | Weak | The fibre-channel port |

IBMTSSVC_SystemFeatures

The IBMTSSVC_SystemFeatures class associates the Cluster with its features.

References

The IBMTSSVC_SystemFeatures class extends the CIM_ElementCapabilities class and has the references shown in Table 149.

Table 149. IBMTSSVC_SystemFeatures references

| Name | Reference | Qualifier | Description |
|----------------|-------------------|-----------|--------------|
| ManagedElement | IBMTSSVC_Cluster | Min, Max | The Cluster |
| Capabilities | IBMTSSVC_Features | Weak | The Features |

IBMTSSVC_SystemVolume

The IBMTSSVC_SystemVolume class associates a StorageVolume with the RedundancyGroup to which it is assigned.

References

The IBMTSSVC_SystemVolume class extends the CIM_SystemDevice class and has the references shown in Table 150 on page 297.

Table 150. IBMTSSVC_SystemVolume references

| Name | Reference | Qualifier | Description |
|-----------------|-------------------------|---------------------|------------------------------|
| Group Component | IBMTSSVC_IOGroup | Min, Max, Aggregate | The assigned RedundancyGroup |
| Part Component | IBMTSSVC_Storage Volume | Weak | The StorageVolume |

IBMTSSVC_SystemVPD

The IBMTSSVC_SystemVPD class associates the Node with its vital product data (VPD).

References

The IBMTSSVC_SystemVPD class extends the CIM_ElementSettingData class and has the references shown in Table 151.

Table 151. IBMTSSVC_SystemVPD references

| Name | Reference | Qualifier | Description |
|----------------|------------------|-----------|-------------|
| ManagedElement | IBMTSSVC_Node | Key | The Node |
| SettingData | IBMTSSVC_NodeVPD | Key | The VPD |

Properties

The IBMTSSVC_SystemVPD class has the properties shown in Table 152.

Table 152. IBMTSSVC_SystemVPD properties

| Property | Type | Qualifier | Description |
|-----------|--------|-----------|---|
| IsCurrent | Uint16 | | An enumerated integer that indicates that the referenced setting is currently being used in the operation of the element or that the setting is unknown. Code Semantics 0 Unknown 1 Is Current 2 Is Not Current |
| IsDefault | Uint16 | | An enumerated integer that indicates that the referenced setting is a default setting for the element or that the setting is unknown. Code Semantics 0 Unknown 1 Is Default 2 Is Not Default |

IBMTSSVC_UseOfMessageLog

ManagedSystemElements may record their event, error, or informational data in MessageLogs. The use of a log to hold ManagedSystemElement data is described by this association. The type of data captured by the log can be specified using the RecordedData string property.

References

The IBMTSSVC_UseOfMessageLog class extends the CIM_UseOfMessageLog class and has the references shown in Table 153.

Table 153. IBMTSSVC_UseOfMessageLog references

| Name | Reference | Qualifier | Description |
|------------|---------------------|-----------|--|
| Antecedent | IBMTSSVC_MessageLog | | The MessageLog |
| Dependent | IBMTSSVC_Cluster | | The ManagedSystem Element for which data is recorded in the MessageLog |

Properties

The IBMTSSVC_UseOfMessageLog class has the properties shown in Table 154.

Table 154. IBMTSSVC_UseOfMessageLog properties

| Property | Type | Qualifier | Description |
|--------------|--------|-----------|--|
| RecordedData | String | | The description of the use of the Log by the ManagedSystem Element |

IBMTSSVC_VolumeSettingData

The IBMTSSVC_VolumeSettingData class extends the CIM_ElementSettingData class.

References

The IBMTSSVC_VolumeSettingData class has the references shown in Table 155.

Table 155. IBMTSSVC_VolumeSettingData references

| Name | Reference | Qualifier | Description |
|----------------|--------------------------|-----------|--|
| ManagedElement | IBMTSSVC_Storage Volume | | The managed element |
| SettingData | IBMTSSVC_Storage Setting | | The SettingData object that is associated with the element |

Properties

The IBMTSSVC_VolumeSettingData class has the properties shown in Table 156.

Table 156. IBMTSSVC_VolumeSettingData properties

| Property | Type | Qualifier | Description |
|-----------|--------|-----------|---|
| IsCurrent | Uint16 | | An enumerated integer that indicates that the referenced setting is currently being used in the operation of the element or that the setting is unknown. Code Semantics 0 Unknown 1 Is Current 2 Is Not Current |
| IsDefault | Uint16 | | An enumerated integer that indicates that the referenced setting is a default setting for the element or that the setting is unknown. Code Semantics 0 Unknown 1 Is Default 2 Is Not Default |

IBMTSSVC_AccountManagementServiceForSystem

The IBMTSSVC_AccountManagementServiceForSystem class connects an IBMTSSVC_Cluster instance with an IBMTSSVC_AccountManagementService.

References

The IBMTSSVC_AccountManagementServiceForSystem class extends the CIM_ManagesAccountOnSystem class and has the references shown in Table 157.

Table 157. IBMTSSVC_AccountManagementServiceForSystem references

| Name | Target | Qualifier | Description |
|------------|------------------------------------|--------------------|--|
| Antecedent | IBMTSSVC_Account ManagementService | ReadRole, Min, Max | Represents the SecurityService that provides services for the system |
| Dependent | IBMTSSVC_Object Manager | ReadRole, Weak | Represents the system that is dependent on the security service |

IBMTS_AccountOnCIMOM

The IBMTS_AccountOnCIMOM class connects an IBMTS_Account instance with the IBMTS_ObjectManager instance.

References

The IBMTS_AccountOnCIMOM class extends the CIM_AccountOnSystem class and has the references shown in Table 158.

Table 158. IBMTS_AccountOnCIMOM references

| Name | Reference | Qualifier | Description |
|-----------------|---------------------|-------------------------------|---|
| Group Component | IBMTS_ObjectManager | Aggregate, ReadRole, Min, Max | Represents the aggregation of the CIMOM for the Account |
| Part Component | IBMTS_Account | ReadRole, Weak | Represents the Account |

Properties

The IBMTS_AccountOnCIMOM class has the properties shown in Table 159.

Table 159. IBMTS_AccountOnCIMOM properties

| Property | Type | Qualifier | Description |
|----------|--------|-------------------------|--|
| Role | String | ReadRole(Administrator) | Specifies the role of the Account on the CIMOM |

IBMTS_AccountOnSystem

The IBMTS_AccountOnSystem class connects an IBMTS_Account instance with an IBMTSSVC_Host instance.

References

The IBMTS_AccountOnSystem class extends the CIM_AccountOnSystem class and has the references shown in Table 160.

Table 160. IBMTS_AccountOnSystem

| Name | Reference | Qualifier | Description |
|-----------------|------------------|-------------------------------|--|
| Group Component | IBMTSSVC_Cluster | Aggregate, ReadRole, Min, Max | Represents the aggregating system to which access is granted for the Account |
| Part Component | IBMTS_Account | ReadRole, Weak | Represents the subordinate Account |

Properties

The IBMTS_AccountOnSystem class has the properties shown in Table 161 on page 301.

Table 161. IBMTS_AccountOnSystem properties

| Property | Type | Qualifier | Description |
|----------|--------|-------------------------|---|
| Role | String | ReadRole(Administrator) | Specifies the role of the Account on the System |

IBMTS_CommMechanismForManager

The IBMTS_CommMechanismForManager is an association between an ObjectManager and an ObjectManagerCommunicationMechanism class.

References

The IBMTS_CommMechanismForManager class has the references shown in Table 162.

Table 162. IBMTS_CommMechanismForManager

| Name | Target | Qualifier | Description |
|------------|----------------------------|-----------|---|
| Antecedent | IBMTS_ObjectManager | Min, Max | Represents the specific ObjectManager whose communication mechanism is described |
| Dependent | IBMTS_CIMXML Communication | Min | Represents the encoding, protocol, or set of operations that may be used to communicate with the referenced ObjectManager |

IBMTS_ContainsTruststore

The IBMTS_ContainsTruststore class associates the IBMTS_Truststore with the scoping IBMTS_System.

References

The IBMTS_ContainsTruststore class extends the CIM_Dependency class and has the references shown in Table 163

Table 163. IBMTS_ContainsTruststore references

| Name | Reference | Qualifier | Description |
|------------|------------------|-----------|--|
| Antecedent | IBMTS_System | | The scoping instance of IBMTS_System. |
| Dependent | IBMTS_Truststore | | The truststore file of the system represented by IBMTS_Truststore. |

IBMTS_ElementConformsToProfile

The IBMTS_ElementConformsToProfile connects the ObjectManager and the Server profile.

References

The IBMTS_ElementConformsToProfile class has the references shown in Table 164.

Table 164. IBMTS_ElementConformsToProfile

| Name | Target | Qualifier | Description |
|---------------------|-------------------------|-----------|---|
| Conformant Standard | IBMTS_RegisteredProfile | | Represents the RegisteredProfile to which the ManagedElement conforms |
| ManagedElement | IBMTS_ObjectManager | | Represents the ManagedElement that conforms to the RegisteredProfile |

IBMTS_HasCertificate

The IBMTS_HasCertificate class associates the IBMTS_Truststore to instances of the IBMTS_Certificates.

References

The IBMTS_HasCertificate class extends the CIM_Dependency class and has the references shown in Table 165.

Table 165. IBMTS_HasCertificate references

| Name | Reference | Qualifier | Description |
|------------|-------------------|-----------|--|
| Antecedent | IBMTS_Truststore | | The instance of IBMTS_Truststore that represents the truststore file. |
| Dependent | IBMTS_Certificate | | The certificate that is contained in the truststore file. The IBMTS_Truststore class represents the truststore file. |

IBMTS_HostedAccessPoint

The IBMTS_HostedAccessPoint connects the CIM_System and the CIMXMLMechanism profile.

References

The IBMTS_HostedAccessPoint class has the references shown in Table 166.

Table 166. IBMTS_HostedAccessPoint

| Name | Target | Qualifier | Description |
|------------|--------------|-----------|-------------------------------|
| Antecedent | IBMTS_System | Min, Max | Represents the hosting system |

Table 166. *IBMTS_HostedAccessPoint* (continued)

| Name | Target | Qualifier | Description |
|-----------|-------------------------------|-----------|--|
| Dependent | IBMTS_CIMXML Communication | Weak | Represents the SAP(s) that are hosted on this system |

IBMTS_HostedService

The `IBMTS_HostedService` is an association between a Service and the System on which the functionality resides. A System may host many Services. Services are weak with respect to their hosting System. A Service is hosted on the System where the LogicalDevices or SoftwareFeatures that implement the Service are located.

References

The model does not represent Services hosted across multiple systems. This is modeled as an `ApplicationSystem` that acts as an aggregation point for Services, that are each located on a single host.

The `IBMTS_HostedService` class has the references shown in Table 167.

Table 167. *IBMTS_HostedService*

| Name | Target | Qualifier | Description |
|------------|-------------------------|-----------|--|
| Antecedent | IBMTS_System | Min, Max | Represents the hosting system |
| Dependent | IBMTS_Object Manager | Weak | Represents the service hosted on this system |

IBMTS_HostsTruststoreManager

The `IBMTS_HostsTruststoreManager` class associates the `IBMTS_TruststoreManagementService` to the scoping `IBMTS_System`.

References

The `IBMTS_HostsTruststoreManager` class extends the `CIM_HostedService` and has the references shown in Table 168.

Table 168. *IBMTS_HostsTruststoreManager* references

| Name | Reference | Qualifier | Description |
|------------|---------------------------------------|-----------|---|
| Antecedent | IBMTS_System | | The scoping instance of <code>IBMTS_System</code> . |
| Dependent | IBMTS_Truststore ManagementService | | The <code>IBMTS_TruststoreManagementService</code> of the system. |

IBMTS_IndicationFiltersConformsToProfile

The `IBMTS_IndicationFiltersConformsToProfile` connects the `IndicationFilter` and the Server profile.

References

The IBMTS_IndicationFiltersConformsToProfile class has the references shown in Table 169.

Table 169. IBMTS_IndicationFiltersConformsToProfile

| Name | Target | Qualifier | Description |
|---------------------|-------------------------|-----------|--|
| Conformant Standard | IBMTS_RegisteredProfile | | Represents the RegisteredProfile to which the ManagedElement conforms |
| ManagedElement | IBMTS_IndicationFilter | | Represents the IndicationFilter that conforms to the RegisteredProfile |

IBMTS_ManagesAccount

The IBMTS_ManagesAccount class connects an IBMTS_AccountManagementService instance with an IBMTS_Account instance.

References

The IBMTS_ManagesAccount class extends the CIM_ManagesAccount class and has the references shown in Table 170.

Table 170. IBMTS_ManagesAccount references

| Name | Reference | Qualifier | Description |
|------------|---------------------------------|-----------|-------------------------------|
| Antecedent | IBMTS_Account ManagementService | ReadRole | The AccountManagement Service |
| Dependent | IBMTS_Account | ReadRole | The HardwareAccount |

IBMTS_ManagesTruststore

The IBMTS_ManagesTruststore class associates the IBMTS_TruststoreManagementService with the managed instance of the IBMTS_Truststore.

References

Only one truststore file can be represented by an instance of IBMTS_Truststore. If the truststore file is removed, the association is not available.

The IBMTS_ManagesTruststore class extends the CIM_Dependency class and has the references shown in Table 171.

Table 171. IBMTS_ManagesTruststore references

| Name | Reference | Qualifier | Description |
|------------|------------------------------------|-----------|--|
| Antecedent | IBMTS_Truststore ManagementService | | The instance of IBMTS_Truststore ManagementService that manages the IBMTS_Truststore |

Table 171. IBMTS_ManagesTruststore references (continued)

| Name | Reference | Qualifier | Description |
|-----------|------------------|-----------|--------------------------------------|
| Dependent | IBMTS_Truststore | | The IBMTS_Truststore that is managed |

IBMTS_NamespaceInManager

The IBMTS_NamespaceInManager.

References

The IBMTS_NamespaceInManager class has the references shown in Table 172.

Table 172. IBMTS_NamespaceInManager

| Name | Target | Qualifier | Description |
|------------|----------------------|-----------|---|
| Antecedent | IBMTS_Object Manager | Min, Max | Represents the ObjectManager containing a Namespace |
| Dependent | IBMTS_Name Space | Weak | Represents the Namespace in an ObjectManager |

Chapter 8. CIM Agent methods

This chapter describes the intrinsic and extrinsic methods that the CIM Agent classes provide.

These methods are required for implementing the functionality of the CIM Agent.

Intrinsic methods

Intrinsic methods are provided for modeling a typical Common Information Model (CIM) operation.

Originating from the CIM and Web-Based Enterprise Management (WBEM) standards, intrinsic methods are provided for modeling a typical CIM operation. Intrinsic methods provide the basic means that enable you to work with an object model.

The CIM agent for the SAN Volume Controller supports the intrinsic methods shown in Table 173.

Table 173. Supported intrinsic methods

| Functional group | Method name |
|-----------------------|--------------------------|
| Association traversal | Associators() |
| | AssociatorNames() |
| | References() |
| | ReferenceNames() |
| Basic read | EnumerateClasses() |
| | EnumerateClassNames() |
| | EnumerateInstance() |
| | EnumerateInstanceNames() |
| | GetClass() |
| | GetInstance() |
| | GetProperty() |
| Basic write | SetProperty() |
| Instance manipulation | DeleteInstance() |
| | CreateInstance() |
| | ModifyInstance() |
| Query execution | ExecQuery() |

Associators()

You can use the `Associators()` method to enumerate the classes or instances that are associated with a CIM object.

Parameters

Table 174 on page 308 shows the parameters you can specify for the `Associators()` method.

Table 174. *Associators()* parameters

| Parameter | Type | Description |
|--------------------|---------|---|
| ObjectName | COP* | The class name or instance name that is the source of the association. |
| AssocClass | String | If not NULL, indicates that all objects must be associated to the source object through an instance of this class or one of its subclasses. |
| ResultClass | String | If not NULL, indicates that all returned objects must be instances of this class or one of its subclasses or be this class. |
| Role | String | If not NULL, indicates that each return object must be associated to the source object through an association in which the source object plays the specified role. The name of the property in the association class that refers to the source object must match the value of this parameter. |
| ResultRole | String | If not NULL, indicates that each returned object must be associated to the source object through an association in which the returned object plays the specified role. The name of the property in the association class that refers to the returned object must match the value of this parameter. |
| IncludeQualifiers | Boolean | True returns all qualifiers for the class, its properties, methods, or method parameters. False returns no qualifiers. |
| IncludeClassOrigin | Boolean | True returns the CLASSORIGIN attribute of the class. |
| * CIMObjectPath | | |

Return values

The `Associators()` method enumerates the specified classes or instances or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_FAILED

AssociatorNames()

You can use the `AssociatorNames()` method to enumerate the names of the classes or instances that are associated with a CIM object.

Parameters

Table 175 on page 309 shows the parameters you can specify for the `AssociatorNames()` method.

Table 175. *AssociatorNames()* parameters

| Parameter | Type | Description |
|-----------------|--------|--|
| ObjectName | COP* | The class name or instances name that is the source of the association. |
| AssocClass | String | If not NULL, indicates that all object paths returned identify an object that is associated to the source object through an instance of this class or one of its subclasses. |
| ResultClass | String | If not NULL, indicates that all returned object paths must identify instances of this class or one of its subclasses, or must be this class. |
| Role | String | If not NULL, the name of the property in the association class that refers to the source object must match the value of this parameter. |
| ResultRole | String | If not NULL, the name of the property in the association class that refers to the returned object must match the value of this parameter. |
| * CIMObjectPath | | |

Return values

The *AssociatorNames()* method enumerates the names of the classes or instances or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_FAILED

CreateInstance()

You can use the *CreateInstance()* method to create a new instance of an object in the target namespace.

Parameters

The new instance must be based on a class that is already defined in the namespace.

Table 176 shows the parameters you can specify for *CreateInstance()* method.

Table 176. *CreateInstance()* parameters

| Parameter | Type | Description |
|-----------|--------|-------------------------------------|
| Instance | String | The name of the instance to create. |

Return values

The *CreateInstance()* method creates the specified class or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER

- CIM_ERR_INVALID_CLASS
- CIM_ERR_NOT_FOUND
- CIM_ERR_FAILED

DeleteInstance()

You can use the DeleteInstance() method to remove a single instance of an object from the target namespace.

Parameters

Table 177 shows the parameters you can specify for the DeleteInstance() method.

Table 177. DeleteInstance() parameters

| Parameter | Type | Description |
|--------------|--------|-------------------------------------|
| InstanceName | String | The name of the instance to delete. |

Return values

The DeleteInstance() method deletes the specified instance or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_NOT_FOUND
- CIM_ERR_FAILED

EnumerateClasses()

You can use the EnumerateClasses() method to enlist all subclasses of a single object class or all classes of the same object type in the target namespace.

Parameters

Table 178 shows the parameters you can specify for the EnumerateClasses() method.

Table 178. EnumerateClasses() parameters

| Parameter | Type | Description |
|--------------------|---------|--|
| ClassName | String | The name of the class for which subclasses are to be returned. If this parameter is NULL, all base classes within the target namespace are returned. |
| DeepInheritance | Boolean | True returns all subclasses of the specified class. False returns only immediate child subclasses. |
| LocalOnly | Boolean | True returns all properties, methods, and qualifiers, that are overridden within the definition of the class. |
| IncludeQualifiers | Boolean | True returns all qualifiers for the class, its properties, methods, or method parameters. False returns no qualifiers. |
| IncludeClassOrigin | Boolean | True returns the CLASSORIGIN attribute of the class. |

Return values

The EnumerateClasses() method enumerates the specified one or more classes or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_FAILED

EnumerateClassNames()

You can use the EnumerateClassNames() method to enlist the names of all subclasses of a single object class or the names of all classes of the same object type in the target namespace.

Parameters

Table 179 shows the parameters you can specify for the EnumerateClassNames() method.

Table 179. EnumerateClassNames() parameters

| Parameter | Type | Description |
|-----------------|---------|--|
| ClassName | String | The name of the class for which subclasses are to be returned. If this parameter is NULL, all base classes within the target namespace are returned. |
| DeepInheritance | Boolean | True returns all subclasses of the specified class. False returns only immediate child subclasses. |

Return values

The EnumerateClassNames() method enumerates the specified name of one or more classes or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_FAILED

EnumerateInstances()

You can use the EnumerateInstances() method to enlist all instances of the same object class in the target namespace.

Parameters

Table 180 on page 312 shows the parameters you can specify for the EnumerateInstances() method:

Table 180. EnumerateInstances() parameters

| Parameter | Type | Description |
|--------------------|---------|---|
| ClassName | String | The name of the class for which instances are to be returned. |
| DeepInheritance | Boolean | True returns all instances and all properties of the instance, including those added by creating subclasses. False returns only properties defined for the specified class. |
| LocalOnly | Boolean | True returns all properties, methods, and qualifiers that are overridden within the definition of the class. |
| IncludeQualifiers | Boolean | True returns all qualifiers for each instance, its properties, methods, or method parameters. False returns no qualifiers. |
| IncludeClassOrigin | Boolean | True returns the CLASSORIGIN attribute of the class within the instance. |

Return values

The EnumerateInstances() method enumerates the specified instances or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_FAILED

EnumerateInstanceNames()

You can use the EnumerateInstanceNames() method to enlist all the names of the instances of the same object class in the target namespace.

Parameters

Table 181 shows the parameters you can specify for the EnumerateInstanceNames() method.

Table 181. EnumerateInstanceNames() parameters

| Parameter | Type | Description |
|-----------|--------|---|
| ClassName | String | The name of the class for which instances are to be returned. |

Return values

The EnumerateInstanceNames() method enumerates the specified names of the instances or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_FAILED

ExecQuery()

You can use the ExecQuery() method to run a query against the target namespace.

Parameters

Table 182 shows the parameters you can specify for the ExecQuery() method.

Table 182. ExecQuery() parameters

| Parameter | Type | Description |
|---------------|--------|---|
| QueryLanguage | String | The query language in which the query parameter is expressed. |
| Query | String | The query you want to run. |

Return values

The ExecQuery() method retrieves one or more classes or instances or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_FAILED

GetClass()

You can use the GetClass() method to retrieve a single object class from the target namespace.

Parameters

Table 183 shows the parameters you can specify for the GetClass() method.

Table 183. GetClass() parameters

| Parameter | Type | Description |
|--------------------|---------|--|
| ClassName | String | The name of the class to retrieve. |
| LocalOnly | Boolean | True returns all properties, methods, and qualifiers overridden within the definition of the class. |
| IncludeQualifiers | Boolean | True returns all qualifiers for the class, its properties, methods, or method parameters. FALSE returns no qualifiers. |
| IncludeClassOrigin | Boolean | True returns the CLASSORIGIN attribute of the class. |

Return values

The GetClass() method returns the specified class or one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_FAILED

GetInstance()

You can use the GetInstance() method to retrieve a single instance of an object from the target namespace.

Parameters

Table 184 shows the parameters you can specify for the GetInstance() method.

Table 184. GetInstance() parameters

| Parameter | Type | Description |
|--------------------|---------|--|
| InstanceName | String | The name of the instance to retrieve. |
| LocalOnly | Boolean | True returns all properties, methods, and qualifiers overridden during the definition of the class. |
| IncludeQualifiers | Boolean | True returns all qualifiers for the class, its properties, methods, or method parameters. False returns no qualifiers. |
| IncludeClassOrigin | Boolean | True returns the CLASSORIGIN attribute of the class. |

Return values

The GetInstance() method returns the specified class or one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_NOT_FOUND
- CIM_ERR_FAILED

GetProperty()

You can use the GetProperty() method to retrieve the whole instance and return one specific property from this instance.

Parameters

Table 185 shows the parameters you can specify for the GetProperty() method.

Table 185. GetProperty() parameters

| Parameter | Type | Description |
|--------------|--------|---|
| InstanceName | String | The name of the instance. |
| Property | String | The name of the property whose value is to be returned from the instance. |

Return values

The GetProperty() method returns the specified property of the target instance or one of the following error codes:

- CIM_ERR_ACCESS_DENIED

- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_NOT_FOUND
- CIM_ERR_NO_SUCH_PROPERTY
- CIM_ERR_FAILED

ModifyInstance()

You can use the ModifyInstance() method to modify an existing instance of an object in the target namespace.

Parameters

Table 186 shows the parameters you can specify for the ModifyInstance() method.

Table 186. ModifyInstance() parameters

| Parameter | Type | Description |
|--------------|--------|-------------------------------------|
| InstanceName | String | The name of the instance to modify. |

Return values

The ModifyInstance() method modifies the specified instance or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_NOT_FOUND
- CIM_ERR_FAILED

References()

You can use the References() method to enumerate the association objects that refer to a particular target class or instance.

Parameters

Table 187 shows the parameters you can specify for the References() method.

Table 187. References() parameters

| Parameter | Type | Description |
|-------------|--------|---|
| ObjectName | String | The class name or instance name whose referring objects are to be returned. |
| ResultClass | String | If not NULL, indicates that all returned objects must be instances of this class or one of its subclasses or must be this class. |
| Role | String | If not NULL, must be a valid property name. Each returned object must refer to the target object through a property whose name matches the value of this parameter. |

Table 187. References() parameters (continued)

| Parameter | Type | Description |
|--------------------|---------|--|
| IncludeQualifiers | Boolean | True returns all qualifiers for the class, its properties, methods, or method parameters. FALSE returns no qualifiers. |
| IncludeClassOrigin | Boolean | True returns the CLASSORIGIN attribute of the class. |

Return values

The References() method enumerates the association objects or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_FAILED

ReferenceNames()

You can use the ReferenceNames() method to enumerate the association objects that refer to a particular target class or instance.

Parameters

Table 188 shows the parameters you can specify for the ReferenceNames() method.

Table 188. ReferenceNames() parameters

| Parameter | Type | Description |
|-------------|--------|---|
| ObjectName | String | The class name or instance name whose referring objects are to be returned. |
| ResultClass | String | If not NULL, indicates that all returned object paths must be object paths of instances of this class or one of its subclasses, or must be this class. |
| Role | String | If not NULL, must be a valid property name. Each returned object must refer to the target object through a property whose name matches the value of this parameter. |

Return values

The ReferenceNames() method enumerates the association objects or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_NOT_FOUND
- CIM_ERR_NO_SUCH_PROPERTY

- CIM_ERR_FAILED

SetProperty()

You can use the SetProperty() method to define a single property value of an instance in the target namespace.

Parameters

Table 189 shows the parameters you can specify for the SetProperty() method.

Table 189. SetProperty() parameters

| Parameter | Type | Description |
|--------------|--------|--|
| InstanceName | String | The name of the instance. |
| PropertyName | String | The name of the property whose value is to be defined. |

Return values

The SetProperty() method defines the property name of the target instance or returns one of the following error codes:

- CIM_ERR_ACCESS_DENIED
- CIM_ERR_INVALID_NAMESPACE
- CIM_ERR_INVALID_PARAMETER
- CIM_ERR_INVALID_CLASS
- CIM_ERR_NOT_FOUND
- CIM_ERR_NO_SUCH_PROPERTY
- CIM_ERR_TYPE_MISMATCH
- CIM_ERR_FAILED

Extrinsic methods

Extrinsic methods are specific to Common Information Model (CIM) object classes and are defined by the object model provider according to a specific Storage Management Initiative Specification (SMI-S) schema. The extrinsic methods add functionality to the CIM object classes.

The CIM agent for the SAN Volume Controller supports the extrinsic methods that are listed in Table 190.

Table 190. Supported extrinsic methods

| Class | Method name |
|------------------------|-----------------------|
| IBMTSSVC_BackendVolume | GetFreeExtents() |
| | MigrateVDiskExtents() |
| IBMTSSVC_Chassis | IsCompatible() |

Table 190. Supported extrinsic methods (continued)

| Class | Method name |
|---|---------------------------------------|
| IBMTSSVC_ClusteringService | AddNode() |
| | BackupConfiguration() |
| | Clean() |
| | DeleteConfigurationBackups() |
| | Dump() |
| | EvictNode() |
| | GetDump() |
| | GetResetPasswordChangeFeatureStatus() |
| | ListConfigurationBackups() |
| | ModifyIPAddress() |
| | ModifyResetPasswordChangeFeature() |
| | RestoreConfiguration() |
| | SetLocale() |
| | SetTimeZone() |
| | SetPasswords() |
| | Shutdown() |
| | StartService() |
| | StartStatisticsCollection() |
| StopService() | |
| StopStatisticsCollection() | |
| IBMTSSVC_ControllerConfigurationService | AttachDevice() |
| | CreateProtocolControllerWithPorts() |
| | DeleteProtocolController() |
| | DetachDevice() |
| IBMTSSVC_HardwareIdCollection | GetIOGroups() |
| IBMTSSVC_IOGroups | GetHosts() |
| IBMTSSVC_Job | KillJob() |
| IBMTSSVC_MessageLog | CancelIteration() |
| | ClearLog() |
| | DeleteRecord() |
| | FixRecord() |
| | GetAllRecords() |
| | GetRecord() |
| | ModifyErrorSettings() |
| | PositionAtRecord() |
| | PositionToFirstRecord() |
| | PositionToFirstRecordRoot() |
| | PositionToFirstRecordType() |
| | UnfixRecord() |
| WriteRecord() | |

Table 190. Supported extrinsic methods (continued)

| Class | Method name |
|--------------------------------------|--|
| IBMTSSVC_PrimordialStoragePool | GetSupportedSizes() |
| | GetSupportedSizeRange() |
| IBMTSSVC_PrivilegeManagementService | AssignAccess() |
| | RemoveAccess() |
| IBMTSSVC_Provider | Add2062Cluster() |
| | Add2145Cluster() |
| | Create2062Cluster() |
| | Reload2062Node() |
| | RemoveCluster() |
| | Reset2062Node() |
| IBMTSSVC_ServiceModeService | Clean() |
| | Dump() |
| | Enter() |
| | Exit() |
| | GetDump() |
| | Upgrade() |
| IBMTSSVC_StorageCapabilities | CreateSetting() |
| IBMTSSVC_StorageConfigurationService | AttachReplica() |
| | CreateOrModifyStoragePool() |
| | CreateOrModifyElementFromStoragePool() |
| | CreateRemoteClusterPartnership() |
| | CreateReplica() |
| | CreateSynchronizedSet() |
| | DeleteRemoteClusterPartnership() |
| | DeleteStoragePool() |
| | DeleteSynchronizedSet() |
| | IncludeBackendVolume() |
| | MigrateVolume() |
| | MigrateVolumeToImageMode() |
| | ModifySynchronization() |
| | ModifySynchronizedSet() |
| | ReturnToStoragePool() |
| | RequestDiscovery() |
| | SetIOGroup() |
| | SetQuorum() |
| StartService() | |
| StopService() | |

Table 190. Supported extrinsic methods (continued)

| Class | Method name |
|---|------------------------------|
| IBMTSSVC_StorageHardwareID ManagementService | AddHardwareIDsToCollection() |
| | CreateHardwareIDCollection() |
| | CreateStorageHardwareID() |
| | DeleteHardwareIDCollection() |
| | DeleteStorageHardwareID() |
| | ModifyHostIOGroupMapping() |
| IBMTSSVC_StoragePool | GetSupportedSizes() |
| | GetSupportedSizeRange() |
| IBMTS_TrustStorageManagementService | GenerateCIMOMCertificate() |
| | DeleteCertificate() |
| | EnableAutoGeneration() |
| | DisableAutoGeneration() |
| | SetDefaultValidity() |
| | CheckValidity() |

Add2145Cluster()

You can use the Add2145Cluster() command to configure the ICAT to work with an existing 2145 cluster.

Parameters

The Add2145Cluster() method belongs to the IBMTSSVC_Provider class. Table 191 shows the parameters you can specify for the Add2145Cluster() method.

Table 191. Add2145Cluster() parameters

| Parameter | Type | Description |
|-----------|----------------------|--|
| Cluster | IBMTSSVC_Cluster REF | A reference to the cluster that was added. |
| ClusterIP | String | The IP of the cluster to be added. |

Return values

The Add2145Cluster() method returns one of the following error codes:

- 0: The cluster was added successfully.
- 2: The attempt failed.
- 5: The number or type of parameters that have been passed is invalid.
- ...: DMTF Reserved.
- 0x8000: Connection to cluster refused.
- ...: Vendor Reserved.
- 0x8005: Syntax error in cluster IP.

AddHardwareIDsToCollection()

You can use the AddHardwareIDsToCollection() method to add a StorageHardwareID to a HardwareIDCollection.

Parameters

When a StorageHardwareID is added to a collection, the corresponding host object is deleted on the device and the WWPN is added to the host representing the collection. The AddHardwareIDsToCollection() method belongs to the IBMTSSVC_StorageHardwareIDManagementService class.

Table 192 shows the parameters you can specify for the AddHardwareIDsToCollection() method.

Table 192. AddHardwareIDsToCollection() parameters

| Parameter | Type | Description |
|-------------|-----------------------------------|---|
| HardwareIDs | String[] | An array that contains the string representations of the CIMOM Object Paths for StorageHardwareIDs that must be immediately added to the collection. Alternatively, IDs can contain the WWPN. In this case, the creation of StorageHardwareIDs is circumvented. |
| Collection | CIM_SystemSpecific Collection REF | The IBMTSSVC_Hardwareid Collection to add the IDs to. |

Return values

The AddHardwareIDsToCollection() method returns one of the following error codes:

- 0: The collection was successfully created.
- 2: An unknown error occurred.
- 3: The action timed out.
- 4: The action failed.
- 5: One of the parameters is invalid.
- 0x1000: The StorageHardwareID could not be found or is already member of another collection.
- 0x1001: Implementation does not support device collections.
- 0x1002: Input devices cannot be used in this collection.
- 0x8100: One or more parameters is out of cluster scope.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes.

AddNode()

You can use the AddNode() method to add an IBMTSSVC_CandidateNode instance to an IBMTSSVC_Cluster instance.

Parameters

The AddNode() method belongs to the IBMTSSVC_ClusteringService class.

When invoked, the AddNode() method automatically chooses the IBMTSSVC_RedundancyGroup for the candidate node. If the

IBMTSSVC_RedundancyGroup instances have only one existing node, the method selects the one whose identifier contains the smallest number. If no such IBMTSSVC_RedundancyGroup exists, the method selects an empty IBMTSSVC_RedundancyGroup whose identifier contains the smallest number.

Table 193 shows the parameters you can specify for the AddNode() method.

Table 193. AddNode() parameters

| Parameter | Type | Description |
|-----------------|--------|---|
| CS | COP* | Defines the IBMTSSVC_CandidateNode instance to be added. The IBMTSSVC_CandidateNode instance is in the same cluster as the IBMTSSVC_ClusteringService instance. |
| Set | String | The IO group to add the node to. This must be of type IBMTSSVC_IOGroupSet, belong to the same Cluster as the Service hosting this method and contain zero or one nodes. |
| Name | String | The name by which the new node will be known by the cluster. |
| * CIMObjectPath | | |

Return values

The AddNode() method returns one of the following error codes:

- 0: The node was successfully added.
- 2: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x8000: The submitted ComputerSystem was not a IBMTSSVC_CandidateNode
- 0x8001: All redundancy groups already have two nodes assigned.
- 0x8002; The submitted ExtraCapacitySet was not a IBMTSSVC_IGroupSet.
- 0x8003; The submitted IOGroupSet already has two assigned nodes.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes and messages.

AssignAccess()

You can use the AssignAccess() method to create a temporary IBMTSSVC_AccessControlInformation instance that contains the IBMTSSVC_AuthorizationSubject, IBMTSSVC_AuthorizationTarget, IBMTSSVC_HostedACI, and IBMTSSVC_AuthorizedUse associations in the CIMOM repository.

Parameters

The AssignAccess() method belongs to the IBMTSSVC_AuthorizationService class.

Table 194 on page 323 shows the parameters you can specify for the AssignAccess() method.

Table 194. AssignAccess() parameters

| Parameter | Type | Description |
|--------------------|------------------------|--|
| Activities | Uint16[] | <p><i>Must</i> be NULL unless the Privilege is NULL on input. This parameter specifies the activities to be granted or denied.</p> <p>Code Semantics</p> <p>1 Other 2 Create 3 Delete 4 Detect 5 Read 6 Write 7 Execute .. DMTF Reserved 16000..65535 Vendor Reserved</p> |
| ActivityQualifiers | String[] | <p><i>Must</i> be NULL unless Privilege is NULL on input. Defines the activity qualifiers for the Activities to be granted or denied.</p> |
| PrivilegeGranted | Boolean | <p><i>Must</i> be NULL unless Privilege is NULL on input. Indicates whether the rights defined by the parameters in this call should be granted or denied to the named subject/target pair.</p> |
| QualifierFormats | Uint16[] | <p><i>Must</i> be NULL unless Privilege is NULL on input. Defines the qualifier formats for the corresponding ActivityQualifiers.</p> <p>Code Semantics</p> <p>2 Class Name 3 <Class.>Property 4 <Class.>Method 5 Object Reference 6 Namespace 7 URL 8 Directory/File Name 9 Command Line Instruction 10..15999 DMTF Reserved 16000..65535 Vendor Reserved</p> |
| Subject | CIM_ManagedElement REF | <p>Defines the IBMTSSVC_HardwareAccount instance that is in the same IBMTSSVC_Cluster as the IBMTSSVC_AuthorizationService instance.</p> |
| Target | CIM_ManagedElement REF | <p>On input, this reference <i>must</i> be either NULL or refer to an instance of AuthorizedPrivilege that is used as a template.</p> |

Return values

The AssignAccess() method returns one of the following error codes:

- 0: All instances were successfully created.
- 2: An unexpected error occurred.

- 3: Timeout
- 4: Failedx
- 5: The number or type of parameters that have been passed is incorrect.
- 6..15999: DMTF Reserved
- 16000: Unsupported Subject
- 16001: Unsupported Privilege
- 16002: Unsupported Target
- 16003: Authorization Error
- 16004: NULL not supported
- 16005..31999: Method Reserved
- 32000..65535: Vendor Specific

AttachDevice()

You can use the `AttachDevice()` method to attach an `IBMTSSVC_StorageVolume` instance to an `IBMTSSVC_Controller` instance that is associated with an `IBMTSSVC_AccessControllInformation` instance and has the `AuthorizationView` parameter set to true.

Parameters

The `AttachDevice()` method belongs to the `IBMTSSVC_Controller` class.

The provider must verify that unit numbers are unique for each initiator. When the `ProtocolController` is already part of an `AuthorizedTarget` association, the provider should update the access configuration in the underlying hardware when `AttachDevice` is called.

Table 195 shows the parameters you can specify for the `AttachDevice()` method.

Table 195. AttachDevice() parameters

| Parameter | Type | Description |
|--------------------|---------|--|
| Device | COP* | Defines the volume instance to be attached. This device must belong to the same RedundancyGroup as the controller and be of type <code>IBMTSSVC_StorageVolume</code> . |
| [DeviceNumber] | | The logical unit number (LUN) at which the volume will be exposed to all hosts connected to this controller. |
| [Force] | Boolean | When false (the default), attempting to attach a volume that is already attached to another controller will fail. |
| ProtocolController | | The controller to which you attach the volume must belong to the same cluster as this service. |
| * CIMObjectPath | | |

Return values

The `AttachDevice()` method returns one of the following error codes:

- 0: The volume was successfully attached.
- 2: An unexpected error occurred.

- 5: The number or type of parameters that have been passed is incorrect.
- 0x1000: The device is not a volume of the controller's RedundancyGroup.
- 0x1001: The specified device number is already occupied.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes.

AttachReplica()

You can use AttachReplica() to create a copy relationship between two volumes.

Parameters

Table 196 shows the parameters you can specify for the AttachReplica() method.

Table 196. AttachReplica() parameters

| Parameter | Type | Description |
|----------------------|---------|--|
| [BackgroundCopyRate] | Uint16 | Specifies the priority of the background copy rate "0–100". Scale is not in percent, instead it is "non-linear." |
| CopyType | String | The type of copy relationship. CopyType = UnSyncUnAssoc (5) creates a FlashCopy mapping that is automatically deleted after the copy is complete. Code Semantics 2 Async 3 Sync 4 UnSyncAssoc 5 UnSyncUnAssoc " " DMTF Reserved 32768..65535 Vendor Specific |
| [ElementName] | String | The name of the IBMTSSVC_StorageSynchronized association. |
| [Set] | String | Defines the IBMTSSVC_SynchronizedSet. |
| SourceElement | | The source volume. Required to be an IBMTSSVC_StorageVolume. |
| [Synchronized] | Boolean | Valid for CopyType "Sync" only. If true, the SAN Volume Controller assumes that both source and target already contain identical data and no initial synchronization has to be performed. |
| TargetElement | | The target volume. Can be an IBMTSSVC_StorageVolume or an IBMTSSVC_CandidateVolume. |

Return values

The AttachReplica() method returns one of the following error codes:

- 0: The copy relationship was established successfully.
- 4: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x8000: CopyType is neither 2 nor 3.

- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes and messages.

BackupConfiguration()

You can use the BackupConfiguration() command to run the configuration backup script. The script stores the current cluster configuration associated with the current instance of ClusteringService in an XML file.

Parameters

The file name is svc.config.backup.xml. The svc.config.backup.xml file is stored in the directory backup/<clustername> that is located in the CIMOM home directory. If a current cluster backup file already exists, the file will be renamed with a .bak extension on the original backup file name. Any current .bak files of the same name will be overwritten. This file is designed for file restoration if an error or corruption occurs during the backup process. If the .bak files are used for restore, they must be renamed manually.

Table 197 shows the parameters you can specify for the BackupConfiguration() method.

Table 197. BackupConfiguration() parameters

| Parameter | Type | Description |
|-----------|----------|--|
| Force | Boolean | True/False statement. If true, command continuation is forced. False is the default. |
| FilePath | String | The backup file path. |
| Messages | String[] | The errors/warnings received from the backup script. |

Return values

The BackupConfiguration() method returns one of the following error codes:

- 0: The backup was successful.
- 2: An unexpected error occurred and the command failed.
- 5: The number or type of passed parameters is incorrect.
- 0x8001: The backup script returned an error.
- 0x8002: The backup file download via scp, failed.
- 0x8003: The backup directory could not be created.
- 0x8004: The old backup file could not be renamed or deleted.

Cancellation()

You can use the Cancellation() method to request that an iteration of the Log, identified by the IterationIdentifier input parameter, be stopped. Cancellation() belongs to the IBMTSSVC_MessageLog class.

Parameters

Table 198 on page 327 shows the parameters you can specify for the Cancellation() method.

Table 198. Cancelltration() parameters

| Parameter | Type | Description |
|---------------------|--------|-----------------------|
| IterationIdentifier | String | The current iterator. |

Return values

The Cancelltration() method returns one of the following error codes.

- 0: The method completed successfully.
- 2: Unknown.
- 3: Timeout.
- 4: Failed.
- 5. The number or type of parameters that have been passed is incorrect.

CheckValidity()

You can use this method to check the validity of an IBMTS_Certificate.

Parameters

You must have administrator privileges to run this method.

Table 199 shows the parameters you can specify for the CheckValidity() method.

Table 199. CheckValidity() parameters

| Parameter | Type | Description |
|-------------|-----------------------|---|
| Certificate | IBMTS_Certificate REF | The reference to the instance of IBMTS_Certificate you want to check. |
| IsValid | Boolean | A boolean that indicates if the checked certificate is valid. |
| Validity | Uint32 | The number of remaining valid days. |

Return values

The CheckValidity() method returns one of the following error codes:

- 0: The information about the certificate was successfully obtained.
- 2: Failed to obtain information on certificate.
- 5: One of the parameters is invalid.

Clean()

You can use the Clean() method to clean the dump directories on the node.

Parameters

The Clean() method belongs to the IBMTSSVC_ServiceModeService class. Table 200 on page 328 shows the parameters you can specify for the Clean() method.

Table 200. Clean() parameters

| Parameter | Type | Description |
|-----------|---------------|---|
| Filter | String | The filter's syntax. If a directory is specified with no file filter, all relevant dump/log files in this directory are cleaned. The allowable directory arguments are: dumps (which cleans all files, including all subdirectories), dumps/configs, dumps/elogs, dumps/feature, dumps/iostats, dumps/iotrace and home/admin. You can also specify a file filter. |
| SMNode | IBMTSSVC_Node | The node that the dump file is deleted from. A dump file on the config node will be deleted, if nothing is specified. |

Return values

The Clean() method returns one of the following error codes:

- 0: The Clean() method was successful.
- 2: An unexpected error occurred and the command failed.
- 5: The wrong number or type of parameter has been passed.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

ClearLog()

You can use the ClearLog() method to delete all of the entries in the error log.

Return values

If the request is not supported, check the Capabilities array that a value of 6 ("Clear Log Supported") is specified. In a subclass, the set of possible return codes could be described using a ValueMap qualifier on the method. The ClearLog() method belongs to the IBMTSSVC_MessageLog class.

The ClearLog() method returns one of the following error codes:

- 0: All entries in the error log were deleted.
- 2: An unexpected error occurred.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes.

CreateHardwareIDCollection()

You can use the CreateHardwareIDCollection method to create an instance of IBMTSSVC_HardwareIDCollection. The IBMTSSVC_HardwareIDCollection is represented by a host object on the device.

Parameters

The HardwareIDCollection aggregates StorageHardwareIDs. If a StorageHardwareID is added to a collection, the corresponding host object is deleted on the device and the worldwide port name (WWPN) is added to the host

that represents the collection. The `CreateHardwareIDCollection()` method belongs to the `IBMTSSVC_ControllerConfigurationService` class.

Table 201 shows the parameters that you can specify for the `CreateHardwareIDCollection()` method.

Table 201. CreateHardwareIDCollection() parameters

| Parameter | Type | Description |
|-------------|--------------------------------------|--|
| ElementName | String | The name of the collection. |
| HardwareIDs | String[] | An array that contains the string representations of the CIMOM Object Paths for StorageHardwareIDs to be added immediately to the collection. Alternatively, IDs can contain the WWPN. In this case, the creation of StorageHardwareIDs is circumvented. |
| IOGroups | String[] | An array that contains the names or IDs of the I/O groups that will be associated with the new collection. If you do not specify this parameter, the new collection is associated with all of the I/O groups in the cluster. |
| Collection | CIM_System SpecificCollection REF | The <code>IBMTSSVC_HardwareId</code> is the collection to add the IDs to. |

Return values

The `CreateHardwareIDCollection()` method returns one of the following error codes:

- 0: The collection was successfully created.
- 2: An unknown error occurred.
- 3: The action timed out.
- 4: The action failed.
- 5: One of the parameters is invalid.
- 0x1000: The StorageHardwareID could not be found or is already member of another collection.
- 0x1001: Implementation does not support hardware ID collections.
- 0x1002: Input hardware IDs cannot be used in same collection.
- 0x8100: One or more parameters is out of cluster scope.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes.

CreateOrModifyStoragePool()

You can use the `CreateOrModifyStoragePool()` method to create or modify an `IBMTSSVC_StoragePool`.

Parameters

The `CreateOrModifyStoragePool()` method belongs to the `IBMTSSVC_StorageConfigurationService` class. You can use the `CreateOrModifyStoragePool()` method to create an `IBMTSSVC_StoragePool` if the `Pool` parameter is set to null, or you can modify an existing `IBMTSSVC_StoragePool` if the `Pool` parameter is not null.

Table 202 shows the parameters you can specify for the `CreateOrModifyStoragePool()` method.

Table 202. CreateOrModifyStoragePool() parameters

| Parameter | Type | Pool creation description | Pool modification description |
|-------------|------------------------|--|--|
| Blocksize | Uint16 | The block size (also known as extent size) for the new pool. Supported values are 16, 32, 64, 128, 256, or 512 MB. The default value is 16 MB. The block size defines the granularity by which the capacity is managed by the SAN Volume Controller. For example, if you select a block size of 256 MB, all storage volumes will occupy space in multiples of 256 MB. Thus, a 300 MB storage volume will allocate 512 MB of pool capacity. | Must be null. The block size can only be set when the pool is first created. |
| ElementName | String | The ElementName of the pool to be created. If null, the system will assign a name. | The new name for the pool. |
| [Extent] | String | Points to the StorageExtent. | Points to the StorageBackend Volume. |
| Force | Boolean | Not used. | If set to True, the deletion of managed disks (MDisks) is forced. Force is ignored if disks are added. |
| Goal | CIM_StorageSetting REF | Contains the desired name and extent size for the new pool. If Goal is different from the static instance in the persistence layer, the method will fail. | The desired name and extent size for the new pool. If Goal is different from the static instance in the persistence layer, the method will fail. |

Table 202. CreateOrModifyStoragePool() parameters (continued)

| Parameter | Type | Pool creation description | Pool modification description |
|-----------|---------------------|--|--|
| InExtents | String[] | The BackendVolumes from which to build the Pool. Mutually exclusive with InPools. If InExtents is given, Size will be ignored. | StorageBackend Volumes are the names used by the SAN Volume Controller for managed disks (MDisks). StorageBackend Volumes can be added or removed from the pool. They must belong to the same cluster as the pool and must not be aggregated by any other pool. If Size is less than the actual size of the pool, BackendVolumes passed in here will be removed. |
| InPools | String[] | The PrimordialPool from which to take the BackendVolumes. Mutually exclusive with InExtents. | The PrimordialPool that you take additional BackendVolumes from. Mutually exclusive with InExtents. |
| Job | CIM_ConcreteJob REF | Set to Null. | Set to Null. |
| [Pool] | String | Set to Null. | Specifies the StoragePool that is in the same cluster as the Storage ConfigurationService instance. |
| Pool | CIM_StoragePool REF | The name of the new pool. | The parameter is left unchanged by the method and therefore contains the passed value from invocation. |

Table 202. CreateOrModifyStoragePool() parameters (continued)

| Parameter | Type | Pool creation description | Pool modification description |
|-----------|--------|---|--|
| [Size] | | The desired size of the new Pool. When InPools is given, it will take as many BackendVolumes as necessary from the PrimordialPool in order to achieve the requested size. If InExtents is given, this parameter will be ignored. The size of the new storage pool is given by the sum of the sizes of the aggregated extents. | The desired new size of the pool. When InPools is given, it will take BackendVolumes from the PrimordialPool in order to achieve the requested size. If InExtents is given, this parameter will be ignored. See InExtents for more information. The size of the new storage pool is given by the sum of the sizes of the aggregated extents. You cannot shrink a pool using this method and passing InPools. |
| Size | UInt64 | The real allocated size of the Pool in bytes. | The real allocated size of the Pool in bytes. |

Return values

The CreateOrModifyStoragePool() method returns one of the following error codes:

- 0: The pool was successfully created.
- 2: An unknown error occurred.
- 4: An unexpected error occurred.
- 3: The action timed out.
- 5: At least one of the parameters was invalid.
- 6: In use.
- 4096: Method parameters checked. Job started.
- 4097: Size not supported.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes and messages.

CreateOrModifyElementFromStoragePool()

You can use the CreateOrModifyElementFromStoragePool() method to create an IBMTSSVC_StorageVolume instance if TheElement parameter is null, or you can modify an IBMTSSVC_StorageVolume instance if TheElement parameter is not null.

Parameters

The CreateOrModifyElementFromStoragePool() method belongs to the IBMTSSVC_StorageConfigurationService class.

Table 203 shows the parameters you can specify for the `CreateOrModifyElementFromStoragePool()` method.

Table 203. `CreateOrModifyElementFromStoragePool()` parameters

| Parameter | Type | Description | |
|-----------------|-------------------------|---|--|
| | | Volume creation | Volume modification |
| Backend Volumes | String[] | An array that contains the backend volumes that will store the data from the volume. This parameter is mandatory if the virtualization type is "sequential" or "image". For all virtualization types except "image," all backend volumes must belong to the storage pool in the InPool. If the virtualization type is "image," the backend volume must belong to a PrimordialStoragePool. | In the case of volume expansion, a list of backend volumes on which the additional capacity will be allocated can be submitted. In all other cases, this parameter must be null. |
| Element Name | String | The ElementName of the volume to be created. If null, the system will assign a name. | The new name for the volume. |
| ElementType | Uint16 | ElementType=2, IBMTSSVC_StorageVolume. | ElementType=2, IBMTSSVC_StorageVolume. |
| Format | Boolean | Specifies if the volume is formatted on creation. The default is false. | Specifies if the additional volume capacity is formatted on expansion. The default is false. |
| Goal | CIM_Managed Element REF | Contains special settings for the new volume. Must be a valid StorageSetting for volumes if submitted. | Must be a valid StorageSetting for volumes, if submitted. |
| InPool | CIM_Storage Pool REF | The IBMTSSVC_StoragePool from which the volume is to be allocated. The pool and the StorageConfigurationService must belong to the same cluster. Must be set if TheElement is null. | Set to null. |
| IOGroup | IBMTSSVC_ IOGroup REF | The I/O group that the storage volume will be assigned to. If null, the method will choose the I/O group with the fewest number of virtual disks (VDisks) assigned. | Must be null. |
| Job | CIM_Concrete Job REF | Set to null. | Set to null. |

Table 203. CreateOrModifyElementFromStoragePool() parameters (continued)

| Parameter | Type | Description | |
|---------------------|-------------------------|---|---|
| | | Volume creation | Volume modification |
| Preferred Node | IBMTSSVC_Node REF | The preferred node for volume access. If I/O group is null, this parameter must also be null. Otherwise, it must belong to the I/O group that is specified. | |
| Size | UInt64 | The size of the volume in bytes. This parameter directly corresponds to the size CLI parameter. The SAN Volume Controller supports only sizes that are multiples of 512 bytes. If the size doesn't fulfill this criteria, the method fails with "size not supported." | The size of the volume in bytes. The CLI amount parameter is calculated as follows: amount = size - current size. If the amount is positive, the volume will be expanded. If the amount is negative, it will be reduced. The SAN Volume Controller supports only sizes that are multiples of 512 bytes. If the size does not fulfill this criteria, the method fails with "size not supported." |
| TheElement | CIM_Logical Element REF | Specifies the IBMTSSVC_StorageVolume instance to be created. If null, a new storage volume will be allocated from InPool. If not null the passed storage volume will be expanded or reduced, depending on the Size parameter. | Specifies the IBMTSSVC_StorageVolume instance to be modified (reduced or expanded). |
| UnitDeviceID | UInt16 | Sets the unit device identifier for the new VDisk. | - |
| Virtualization Type | UInt8 | Sets the type of Volume created. The following values are possible: "striped" (0), "sequential" (1) or "image" (2). The default is "striped." | Must be null. |

Return values

The CreateOrModifyElementFromStoragePool() method returns one of the following error codes:

- 0: The volume was successfully created.
- 4: An unexpected error occurred.
- 5: At least one of the parameters was invalid.
- 0x1001: The requested size is not a multiple of 512. The nearest supported size greater than the requested size is returned in Size.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes and messages.

CreateProtocolControllerWithPorts()

You can use the `CreateProtocolControllerWithPorts()` method to create an `IBMTSSVC_Controller`.

Parameters

You can use the controller to attach Volumes using the `AttachDevice()` method. The controller is created in the Common Information Model Object Manager (CIMOM) repository. A controller is bound to an IOGroup and can therefore contain only FCPorts of this IOGroup. The `CreateProtocolControllerWithPorts()` method belongs to the `IBMTSSVC_ControllerConfigurationService` class.

Table 204 shows the parameters you can specify for the `CreateProtocolControllerWithPorts()` method.

Table 204. *CreateProtocolControllerWithPorts()* parameters

| Parameter | Type | Description |
|--------------------|----------------------------|---|
| ElementName | String | The name is automatically assigned and cannot be chosen individually. Therefore, this parameter is required to be null. |
| Identity | CIM_ManagedElement REF | The <code>IBMTSSVC_HardwareIdCollection</code> or <code>IBMTSSVC_StorageHardwareId</code> to which the volumes attached to the <code>ProtocolController</code> are exported. |
| Ports | String[] | The list of ports that will be associated with the controller. All ports must belong to the same IOGroup. The created controller will contain all FCPorts of an IOGroup even if a subset is submitted here. |
| Protocol | Uint16 | Is required to be 2. |
| ProtocolController | CIM_ProtocolController REF | The created <code>IBMTSSVC_Controller</code> is returned here. |
| Privilege | CIM_Privilege REF | If not null, required to be the default static Privileges instance from the persistence layer. |

Return values

The `CreateProtocolControllerWithPorts()` method returns one of the following error codes:

- 0: A clone was successfully created.
- 2: An unexpected error occurred.
- 5: The wrong number or type of parameters were passed.
- 0x8000: All ports are required to belong to the same IOGroup.
- 0x8002: This SPC already exists, the return parameter `ProtocolController` contains a reference to the existing SPC.
- 0x8100: COPs of a Cluster (which is different to this service's cluster) were submitted.

CreateRemoteClusterPartnership()

You can use the `CreateRemoteClusterPartnership()` method to establish a one-way partnership between an `IBMTSSVC_Cluster` instance and an `IBMTSSVC_CandidateCluster` instance.

Parameters

The method must be run on both the source cluster and the candidate cluster to establish a fully functional synchronous copy partnership. The `CreateRemoteClusterPartnership()` method belongs to the `IBMTSSVC_StorageConfigurationService` class.

Table 205 shows the parameters you can specify for the `CreateRemoteClusterPartnership()` method.

Table 205. `CreateRemoteClusterPartnership()` parameters

| Parameter | Type | Description |
|---------------|-------------------------------|--|
| RemoteCluster | IBMTSSVC_CandidateCluster REF | The cluster for which a relationship is created. Cluster membership checks are required. |
| [Bandwidth] | UInt16 | The bandwidth for the copy operation in megabytes (MB). |

Return values

The `CreateRemoteClusterPartnership()` method returns one of the following error codes:

- 0: The cluster partnership was successfully established.
- 2: An unknown error occurred.
- 3: The action timed out.
- 4: The action failed.
- 5: The wrong number or type of parameters were passed.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes and messages.

CreateReplica()

You can use the `CreateReplica()` method to create a replica of the source volume for a copy relationship.

Parameters

The `CreateReplica()` method belongs to the `IBMTSSVC_StorageConfigurationService` class. Table 206 on page 337 shows the parameters you can specify for the `CreateReplica()` method.

Table 206. CreateReplica() parameters

| Parameter | Type | Description |
|-------------------|------------------------|--|
| CopyType | Uint16 | The type of copy relationship. CopyType = UnSyncUnAssoc (5) creates a FlashCopy mapping that is automatically deleted after the copy is complete. Code Semantics 2 Async 3 Sync 4 UnSyncAssoc 5 UnSyncUnAssoc " " DMTF Reserved 32768..65535 Vendor Specific |
| CacheMode | Uint16 | If this value is 0 (None), there is no caching. If this value is 1 (Read/Write), there is caching of both reads and writes. The default value is 1 (Read/Write). Code Semantics 0 None 1 Read/Write |
| [ElementName] | String | The name of the replica to be created. If null, the system will assign a name. |
| Job | CIM_ConcreteJob REF | The object used to monitor and terminate the copy process. |
| SourceElement | CIM_LogicalElement REF | The source storage volume for the replica. |
| TargetElement | CIM_LogicalElement REF | The target storage volume for the replica. |
| TargetSettingGoal | CIM_StorageSetting REF | The StorageSetting object to be matched by the replica. Passed to the CreateOrModifyElement FromStoragePool method. |
| TargetPool | String | The IBMTSSVC_StoragePool that will be used for the target volume. |
| UnitDeviceID | Uint16 | Sets the unit device identifier for the new replica. |

Return values

The CreateReplica() method returns one of the following error codes:

- 0: The cluster partnership was successfully established.
- 4: An unexpected error occurred.
- 5: The number or type of parameters that were passed is incorrect.
- 0x8000: A CopyType other than 3 or 4 was used.
- 0x8100: One or more of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes and messages.

CreateSetting()

You can use the CreateSetting() method to create and populate a StorageSetting instance from a StorageCapability instance.

Parameters

This removes the need to populate default settings and other settings in the context of each StorageCapabilities (which could be numerous).

The CreateSetting() method belongs to the IBMTSSVC_StorageCapabilities class. Table 207 shows the parameters you can specify for the CreateSetting() method.

Table 207. CreateSetting() parameters

| Parameter | Type | Description |
|-------------|------------------------|--|
| NewSetting | CIM_StorageSetting REF | Reference to the created StorageSetting instance. |
| SettingType | Uint16 | The value of this parameter is without meaning to the SAN Volume Controller. For both Default and Goal, the same StorageSetting is returned. |

Return values

The CreateSetting() method returns one of the following error codes.

- 0: The method completed successfully.
- 2: Unspecified error.
- 3: Timeout.
- 4: The method failed.
- 5: The number or type of parameters that have been passed is incorrect.
- ...: DMTF reserved.
- 32768..65535: Vendor specific.

CreateStorageHardwareID()

You can use the CreateStorageHardwareID() method to create an instance of IBMTSSVC_StorageHardwareID.

Parameters

On the device level, the instance is represented by a single-port host object with the name prefix "cimhwid".

Table 208 shows the parameters you can specify for the CreateStorageHardwareID() method.

Table 208. CreateStorageHardwareID() parameters

| Parameter | Type | Description |
|-------------|--------|---|
| ElementName | String | The name of the new HardwareID instance. Must be identical to ID. |
| StorageID | String | The value used by the SecurityService to represent identity. In this case, a PortWWN. |
| IDType | Uint16 | The type of the ID property. In this case, 2 (PortWWN). |

Table 208. CreateStorageHardwareID() parameters (continued)

| Parameter | Type | Description |
|-------------|--------------------------------------|--|
| OtherIDType | String | The type of the storage ID when the IDType is "Other." |
| Setting | CIM_StorageClient SettingData REF | Required to be null. |
| HardwareID | CIM_StorageHardwareID REF | The CIMOM Object Path for the created StorageHardwareID. |

Return values

The CreateStorageHardwareID() method returns one of the following error codes:

- 0: The volume was successfully detached.
- 2: An unknown error occurred.
- 3: The action timed out.
- 4: The action failed.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x1000: The WWPN is already assigned to an existing StorageHardwareID.
- 0x1001: The IDType is not 2.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes.

CreateSynchronizedSet()

You can use the CreateSynchronizedSet() method to create an IBMTSSVC_SynchronizedSet instance for aggregating IBMTSSVC_StorageSynchronized associations for FlashCopy or Metro Mirror relationships.

Parameters

Some devices may not support SynchronizedSets. In order to find out if SynchronizedSets are supported, call GetSupportedSetTypes. The CreateSynchronizedSet() method belongs to the IBMTSSVC_StorageConfigurationService class.

Table 209 shows the parameters you can specify for the CreateSynchronizedSet() method.

Table 209. CreateSynchronizedSet() parameters

| Parameter | Type | Description |
|-----------------|------------------------------------|--|
| CopyType | Uint16 | The type of copy relationship (3 for Metro Mirror ; 4 for FlashCopy). |
| [ElementName] | String | The name of the copy relationship. |
| [RemoteCluster] | IBMTSSVC_ Remote Cluster REF | The remote cluster for the ConsistencySet. Only StorageSynchronized with volumes on this remote cluster can be added to this set. This setting is valid only for CopyType 3 (Metro Mirror). The default is the local cluster. This setting must be null if the CopyType is 4 (FlashCopy). |

Table 209. CreateSynchronizedSet() parameters (continued)

| Parameter | Type | Description |
|-----------|--------------------------|---|
| [Set] | CIM_Synchronized Set REF | The IBMTSSVC_FlashCopySynchronized Set or IBMTSSVC_SyncCopySynchronized Set instance that is created. |

Return values

The CreateSynchronizedSet() method returns one of the following error codes:

- 0: The SynchronizedSet was created successfully.
- 2: An unknown error occurred.
- 3: The action timed out.
- 4: The action failed.
- 5: The number or type of parameters that were passed is incorrect.
- 6: A copy type other than 3 or 4 was used.
- 8: SynchronizedSets are not supported.
- 0x8100: One or more parameters were out of cluster scope.
- 0x9000 to 0x9FFF: This range represents SAN Volume Controller return codes and messages.

DeleteCertificate()

You can use this method to delete a server certificate.

Parameters

After the server certificate is deleted, it is not possible to establish a secure connection using server authentication. You must either restart the CIM Agent on port 5988 and invoke the generateCIMOMCertificate() or manually call the batch file mkcertificate.bat.

You must have administrator privileges to run this method.

Table 210 shows the parameters you can specify for the DeleteCertificate() method.

Table 210. DeleteCertificate() parameters

| Parameter | Type | Description |
|-------------|-----------------------|---|
| Certificate | IBMTS_Certificate REF | The reference to the instance of IBMTS_Certificate that you want to delete. |

Return values

The DeleteCertificate() method returns one of the following error codes:

- 0: The certificate was successfully deleted.
- 2: Failed to generate new certificate due to provider internal reasons.
- 4: Failed to generate new certificate due to truststore problems.
- 5: One of the parameters is invalid.

DeleteConfigurationBackup()

You can use the DeleteConfigurationBackup() command to delete the backups in the Backup directory.

Parameters

Table 211 shows the parameters you can specify for the DeleteConfigurationBackup() method.

Table 211. DeleteConfigurationBackup() parameters

| Parameter | Type | Description |
|-----------|--------|-----------------------------------|
| Backup | String | The name of the backup to delete. |

Return values

The DeleteConfigurationBackup() method returns one of the following error codes:

- 0: The restore was successful.
- 2: An unexpected error occurred.
- 5: The given backup could not be found.
- 0x8000: The backup directory deletion failed. This could be caused by a sharing violation.

DeleteHardwareIDCollection()

You can use the DeleteHardwareIDCollection() method to delete a SAN Volume Controller host.

Parameters

The DeleteHardwareIDCollection() method belongs to the IBMTSSVC_ControllerConfigurationService class.

Table 212 shows the parameters you can specify for the DeleteHardwareIDCollection() method.

Table 212. DeleteHardwareIDCollection() parameters

| Parameter | Type | Description |
|------------|--------------------------------------|---|
| Collection | CIM_System SpecificCollection REF | The CIMOM Object Path of the IBMTSSVC_Host to be deleted. |
| Force | Boolean | Optionally specifies that the deletion will be forced (if set to true). Otherwise the deletion would fail if a privilege is still associated with the collection. If specified, the host will be deleted even if it is a member of a LUN mapping. |

Return values

The DeleteHardwareIDCollection() method returns one of the following error codes:

- 0: The volume was successfully detached.
- 2: An unknown error occurred.
- 3: The action timed out.

- 4: The action failed.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x1000: The device has no ProtocolControllerForUnit association to this controller.
- 0x8000: Collection is associated with a privilege, and the Force parameter was not specified.
- 0x8100: One or more parameters were out of cluster scope.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes.

DeleteProtocolController()

You can use the DeleteProtocolController() method to delete a controller from the Common Information Model Object Manager (CIMOM) repository or from the SAN Volume Controller, respectively.

Parameters

The DeleteProtocolController() method belongs to the IBMTSSVC_ControllerConfigurationService class. Table 213 shows the parameters you can specify for the DeleteProtocolController() method.

Table 213. DeleteProtocolController() parameters

| Parameter | Type | Description |
|--------------------|-------------------------------|---|
| DeleteLogicalUnits | Boolean | If true, all StorageVolumes which are exclusively attached to the submitted controller are deleted as well. The default is false. |
| ProtocolController | CIM_ProtocolController REF | The controller to be deleted. |

Return values

The DeleteProtocolController() method returns one of the following error codes:

- 0: The controller was successfully deleted.
- 2: An unexpected error occurred.
- 5: The wrong number or type of parameters were passed.
- 0x1000: At least one of the attached StorageVolumes is attached to another controller and has therefore not been deleted.
- 0x8100: The passed controller and the service owning the method belong to different clusters.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes.

DeleteRecord()

The DeleteRecord() method belongs to the IBMTSSVC_MessageLog class.

Parameters

Table 214 on page 343 shows the parameters you can specify for the DeleteRecord() method.

Table 214. DeleteRecord() parameters

| Parameter | Type | Description |
|---------------------|---------|---|
| IterationIdentifier | String | |
| PositionToNext | Boolean | When set to true, requests the IterationIdentifier to be advanced to the next record, after the current entry is deleted. If set to false, IterationIdentifier is set to the previous record. |
| RecordNumber | UInt64 | |
| RecordData | UInt8[] | |

Return values

The DeleteRecord() method returns one of the following error codes:

- 0: The method completed successfully.
- 2: Unknown.
- 3: Timeout.
- 4: Failed.
- 5. The number or type of parameters that have been passed is incorrect.

DeleteRemoteClusterPartnership()

You can use the DeleteRemoteClusterPartnership() method to remove a partnership between two IBMTSSVC_Cluster instances.

Parameters

You must run this method on both clusters to delete a fully functional synchronous copy partnership. The DeleteRemoteClusterPartnership() method belongs to the IBMTSSVC_StorageConfigurationService class.

Table 215 shows the parameters you can specify for the DeleteRemoteClusterPartnership() method.

Table 215. DeleteRemoteClusterPartnership() parameters

| Parameter | Type | Description |
|---------------|-----------------------------|---|
| RemoteCluster | IBMTSSVC_Remote Cluster REF | The name of the candidate remote cluster. Cluster membership checks are required. |

Return values

The DeleteRemoteClusterPartnership() method returns one of the following error codes:

- 0: The cluster partnership was successfully deleted.
- 2: An unknown error occurred.
- 3: The action timed out.
- 4: The action failed
- 5: The wrong number or type of parameters was passed.

- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

DeleteStorageHardwareID()

You can use the DeleteStorageHardwareID() method to delete a StorageHardwareID.

Parameters

The DeleteStorageHardwareID() method removes the associations and aggregations, including CIM_ConcreteDependency and CIM_AuthorizedSubject. The DeleteStorageHardwareID() method belongs to the IBMTSSVC_ControllerConfigurationService class.

Table 216 shows the parameters you can specify for the DeleteStorageHardwareID() method.

Table 216. DeleteStorageHardwareID() parameters

| Parameter | Type | Description |
|------------|---------------------------|--|
| HardwareID | CIM_StorageHardwareID REF | The IBMTSSVC_StorageHardwareID to delete. |
| Force | Boolean | TRUE, the deletion will be forced. The StorageHardwareID will be deleted even if it is associated with a Privilege. If specified, the ID will be deleted even if any active LUN masking is assigned to it. |

Return values

The DeleteStorageHardwareID() method returns one of the following error codes:

- 0: The volume was successfully detached.
- 2: An unexpected error occurred.
- 3: The action timed out.
- 4: The action failed.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x1000: The StorageHardwareID could not be found.
- 0x8000: The HardwareAccount is still bound to AuthorizationSubject.
- 0x8100: One or more parameters were out of cluster scope.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes.

DeleteSynchronizedSet()

You can use the DeleteSynchronizedSet() method to delete a SynchronizedSet if it does not contain any StorageSynchronized associations.

Parameters

The DeleteSynchronizedSet() method belongs to the IBMTSSVC_StorageConfigurationService class. Table 217 on page 345 shows the parameters you can specify for the DeleteSynchronizedSet() method.

Table 217. DeleteSynchronizedSet()

| Parameter | Type | Description |
|-----------|-------------------------|--|
| Force | Boolean | If set to False, the delete will fail if any StorageSynchronized are member of the set. The default is false. When Force is set to True, all contained StorageSynchronized will be moved out of the Set before it is deleted. Therefore, the StorageSynchronized survive as stand-alone copy mappings. |
| Set | CIM_SynchronizedSet REF | The SynchronizedSet to be deleted. The InstanceID corresponds to the SAN Volume Controller consistency_grp ID. |

Return values

The DeleteSynchronizedSet() method returns one of the following error codes:

- 0: The SynchronizedSet was successfully deleted.
- 2: An unknown error occurred.
- 3: The action timed out.
- 4: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 6: There are still StorageSynchronized associations in the set when it should be empty. Any StorageSynchronized associations must be removed before deletion of the set can be completed, or the Force flag must be set.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

DeleteStoragePool()

You can use the DeleteStoragePool() method to delete an IBMTSSVC_StoragePool instance if it does not contain any IBMTSSVC_StorageVolume instances.

Parameters

The DeleteStoragePool() method belongs to the IBMTSSVC_StorageConfigurationService class. Table 218 shows the parameters you can specify for the DeleteStoragePool() method.

Table 218. DeleteStoragePool()

| Parameter | Type | Description |
|-----------|----------------------|--|
| [Force] | Boolean | When set to True, the pool will be deleted despite constraints (for example, no StorageVolume or BackendVolume contained). The default is False. |
| Job | CIM_Concrete Job REF | Set to null. |
| Pool | CIM_Storage Pool REF | The IBMTSSVC_StoragePool to be deleted. Contains the mdisk_grp_ID in Name. The pool and the StorageConfigurationService must belong to the same cluster. |

Return values

The DeleteStoragePool() method returns one of the following error codes:

- 0: The pool was successfully deleted.
- 2: An unknown error occurred.
- 3: The action timed out.
- 4: The action failed
- 6: The method is in use.
- 5: The number or type of parameters that have been passed is incorrect.
- 4096: Method parameters checked. Job started.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

DetachDevice()

You can use the DetachDevice() method to detach a volume from the controller.

Parameters

The DetachDevice() method belongs to the IBMTSSVC_ControllerConfigurationService class. Table 219 shows the parameters you can specify for the DetachDevice() method.

Table 219. DetachDevice() parameters

| Parameter | Type | Description |
|--------------------|----------------------------|--|
| Device | CIM_LogicalDevice REF | The volume to be detached. There must be an IBMTSSVC_SCSILUN association between this volume and the controller. |
| ProtocolController | CIM_ProtocolController REF | The controller from which to detach the volume. |

Return values

The DetachDevice() method returns one of the following error codes:

- 0: The volume was successfully detached.
- 2: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x1000: The device has no ProtocolControllerForUnit association to this controller.
- 0x8100: One or more parameters were out of cluster scope.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes.

DisableAutoGeneration()

You can use this method to disable the certificate automatic generation feature.

You must have administrator privileges to run this method.

Return values

The EnableAutoGeneration() method returns one of the following error codes:

- 0: The certificate was successfully deleted.
- 2: Failed due to provider internal reasons.

Dump()

You can use the Dump() method to dump the contents of error log, the config log, or the feature log to a text file.

Parameters

The Dump() method belongs to the IBMTSSVC_ServiceModeService class. Table 220 shows the parameters you can specify for the Dump() method.

Table 220. Dump() parameters

| Parameter | Type | Description |
|----------------|-------------------------------|--|
| Type | UInt16 | Decides which dump type will be generated. |
| FileNamePrefix | String | When this parameter is not set, the dump is directed to a file with a system defined name. If supplied, a filename is created from the prefix and timestamp. It takes the form of <FileNamePrefix>_NN_YYMMDD_HHMMSS. NN is the current configuration log id. In the case of feature logs, this parameter must be null. |
| GeneratedFile | String | The generated file name. |
| SMNode | IBMTSSVC_ServiceMode Node REF | The node that is in service mode where dump files will be created. |

Return values

The Dump() method returns one of the following error codes:

- 0: The text file dump was successful.
- 2: An unexpected error occurred and the command failed.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x8000: A type greater than 2 was passed.
- 0x8001: A file prefix was passed at the same time as the feature log type.
- 0x9000: to 0x9FFF: SAN Volume Controller return codes and messages.

EnableAutoGeneration()

You can use this method to enable the certificate automatic generation feature. With this method enabled, a new certificate is automatically generated when the old certificate expires.

You must have administrator privileges to run this method.

Return values

The EnableAutoGeneration() method returns one of the following error codes:

- 0: The certificate was successfully deleted.
- 2: Failed due to provider internal reasons.

Enter()

You can use the Enter() method to put a node into service mode.

Parameters

After this happens, the ServiceModeService methods is run against the returned service mode node and the objects prefixed with IBMTSSVC_SM objects are retrieved for this node. If the config node is in service mode, no other commands for this cluster are available.

The Enter() method belongs to the IBMTSSVC_ServiceModeService class. Table 221 shows the parameters you can specify for the Enter() method.

Table 221. Enter() parameters

| Parameter | Type | Description |
|-----------|------------------------------|--|
| Node | IBMTSSVC_Node REF | The node that shall be put in service mode. |
| SMNode | IBMTSSVC_ServiceModeNode REF | The reference to the node that is now in service mode. |

Return values

The Enter() method returns one of the following error codes:

- 0: The Enter() method was successful.
- 5: The wrong number or type of parameter has been passed.
- ...: DMTF reserved.
- 0x8100: Cluster scope violation.

EvictNode()

You can use the EvictNode() method to remove an IBMTSSVC_Node instance from an IBMTSSVC_Cluster instance.

Parameters

The EvictNode() method belongs to the IBMTSSVC_ClusteringService class. Table 222 shows the parameters you can specify for the EvictNode() method.

Table 222. EvictNode() parameters

| Parameter | Type | Description |
|-----------|-------------------|--|
| CS | CIMOM Object Path | Defines the IBMTSSVC_Node instance to be added that is in the same cluster as the IBMTSSVC_ClusteringService instance. |

Return values

The EvictNode() method returns one of the following error codes:

- 0: The node was successfully added.
- 2: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x8000: The submitted computer system was not an IBMTSSVC_CandidateNode.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

Exit()

You can use the Exit() method to exit the service mode for a specific node and restart it in normal operating mode.

Parameters

The Exit() method belongs to the IBMTSSVC_ServiceModeService class. Table 223 shows the parameters you can specify for the Exit() method.

Table 223. Exit() parameters

| Parameter | Type | Description |
|-----------|------------------------------|---|
| SMNode | IBMTSSVC_ServiceModeNode REF | The node that will be restarted in normal operating mode. |

Return values

The Exit() method returns one of the following error codes:

- 0: The Exit() method was successful.
- 5: The wrong number or type of parameter has been passed.
- ...: DMTF reserved.
- 0x8100: Cluster scope violation.
- 0x9000 to 0x9FFF: Device error codes.

FixRecord()

You can use the FixRecord() method to fix one entry in the log. After you run the FixRecord() method, the entry is marked as fixed.

Parameters

The FixRecord() method belongs to the IBMTSSVC_MessageLog class. Table 224 shows the parameters you can specify for the FixRecord() method.

Table 224. FixRecord() parameters

| Parameter | Type | Description |
|--------------|--------|--|
| RecordNumber | UInt64 | Passed to the CLI command in the -d parameter. |

Return values

The FixRecord() method returns one of the following error codes:

- 0: The method completed successfully.
- 2: An unexpected error occurred.
- 5: One of the mandatory parameters is missing.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes and messages.

GetAllRecords()

You can use the GetAllRecords() method to retrieve the list of logs from the cluster. The GetAllRecords() method belongs to the IBMTSSVC_MessageLog class.

Parameters

Table 225 shows the parameters you can specify for the GetAllRecords() method.

Table 225. GetAllRecords() parameters

| Parameter | Type | Description |
|-----------|----------|--|
| ErrorOnly | Boolean | If set to true or null, only error records are returned. If false, all log entries are returned. |
| Records | String[] | The file as a string array. |

Return values

The GetAllRecords() method returns one of the following error codes:

- 0: The method completed successfully.
- 2: An unexpected error occurred.
- 0x8000: Records not found.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes and messages.

GetDependentMappingNames()

You can use the GetDependentMappingNames() method to return the names of the dependent mappings for a FlashCopy mapping.

Parameters

The GetDependentMappingNames() method belongs to the IBMTSSVC_StorageConfigurationService class. Table 226 shows the parameters you can specify for the GetDependentMappingNames() method.

Table 226. GetDependentMappingNames() parameters

| Parameter | Type | Description |
|-----------|---|--------------------------------|
| Mapping | IBMTSSVC_FlashCopy StorageSynchronized REF | Checks for dependent mappings. |

Table 226. *GetDependentMappingNames()* parameters (continued)

| Parameter | Type | Description |
|----------------|----------|---|
| DependentNames | String[] | Returns the names of the dependent mappings for a FlashCopy mapping. The names are listed in the order of dependency. |

Return values

The *GetDependentMappingNames()* method returns one of the following error codes:

- 0: The method was successful.
- 1: The method is not supported on the SAN Volume Controller software level that is installed.
- 2: An unexpected error occurred and the command failed.
- 3: The action timed out.
- 4: The method has failed.
- 5: One of the mandatory parameters is missing or invalid.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

GetDump()

You can use the *GetDump()* method to retrieve a log file. The feature log is automatically decoded.

Parameters

The *GetDump()* method belongs to the *IBMTSSVC_ServiceModeService* class. Table 227 shows the parameters you can specify for the *GetDump()* method.

Table 227. *GetDump()* parameters

| Parameter | Type | Description |
|-----------|-------------------|---|
| FilePath | String | The fully specified file name. File names can be viewed in the <i>IBMTSSVC_Dump</i> instance. Allowed paths are: <i>dumps/configs</i> , <i>dumps/elogs</i> , <i>dumps/feature</i> , <i>dumps/iostats</i> , <i>dumps/iotrace</i> and <i>home/admin</i> . |
| SMNode | IBMTSSVC_Node REF | The node for which you want the dump retrieval. The config node dump will be returned if nothing is specified. |
| File | String[] | The file as a string array. |

Return values

The *GetDump()* method returns one of the following error codes:

- 0: The *GetDump()* method was successful.
- 5: The number or type of parameters that have been passed is incorrect.
- ...: DMTF reserved.

- 0x8000: The connection to the cluster has been lost, or failed to connect to a node.
- x8001: A given file path was not found for CISCO..
- 0x8100: One or more parameters where out of the cluster scope.
- 0x9000..0x9FFF: Device error codes.

GetFreeExtents()

You can use the GetFreeExtents() method to return the number of free extents on a BackendVolume.

Parameters

These extents are the blocks which the SAN Volume Controller uses for capacity management. They do not correspond to the CIM_StorageExtent class.

The GetFreeExtents() method belongs to the IBMTSSVC_BackendVolume class. Table 228 shows the parameters you can specify for the GetFreeExtents() method.

Table 228. GetFreeExtents() parameters

| Parameter | Type | Description |
|-------------|------|---|
| FreeExtents | | The number of free extents on this BackendVolume. |

Return values

The GetFreeExtents() method returns one of the following error codes:

- 0: Method successfully completed.
- 2: An unexpected error occurred.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes and messages.

GetHosts()

You can use the GetHosts() method to display a list of the hosts that are associated with an I/O group. The host names are returned as a vector of strings.

Parameters

The GetHosts() method belongs to the IBMTSSVC_IOGroups class. Table 229 shows the parameter that you can specify for the GetHosts() method.

Table 229. GetHosts() parameter

| Parameter | Type | Description |
|-----------|----------|---|
| HostNames | String[] | The names that are returned for the associated hosts. |

Return Values

The GetHosts() method returns one of the following error codes:

- 0: Success
- 1: Not Supported

- 2: Failed
- 5: Wrong Parameter Set
- 6 to 0x8FFF: Vendor Reserved
- 0x9000 to 0x9FFF: Device Error Codes

GetIOGroups()

You can use the GetIOGroups() method to display a list of I/O groups that are associated with a host. The I/O group names are returned as a vector of strings.

Parameters

The GetIOGroups() method belongs to the IBMTSSVC_HardwareIdCollection class. Table 230 shows the parameter that you can specify for the GetIOGroups() method.

Table 230. GetIOGroups() parameter

| Parameter | Type | Description |
|--------------|----------|--|
| IOGroupNames | String[] | The names that are returned for the associated I/O groups. |

Return Values

The GetIOGroups() method returns one of the following error codes:

- 0: Success
- 1: Not Supported
- 2: Failed
- 5: Wrong Parameter Set
- 6 to 0x8FFF: Vendor Reserved
- 0x9000 to 0x9FFF: Device Error Codes

GetRecord()

You can use the GetRecord() method to retrieve the list of logs from the cluster, returns the log entry specified by the IterationIdentifier, and increment the IterationIdentifier by one position if PositionToNext is set to TRUE.

Parameters

The GetRecord() method belongs to the IBMTSSVC_MessageLog class. Table 231 shows the parameters you can specify for the GetRecord() method.

Table 231. GetRecord() parameters

| Parameter | Type | Description |
|-----------------------|--------|---|
| [IterationIdentifier] | String | The pointer to the record you want to retrieve. The tokens are evaluated and the corresponding command is called. |

Table 231. *GetRecord()* parameters (continued)

| Parameter | Type | Description |
|---------------------|---------|--|
| IterationIdentifier | String | The new IterationIdentifier. The SequenceNumber was modified according to the parameters that were passed in. If PositionToNext was true and there is no next entry, null will be returned here. |
| PositionToNext | String | If this value is true, the IterationIdentifier is advanced by one position. Otherwise the old IterationIdentifier will be returned. |
| RecordData | UInt8[] | The entry in byte representation (UTF-8). Use String.getBytes(UTF-8). |
| RecordNumber | UInt64 | This value equals the SequenceNumber token of the IterationIdentifier that is returned. |

Return values

The *GetRecord()* method returns one of the following error codes:

- 0: The method completed successfully.
- 2: An unexpected error occurred.

GetResetPasswordChangeFeatureStatus()

You can use the *GetResetPasswordChangeFeatureStatus()* method to retrieve the current status of the rest password change feature.

Parameters

The *GetResetPasswordChangeFeatureStatus()* method belongs to the *IBMTSSVC_ClusteringService* class. Table 232 shows the parameters you can specify for the *GetResetPasswordChangeFeatureStatus()* method.

Table 232. *GetResetPasswordChangeFeatureStatus()* properties

| Parameter | Type | Description |
|-----------|---------|--|
| Enable | Boolean | If set to True, indicates that the password reset feature is enabled; if set to False, indicates that the feature is disabled. |

Return values

The *GetResetPasswordChangeFeatureStatus()* method returns one of the following error codes:

- 0: The feature status has been successfully retrieved.
- 2: An unexpected error occurred.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

GetSupportedSizeRange()

You can use the GetSupportedSizeRange() method to query the volume sizes that are supported.

Parameters

The GetSupportedSizeRange() method belongs to the IBMTSSVC_StoragePool class. Table 233 shows the parameters you can specify for the GetSupportedSizeRange() method.

Table 233. GetSupportedSizeRange() parameters

| Parameter | Type | Description |
|--------------------|-------------------|--|
| ElementType | Uint16 | The type of element for which supported size ranges are reported. Code Semantics 2 Storage Pool 3 Storage Volume |
| [Goal] | CIMOM Object Path | The size requirements. |
| Minimum VolumeSize | Uint64 | The minimum size (MB) to query. |
| Maximum VolumeSize | Uint64 | The maximum size (MB) to query. |
| VolumeSize Divisor | Uint64 | A volume/pool size must be a multiple of this value. |

Return values

The GetSupportedSizeRange() method returns one of the following error codes:

- 0: Parameters are valid.
- 2: Use GetSupportedSizes instead.
- 5: The number or type of parameters that have been passed is incorrect.

GetSupportedSizes()

You can use the GetSupportedSizes() method to query the supported volume sizes.

Parameters

The GetSupportedSizes() method is derived from the IBMTSSVC_StoragePool class. Table 234 shows the parameters of the GetSupportedSizes() method.

Table 234. GetSupported Sizes() parameters

| Parameter | Type | Description |
|-------------|------------------------|--|
| ElementType | Uint16 | The type of element for which supported sizes are reported. Code Semantics 2 Storage Pool 3 Storage Volume |
| Goal | CIM_StorageSetting REF | The size requirements. |
| Sizes | uint64[] | List of support sizes for a Volume/Pool creation or modification (MB). |

Return values

The GetSupportedSizes() method returns one of the following error codes:

- 1: Method not supported.
- 2: Use the GetSupportedSizeRange method instead.

GenerateCIMOMCertificate()

You can use this method to generate a new server certificate.

Parameters

The data contained in the referenced instance of the IBMTS_CertificateSetting are the base for the creation. The existing certificate contained in the truststore is deleted and a newly created one is added.

You must have administrator privileges to run this method.

Table 235 shows the parameters you can specify for the GenerateCIMOMCertificate() method.

Table 235. GenerateCIMOMCertificate() parameters

| Parameter | Type | Description |
|--------------------|------------------------------|--|
| CertificateSetting | IBMTS_CertificateSetting REF | The reference to the instance that contains the setting data for the creation of a new certificate. |
| Force | Boolean | The force flag that specifies if an existing valid truststore must be replaced. If the existing certificate is still valid, the Force parameter must be set to true. |
| Certificate | IBMTS_Certificate REF | The reference to the newly created instance of IBMTS_Certificate. |

Return values

The GenerateCIMOMCertificate() method returns one of the following error codes:

- 0: The certificate was successfully deleted.
- 2: Failed to generate new certificate due to provider internal reasons.
- 4: Failed to generate new certificate due to truststore problems.
- 5: One of the parameters is invalid.
- 6: Failed to generate new certificate. Existing one is still valid and in use.

IncludeBackendVolume()

You can use the IncludeBackendVolume() method to reinstate an IBMTSSVC_BackendVolume instance that was ejected by an IBMTSSVC_Cluster.

Parameters

The IncludeBackendVolume() method belongs to the IBMTSSVC_StorageConfigurationService class. Table 236 shows the parameters you can specify for the IncludeBackendVolume() method.

Table 236. IncludeBackendVolume() parameters

| Parameter | Type | Description |
|-----------|----------------------------|---|
| Volume | IBMTSSVC_BackendVolume REF | The IBMTSSVC_BackendVolume instance to be reinstated. Must belong to the same cluster as the StorageConfigurationService. |

Return values

The IncludeBackendVolume() method returns one of the following error codes:

- 0: The volume was successfully included.
- 2: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x8000: The volume had not been ejected.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

ListConfigurationBackups()

You can use the ListConfigurationBackups() command to list the backups in the Backup directory. Only the directory names are reported.

Parameters

Table 237 shows the parameters you can specify for the ListConfigurationBackups() method.

Table 237. ListConfigurationBackups() parameters

| Parameter | Type | Description |
|-----------|--------|---|
| Backup | String | Each array element contains the name of one backup available in the backup directory. |

Return values

The ListConfigurationBackups() method returns the following error code:

- 0: The backup was successful.

MigrateVDiskExtents()

You can use the MigrateVDiskExtents() method to migrate virtual disk (VDisk) extents from one managed disk (MDisk) to another MDisk.

Parameters

The MigrateVDiskExtents() method belongs to the IBMTSSVC_StorageConfigurationService class. Table 238 on page 358 shows the parameters you can specify for the MigrateVDiskExtents() method.

Table 238. MigrateVDiskExtents() parameters

| Parameter | Type | Description |
|-----------------|----------------------------|---|
| TheVDisk | IBMTSSVC_StorageVolume REF | The VDisk that is currently using the extents. |
| SourceMDisk | IBMTSSVC_BackendVolume REF | The MDisk where the extents currently reside. |
| TargetMDisk | IBMTSSVC_BackendVolume REF | The MDisk where the extents are to be migrated. |
| NumberOfExtents | Uint32 | The number of extents to migrate. |
| NumberOfThreads | Uint32 | The number of threads to use for the migration. The valid range is from one to four threads. If this parameter is not specified, four is used by default. |
| Job | CIM_ConcreteJob REF | This parameter is not supported and is always set to NULL. |

Return values

The MigrateVDiskExtents() method returns one of the following error codes:

- 0: The method was successful.
- 1: The method is not supported on the SAN Volume Controller software level that is installed.
- 2: An unexpected error occurred and the command failed.
- 3: The action timed out.
- 4: The method has failed.
- 5: One of the mandatory parameters is missing or invalid.
- 6: The method is in use.
- 7..4095: DMTF Reserved
- 4096: The method parameters checked and the job started.
- 4097..0x7FFF: The method is reserved.
- 0x8000: The number of threads is invalid.
- 0x8001: The VDisk is invalid.
- 0x8002: The source MDisk is invalid.
- 0x8003: The target MDisk is invalid.
- 0x8004: A source MDisk cluster scope violation has occurred.
- 0x8005: A target MDisk cluster scope violation has occurred.
- 0x8006: A VDisk cluster scope violation has occurred.
- 0x8007: The number of extents is invalid.
- 0x8008 to 0xFFFF: SAN Volume Controller return codes and messages.

MigrateVolume()

You can use the MigrateVolume() method to migrate an IBMTSSVC_StorageVolume instance to another IBMTSSVC_StoragePool instance.

Parameters

The MigrateVolume() method belongs to the IBMTSSVC_StorageConfigurationService class. Table 239 shows the parameters you can specify for the MigrateVolume() method.

Table 239. MigrateVolume() parameters

| Parameter | Type | Description |
|-----------------|----------------------------|---|
| Job | CIM_ConcreteJob REF | The object that can be used to monitor the migration progress. |
| NumberOfThreads | Uint8 | The number of copy threads used for the migration. The number can be one to four. |
| TargetPool | IBMTSSVC_StoragePool REF | The IBMTSSVC_StoragePool instance to which the IBMTSSVC_StorageVolume instance will be migrated. Must be different from the pool the volume is currently a member of. |
| Volume | IBMTSSVC_StorageVolume REF | The IBMTSSVC_StorageVolume to be migrated. The complete data of this volume will be copied to the new location. |

Return values

The MigrateVolume() method returns one of the following error codes:

- 0: The volume was successfully migrated.
- 2: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

MigrateVolumeToImageMode()

You can use the MigrateVolumeToImageMode() method to migrate the content of a StorageVolume to a new StorageVolume in image mode.

Parameters

Use this method when data no longer needs to be managed by the SAN Volume Controller. This method can also be used to migrate data between two image mode disks.

Table 240 shows the parameters you can specify for the MigrateVolumeToImageMode() method.

Table 240. MigrateVolumeToImageMode() parameters

| Parameter | Type | Description |
|-----------------|---------------------|---|
| NumberOfThreads | Uint8 | The number of copy threads used for the migration. This can be a number from one to four. |
| Job | CIM_ConcreteJob REF | The job object. This can be used to monitor the progress of the migration. |

Table 240. *MigrateVolumeToImageMode()* parameters (continued)

| Parameter | Type | Description |
|--------------|-----------------------------|--|
| TargetPool | IBMTSSVC_Storage Pool REF | The pool that the target volume will become a member of. |
| TargetVolume | IBMTSSVC_Backend Pool REF | The backend volume that the data will be migrated to. It must be in unmanaged state and large enough to contain the data of the source volume. |
| Volume | IBMTSSVC_Storage Volume REF | The volume to be migrated. All data for this volume will be copied to the new location. |

Return values

The `MigrateVolumeToImageMode()` method returns one of the following error codes:

- 0: The migration job was started.
- 2: Unexpected error occurred.
- 5: The wrong number or type of parameters have been passed.
- 0x8100: One of the parameters belongs to a different cluster than the service.
- 0x9000: SAN Volume Controller CLI return codes

ModifyErrorSettings()

You can use the `ModifyErrorSettings()` method to specify what happens when an error or event is logged in the error log. The `ModifyErrorSettings()` method belongs to the `IBMTSSVC_MessageLog` class.

Parameters

Table 241 shows the parameters you can specify for the `ModifyErrorSettings()` method.

Table 241. *ModifyErrorSettings()* parameters

| Parameter | Type | Description |
|------------------|--------|---|
| [EmailAddress] | String | The email address of which to send email notification. |
| [EmailAlert] | String | The email setting (when to raise an email notification). <ul style="list-style-type: none"> • all = raise email for all errors logged • hardware_only = raise email for errors but not object state changes • none = do not raise email for any errors (default cluster setting) |
| [SNMP Community] | String | The SNMP community string. |
| [SNMP ManagerIP] | String | The IP address of the host system running the SNMP manager software. |

Table 241. ModifyErrorSettings() parameters (continued)

| Parameter | Type | Description |
|------------|--------|--|
| [SNMPTrap] | String | The SNMP trap setting (when to raise a trap). Allowed values: <ul style="list-style-type: none"> all = raise SNMP for all errors logged no_state = raise SNMP for errors but not object state changes none = do not raise SNMP for any errors (default cluster setting) |

Return values

The ModifyErrorSettings() method returns the following error codes:

- 0: The method successfully specified action.
- 2: A command failed.
- 0x8200: The method ran successfully but one or more parameters were ignored.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes and messages.

ModifyHostIOGroupMapping()

You can use the ModifyHostIOGroupMapping() method to modify the current I/O groups that are mapped to a specified host.

Parameters

The ModifyHostIOGroupMapping() method belongs to the IBMTSSVC_StorageHardwareIDManagementService class. Table 242 shows the parameters that you can specify for the ModifyHostIOGroupMapping() method.

Table 242. ModifyHostIOGroupMapping() parameters

| Parameter | Type | Description |
|-----------|----------------------------------|---|
| Host | CIM_SystemSpecificCollection REF | The host that you want to modify. |
| IOGroups | String[] | The list of I/O groups that you want to modify. You can use either the names or IDs of the I/O group. |
| Operation | UInt32 | The operation that you want perform on the host and I/O group. Note: The IOGroups parameter is ignored if you specify the value 3 (RemoveAllMappings) for the operation. Code Semantics 1 AddingMapping 2 RemoveMapping 3 RemoveAllMappings |
| Force | Boolean | Specifies that the changes will be forced if this parameter is set to true. This parameter is optional. A deletion of a mapping can fail if it results in the loss of a VDisk-to-host mapping and you do not set the force parameter to true. |

Return Values

The `ModifyHostIOGroupMapping()` method returns one of the following error codes:

- 0: Success
- 1: Not Supported
- 2: Failed
- 3: Timeout
- 4: Failed
- 5: Invalid Parameter
- 6 to 0x80FF: DMTF Reserved
- 0x8100: Cluster Scope Violation
- 0x8100 to 0x8FFF: Vendor Reserved
- 0x9000 to 0x9FFF: Device Error Codes

ModifyIPAddress()

You can use the `ModifyIPAddress()` command to modify the IP address in the cluster, change the entry in the `provider-config.xml` and reload the configuration.

Parameters

Table 243 shows the parameters you can specify for the `Modifyipaddress()` method.

Table 243. Modifyipaddress() parameters

| Parameter | Type | Description |
|-----------|--------|---|
| ClusterIP | String | Specifies and validates the new cluster IP address. |

Return values

The `Modifyipaddress()` method returns one of the following error codes:

- 0: The `Modifyipaddress` command was successful.
- 2: An unexpected error occurred and the command failed.
- 5: One of the mandatory parameters is missing or invalid.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

ModifyResetPasswordChangeFeature()

You can use the `ModifyResetPasswordChangeFeature()` method to enable or disable the password reset feature.

Parameters

The `ModifyResetPasswordChangeFeature()` method belongs to the `IBMTSSVC_ClusteringService` class. Table 244 shows the parameters you can specify for the `ModifyResetPasswordChangeFeature()` method.

Table 244. ModifyResetPasswordChangeFeature() parameters

| Parameter | Type | Description |
|-----------|---------|---|
| Enable | Boolean | If set to True, enables the password reset feature; if set to False, disables the feature |

Return values

The `ModifyResetPasswordChangeFeature()` method returns one of the following error codes:

- 0: The passwords were changed.
- 2: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

ModifySynchronization()

You can use the `ModifySynchronization()` method to modify a FlashCopy or synchronous copy relationship between two `IBMTSSVC_StorageVolume` instances based on the specified type of operation.

Parameters

The `ModifySynchronization()` method belongs to the `IBMTSSVC_StorageConfigurationService` class.

Table 245 on page 364 shows the parameters that you can specify for the `ModifySynchronization()` method.

Table 245. ModifySynchronization() parameters

| Parameter | Type | Description |
|---------------|---------|---|
| Operation | UInt16 | <p>These commands can only be run if the copy mapping does not belong to a consistency group (check SynchronizedSetID in StorageSynchronized).</p> <p>Code Semantics</p> <p>2 Detach. Delete the copy mapping.</p> <p>3 Fracture. Suspend the synchronization between two storage objects. The association and changes are saved to allow a fast resynchronization. This can be used during a backup cycle to allow one of the objects to be copied while the other remains in production.</p> <p>4 Resync Replica. Reestablish the synchronization of a replica. If CopyJob is Sync or Async, this negates the action of a previous fracture operation.</p> <p>5 Restore from Replica. Renew the contents of the original storage object from a replica.</p> <p>6 Prepare. Prepare the participating volumes for a FlashCopy.</p> <p>7 Unprepare.</p> <p>8 Quiesce.</p> <p>9 Unquiesce.</p> <p>10 Reset To Sync.</p> <p>11 Reset To Async.</p> <p>0x8000 Switch. Switch the primary relationship.</p> <p>0x8001 Stop.</p> |
| [AllowAccess] | Boolean | If set to true, the target is accessible for I/O operations after the fracture of a synchronized copy. The default is false. The parameter is ignored for all operations except for synchronized copy fracture. |
| [Clean] | Boolean | If set to true, the target is assumed to be clean (initialized with zeros), therefore, no initialize is done before resynchronization of a synchronized copy. The default is false. Ignored for all other operations except resynchronization of a synchronized copy. |
| [Direction] | Boolean | If set to true, the primary (SyncedSystemElement) becomes the source of the synchronized copy relationship. If set to false, the auxiliary (SyncedElement) becomes the source of the synchronized copy relationship. By default, the direction is autonomically chosen (reverse on switch and keep on resync). Valid for only the switch and resync operations of the sync copy and ignored in all other cases. |

Table 245. *ModifySynchronization()* parameters (continued)

| Parameter | Type | Description |
|-----------------|------------------------------|--|
| [Force] | Boolean | If set to true, the operation is forced. This parameter must be set to true to stop a FlashCopy mapping that is in the stopping state. The default is false. |
| Job | CIM_ConcreteJob REF | The object that is used to monitor and terminate the copy process. |
| Synchronization | CIM_Storage Synchronized REF | The copy relationship to be modified. The IBMTSSVC_FlashCopyStorage Synchronized class or IBMTSSVC_SyncCopyStorage Synchronized class. |

Return values

The `ModifySynchronization()` method returns one of the following error codes:

- 0: The FlashCopy mapping was successfully established.
- 2: An unknown error occurred.
- 3: The action timed out.
- 4: The action failed.
- 5: The number or type of parameters that have been passed is incorrect.
- 6: The method is in use.
- 0x1000: The CLI copy command ran and a job object was returned.
- 0x8001: The operation that was submitted is not allowed in the current state of the `StorageSynchronized`. For example, a prepare operation on a `StorageSynchronized` is in synchronized state.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

ModifySynchronizedSet()

You can use the `ModifySynchronizedSet()` method to modify a `SynchronizedSet` based on the specified operation type.

Parameters

The `ModifySynchronizedSet()` method belongs to the `IBMTSSVC_StorageConfigurationService` class. Table 246 on page 366 shows the parameters you can specify for the `ModifySynchronizedSet()` method.

Table 246. ModifySynchronizedSet() parameters

| Parameter | Type | Description |
|---------------|---------|--|
| Operation | UInt16 | <p>Code Semantics</p> <p>0 Add. Add a synchronization to the set.</p> <p>1 Remove. Remove a synchronization from the set.</p> <p>2 Detach all. Delete all synchronizations in the set.</p> <p>3 Fracture replicas. Suspend the synchronization between two storage objects. The association and changes are saved to allow a fast resynchronization. This can be used during a backup cycle to allow one of the objects to be copied while the other remains in production.</p> <p>4 Resync replicas. Reestablish the synchronizations of all replicas in the set. If CopyJob is Sync or Async, this negates the action of a previous fracture operation.</p> <p>5 Restore from replica. Renew the contents of the original storage objects from the replicas.</p> <p>6 Prepare all. Prepare the participating volumes for a point-in-time copy.</p> <p>7 Unprepare all.</p> <p>8 Quiesce replicas.</p> <p>9 Unquiesce replicas.</p> <p>0x8000 Switch. Switch primary relationships.</p> <p>0x8001 Stop All. Stop copy mapping.</p> |
| [AllowAccess] | Boolean | If set to true, the target is accessible for I/O operations after the fracture of a sync copy. The default is false. The parameter is ignored for all operations except sync copy fracture. |
| [Clean] | Boolean | If set to true, the target is assumed to be clean (initialized with zeros), therefore no initialize is done before resync of a sync copy. The default is false. Ignored for all other operations except resync of a sync copy. |

Table 246. *ModifySynchronizedSet()* parameters (continued)

| Parameter | Type | Description |
|-------------------|------------------------------|---|
| [Direction] | Boolean | If set to true, the primary (SyncedSystemElement) becomes the source of the sync copy relationship. If set to false, the auxiliary (SyncedElement) becomes the source of the sync copy relationship. By default, the direction is autonomically chosen (reverse on switch and keep on resync). Valid for only switch and resync operation of sync copy only and ignored in all other cases. |
| [Force] | Boolean | If set to true, the operation is forced. This parameter must be set to true to stop a FlashCopy mapping that is in the stopping state. The default is false. |
| Job | CIM_ConcreteJob REF | The object that is used to monitor and terminate the copy process. |
| [Synchronization] | CIM_Storage Synchronized REF | The copy mapping to be added to or removed from the set. Ignore for all other operations. |
| SynchronizedSet | CIM_Synchronized Set REF | The synchronized set to be modified. |

Return values

The `ModifySynchronizedSet()` method returns one of the following error codes:

- 0: The `SyncCopySynchronizedSet` method was successfully created.
- 2: An unknown error occurred.
- 3: The action timed out.
- 4: The action failed.
- 5: The number or type of parameters that have been passed is incorrect.
- 6: The operation is not supported.
- 7: `StorageSynchronized` not in the set.
- 8: `StorageSynchronized` already in a set.
- 9: A `StorageSynchronized` should be added to the set that is not compatible to the set. For example, a `FlashCopy` synchronized to a sync sopy set.
- 0x1000: Method parameters checked. Job started.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x8001: An operation should be performed that is not allowed on the current `SyncState` of the set.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

PositionAtRecord()

You can use the `PositionAtRecord()` method to set the `SequenceNumber` and the `RelPos` token of the returned `IterationIdentifier`.

Parameters

The `PositionAtRecord()` method belongs to the `IBMTSSVC_MessageLog` class. Table 247 shows the parameters you can specify for the `PositionAtRecord()` method.

Table 247. *PositionAtRecord()* parameters

| Parameter | Type | Description |
|-----------------------|---------|--|
| IterationIdentifier | String | The new IterationIdentifier. The SequenceNumber and the RelPos token were modified according to the parameters that were passed in. |
| [IterationIdentifier] | String | The current IterationIdentifier (created by a previous position or method) or null. |
| MoveAbsolute | Boolean | Set to TRUE if the IterationIdentifier should be positioned absolutely. In this case the SequenceNumber is set to the value passed in RecordNumber. |
| RecordNumber | UInt64 | If MoveAbsolute == FALSE: A (signed) offset to the current position in the log. If MoveAbsolute == TRUE: The absolute desired position in the log is the sequence number of the entry. It is not allowed to specify a negative value in RecordNumber. The IterationIdentifier's SequenceNumber is set to this value. If the RelPos token was set in the IterationIdentifier that was passed in it is removed from the IterationIdentifier. |

Return values

The `PositionAtRecord()` method returns the following error code:

- 0: The IterationIdentifier was successfully created.
- 5: One of the mandatory parameters is missing or RecordNumber is negative when not allowed.

PositionToFirstRecord()

You can use the `PositionToFirstRecord()` method to create an IterationIdentifier that points to the first entry in the log.

Parameters

The IterationIdentifier is used in subsequent `GetRecord` or `Position` calls.

The `PositionToFirstRecord()` method belongs to the `IBMTSSVC_MessageLog` class. Table 248 shows the parameters you can specify for the `PositionToFirstRecord()` method.

Table 248. *PositionToFirstRecord()* parameters

| Parameter | Type | Description |
|---------------------|--------|---|
| IterationIdentifier | String | The IterationIdentifier which points to the first record. |

Return values

The PositionToFirstRecord() method returns the following error code:

- 0: The IterationIdentifier was successfully created.

PositionToFirstRecordRoot()

You can use the PositionToFirstRecordRoot() method to create an IterationIdentifier whose SequenceNumber is not set and whose RootCause token is set to the value that is passed in.

Parameters

The IterationIdentifier is used in subsequent GetRecord or PositionAtRecord calls.

The PositionToFirstRecordRoot() method belongs to the IBMTSSVC_MessageLog class. Table 249 shows the parameters you can specify for the PositionToFirstRecordRoot() method.

Table 249. PositionToFirstRecordRoot() parameters

| Parameter | Type | Description |
|----------------------|--------|--|
| Iteration Identifier | String | The IterationIdentifier that contains the root sequence number that was passed in the "RootCause" token. |
| RootSequence Number | UInt64 | The object root cause id. |

Return values

The PositionToFirstRecordRoot() method returns the following error code:

- 0: The IterationIdentifier was successfully created.
- 5: One of the mandatory parameters is missing.

PositionToFirstRecordType()

You can use the PositionToFirstRecordType() method to create an IterationIdentifier whose SequenceNumber token is not set and whose other parameters are set according to the parameters that were passed in.

Parameters

The IterationIdentifier is used in subsequent GetRecord or PositionAtRecord calls.

The PositionToFirstRecordType() method belongs to the IBMTSSVC_MessageLog class. Table 250 shows the parameters you can specify for the PositionToFirstRecordType() method.

Table 250. PositionToFirstRecordType() parameters

| Parameter | Type | Description |
|---------------------|---------|--|
| ConfigOnly | Boolean | Is required to be false or not specified. |
| IterationIdentifier | | The IterationIdentifier that was generated. |
| ObjectID | UInt64 | The SAN Volume Controller object id. This parameter will be set to the LSObjID token of the IterationIdentifier. |

Table 250. PositionToFirstRecordType() parameters (continued)

| Parameter | Type | Description |
|-------------|---------|--|
| ObjectType | String | The SAN Volume Controller object type. This parameter will be set to the LSObjType token of the IterationIdentifier. |
| UnfixedOnly | Boolean | Display only unfixed errors. |

Return values

The PositionToFirstRecordType() method returns the following error code:

- 0: The IterationIdentifier was successfully created.

RemoveAccess()

You can use the RemoveAccess() method to delete a temporary IBMTSSVC_AccessControllInformation instance and its associations.

Parameters

The RemoveAccess() method belongs to the IBMTSSVC_AuthorizationService class. Table 251 shows the parameters you can specify for the RemoveAccess() method.

Table 251. RemoveAccess() parameters

| Parameter | Type | Description |
|-----------|-----------------------------|--|
| Subject | CIM_ManagedElement REF | A reference to a ManagedElement instance (associated through AuthorizedSubject) for which privileges are to be revoked. |
| Privilege | CIM_AuthorizedPrivilege REF | A reference to the AuthorizedPrivilege that is to be revoked. |
| Target | CIM_ManagedElement REF | A reference to a ManagedElement (associated through AuthorizedTarget) which will no longer be protected through AuthorizedPrivilege. |

Return values

The RemoveAccess() method returns one of the following error codes:

- 0: All instances were successfully deleted.
- 2: An unexpected error occurred.
- 3: Timeout.
- 4: Failed.
- 5: The number or type of parameters that have been passed is incorrect.
- 6..15999: DMTF Reserved.
- 16000: Unsupported Privilege.
- 16001: Unsupported Target.
- 16002: Authorization Error.
- 16003: Null parameter not supported.
- 16004..32767: Method Reserved.

- 32768..65535: Vendor Specific.

RemoveCluster()

You can use the RemoveCluster() method to remove a SAN Volume Controller cluster from the ICAT configuration.

Parameters

The RemoveCluster() method belongs to the IBMTSSVC_Provider class. Table 252 shows the parameters you can specify for the RemoveCluster() method.

Table 252. RemoveCluster() parameters

| Parameter | Type | Description |
|-----------|--------|--------------------------------------|
| ClusterIP | String | The IP of the cluster to be removed. |

Return values

The RemoveCluster() method returns one of the following error codes:

- 0: The method completed successfully.
- 5. The number or type of parameters that have been passed is incorrect.
- ...: DMTF reserved.

RequestDiscovery()

You can use the RequestDiscovery() method to initiate a rescan of the fibre-channel SAN to discover any new LUNs.

Parameters

The RequestDiscovery() method belongs to the IBMTSSVC_StorageConfigurationService class. Table 253 shows the parameters you can specify for the RequestDiscovery() method.

Table 253. RequestDiscovery() parameters

| Parameter | Type | Description |
|-----------------------------|----------|--|
| DiscoveredElement Count | Uint32 | The number of discovered LUNs (BackendVolumes). |
| DiscoveredElement Instances | String[] | String representations of the instances of the discovered LUNs (BackendVolumes). |
| DiscoveredElements | String[] | String representations of the COPs of the discovered LUNs (BackendVolumes). |
| WaitForResults | Boolean | Waits for the discovery to complete. |
| WaitTimeout | Uint32 | Allows a timeout to wait for the discovery to complete. |

Return values

The RequestDiscovery() method returns one of the following error codes:

- 0: Discovery successfully invoked.
- 2: An unexpected error occurred.

- 5: The number or type of parameters that have been passed is incorrect.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

RestoreConfiguration()

You can use the RestoreConfiguration() command to run the configuration restore script.

Parameters

The script restores the current cluster configuration associated with the current instance of ClusteringService, from the corresponding cluster configuration backup.

Table 254 shows the parameters you can specify for the RestoreConfiguration() method.

Table 254. RestoreConfiguration() parameters

| Parameter | Type | Description |
|-----------|----------|--|
| Force | Boolean | True/False statement. If true, command continuation on non-severe errors/warnings is forced. False is the default. |
| Format | Boolean | True/False statement. If true, the vdisk is formatted during restore. False is the default. |
| Phase | UInt8 | The phase to be performed. Any value other than 1 (prepare) or 2 (execute) will result in rc 5. |
| Messages | String[] | The errors/warnings received from the backup script. |

Return values

The RestoreConfiguration() method returns one of the following error codes:

- 0: The backup was successful.
- 2: An unexpected error occurred and the command failed.
- 5: The number or type of passed parameters is incorrect.
- 0x8000: The specified backup was not found.
- 0x8001: The backup script returned with an error.
- 0x8002: The backup file upload via scp failed.
- 0x8003: The cluster's /tmp/dir is cleared of any backups before uploading the backup file. The command has failed.

ReturnToStoragePool()

You can use the ReturnToStoragePool() method to delete an IBMTSSVC_StorageVolume instance if it is not mapped to any host.

Parameters

The ReturnToStoragePool() method belongs to the IBMTSSVC_StorageConfigurationService class. Table 255 on page 373 shows the parameters you can use for the ReturnToStoragePool() method.

Table 255. ReturnToStoragePool() parameters

| Parameter | Type | Description |
|------------|------------------------|--|
| [Force] | Boolean | If set to True the, the volume will be deleted, ignoring the usual constraints (for example, if no LUN mapping exists for the volume). The default is False. |
| Job | CIM_ConcreteJob REF | Set to null. |
| TheElement | CIM_LogicalElement REF | The element to be returned to the pool. Must be a StorageVolume that belongs to the same cluster as the StorageConfigurationService. |

Return values

The ReturnToStoragePool() method returns one of the following error codes:

- 0: The volume was successfully deleted.
- 2: An unknown error occurred.
- 3: The action timed out.
- 4: An unexpected error occurred.
- 5: At least one of the parameters was invalid.
- 6: The method is in use.
- 4096: Method parameters checked. Job started.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

SetDefaultValidity()

You can use this method to set the default validity to the number of days the certificate has been used.

Parameters

You must have administrator privileges to run this method.

Table 256 shows the parameters you can specify for the SetDefaultValidity() method.

Table 256. SetDefaultValidity() properties

| Parameter | Type | Description |
|-----------------|--------|-------------------------------|
| DefaultValidity | Uint32 | The default validity in days. |

Return values

The SetDefaultValidity() method returns one of the following error codes:

- 0: The validity was successfully set.
- 2: Failed to set validity.
- 5: One of the parameters is invalid.

SetIOGroup()

You can use the SetIOGroup() method to assign a StorageVolume to another I/O group.

Parameters

The SetIOGroup() method belongs to the IBMTSSVC_ControllerConfigurationService class. Table 257 shows the parameters you can specify for the SetIOGroup() method:

Table 257. SetIOGroup() parameters

| Parameter | Type | Description |
|-----------|----------------------------|--|
| Force | Boolean | Set to True in order to move a Volume to or from the recovery I/O group. |
| Group | IBMTSSVC_IOGroup REF | The IOGroup to which to assign the StorageVolume. |
| Volume | IBMTSSVC_StorageVolume REF | The StorageVolume to move. |

Return values

The SetIOGroup() method returns one of the following error codes:

- 0: The volume was successfully moved.
- 2: The action failed.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x8000: The I/O group must have the nodes aggregated.
- 0x8100: One or more parameters were out of cluster scope.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes.

SetLocale()

You can use the SetLocale() method to define the locale of the specified cluster.

Parameters

The SetLocale() method belongs to the IBMTSSVC_Cluster class. Table 258 shows the parameters you can specify for the SetLocale() method.

Table 258. SetLocale() parameters

| Parameter | Type | Description |
|-----------|--------|---|
| Locale | UInt16 | Sets the locale value of the named cluster. Valid values are US English, Simplified Chinese, Traditional Chinese, Japanese, Korean, French, German, Italian, Spanish, and Portuguese. |

Return values

The SetLocale() method returns one of the following error codes:

- 0: The locale was set.
- 2: An unexpected error occurred.

- 5: The number or type of parameters that have been passed is incorrect.
- 0x8000 : The submitted locale was invalid (greater than 9).
- 0x9000 to 0x9FFF: SAN Volume Controller CLI return codes.

SetPasswords()

You can use the SetPasswords() method to set the passwords for the administrators and IBM service personnel to access an IBMTSSVC_Cluster.

Parameters

The SetPasswords() method belongs to the IBMTSSVC_ClusteringService class. Table 259 shows the parameters you can specify for the SetPasswords() method.

Table 259. SetPasswords() parameters

| Parameter | Type | Description |
|-------------|--------|--|
| [AdminPW] | String | Changes the administrator's password to the cluster. |
| [ServicePW] | String | Changes the IBM service personnel password to the cluster. |

Return values

The SetPasswords() method returns one of the following error codes:

- 0: The passwords were changed.
- 2: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

SetQuorum()

You can use the SetQuorum() method to identify an IBMTSSVC_BackendVolume as a quorum volume.

Parameters

The SetQuorum() method belongs to the IBMTSSVC_StorageConfigurationService class. Table 260 shows the parameters you can specify for the SetQuorum() method.

Table 260. SetQuorum() parameters

| Parameter | Type | Description |
|-----------|----------------------------|--|
| Volume | IBMTSSVC_BackendVolume REF | Defines the IBMTSSVC_BackendVolume as a quorum disk. Must belong to the same Cluster as the StorageConfigurationService. |
| QuorumID | UInt8 | Specifies the ID of the quorum volume, 0, 1, or 2. |

Return values

The SetQuorum() method returns one of the following error codes:

- 0: The quorum volume was established.

- 2: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x8000: The quorum ID is a number greater than 2.
- 0x8100: The volume belongs to a different cluster than the StorageConfigurationService.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

SetTimeZone()

You can use the SetTimeZone() method to specify the time zone of an IBMTSSVC_Cluster instance.

Parameters

The SetTimeZone() method belongs to the IBMTSSVC_ClusteringService class. Table 261 shows the parameters you can specify for the SetTimeZone() method.

Table 261. SetTimeZone() parameters

| Parameter | Type | Description |
|-----------|------|---|
| Zone | COP | Defines the name of the TimeZone to set through an IBMTSSVC_AvailableTimeZone association to the IBMTSSVC_ClusteringService instance. |

Return values

The SetTimeZone() method returns one of the following error codes:

- 0: The time zone for the cluster was successfully set.
- 2: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x8000: The submitted time zone is not associated to the clustering service.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

StartStatisticsCollection()

You can use the StartStatisticsCollection() method to initiate the statistics collection for an IBMTSSVC_Cluster instance.

Parameters

The StartStatisticsCollection() method belongs to the IBMTSSVC_ClusteringService class. Table 262 shows the parameters you can specify for the StartStatisticsCollection() method.

Table 262. StartStatisticsCollection() parameters

| Parameter | Type | Description |
|-----------|--------|--|
| Interval | UInt32 | Sets the time interval in minutes for gathering the statistics of the cluster. |

Return values

The StartStatisticsCollection() method returns one of the following error codes:

- 0: The collection was started.
- 2: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

StopStatisticsCollection()

You can use the StopStatisticsCollection() method to terminate the statistics collection about an IBMTSSVC_Cluster instance.

Return values

The StopStatisticsCollection() method belongs to the IBMTSSVC_ClusteringService class.

The StopStatisticsCollection() method returns one of the following error codes:

- 0: The collection was stopped.
- 2: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

Shutdown()

You can use the Shutdown() method to shut down an IBMTSSVC_Node instance or an IBMTSSVC_Cluster instance.

Parameters

The Shutdown() method belongs to the IBMTSSVC_ClusteringService class. Table 263 shows the parameters you can specify for the Shutdown() method.

Table 263. Shutdown() parameters

| Parameter | Type | Description |
|-----------|---------|--|
| System | COP | Specifies the IBMTSSVC_Cluster or IBMTSSVC_Node to be shut down. |
| [Force] | Boolean | If set to True, shuts down the remaining online node of an IBMTSSVC_RedundancyGroup. |

Return values

The Shutdown() method returns one of the following error codes:

- 0: The shutdown for the node or cluster was successfully initiated.
- 2: An unexpected error occurred.
- 5: The number or type of parameters that have been passed is incorrect.
- 0x8000: The submitted computer system was not of type IBMTSSVC_Node or IBMTSSVC_Cluster.
- 0x8100: One of the parameters was out of the cluster scope.
- 0x9000 to 0x9FFF: SAN Volume Controller return codes and messages.

UnfixRecord()

You can use the `UnfixRecord()` method to undue a fix for one entry in the log. The entry is changed from fixed to not fixed.

Parameters

The `UnfixRecord()` method belongs to the `IBMTSSVC_MessageLog` class. Table 264 shows the parameters you can specify for the `UnfixRecord()` method.

Table 264. *UnfixRecord()* parameters

| Parameter | Type | Description |
|--------------|--------|--|
| RecordNumber | UInt64 | Is passed to the CLI command in the <code>-u</code> parameter. |

Return values

The `UnfixRecord()` method returns the following error codes:

- 0: The method successfully unfixes the entry.
- 2: A command failed.
- 5: One of the mandatory parameters is missing.
- 0x9000 to 0x9FFF: This range represents various SAN Volume Controller return codes and messages.

Upgrade()

You can use the `Upgrade()` method to upgrade the software of one SAN Volume Controller node in service mode.

Parameters

The `Upgrade()` method belongs to the `IBMTSSVC_ServiceModeService` class. Table 265 shows the parameters you can specify for the `Upgrade()` method.

Table 265. *Upgrade()* parameters

| Parameter | Type | Description |
|-----------|------------------------------|---|
| FilePath | String | The location where the new software is stored. |
| SMNode | IBMTSSVC_ServiceModeNode REF | Specifies the node that is in service mode that will be upgraded. |

Return values

The `Upgrade()` method returns one of the following error codes:

- 0: The `Upgrade()` method was successful.
- 2: The `Upgrade()` method failed.
- 5: The wrong number or type of parameter has been passed.
- ...: DMTF reserved.
- 0x9000 to 0x9FFF: Device error codes.

WriteRecord()

The WriteRecord() method is an unsupported method that belongs to the IBMTSSVC_MessageLog class.

Parameters

Table 266 shows the parameters you can specify for the WriteRecord() method.

Table 266. WriteRecord() parameters

| Parameter | Type | Description |
|---------------------|---------|---|
| IterationIdentifier | String | |
| PositionToNext | Boolean | Boolean value that indicates the IterationIdentifier should be advanced to the next record after writing the Log entry. |
| RecordData | UInt8[] | |
| RecordNumber | UInt64 | |

Return values

The WriteRecord() method returns one of the following error codes:

- 0: The method completed successfully.
- 2: Unknown.
- 3: Timeout.
- 4: Failed.
- 5. The number or type of parameters that have been passed is incorrect.

Chapter 9. Return codes

The Common Information Model (CIM) return codes provide information on the status of ICAT operations.

Common information model

The following table is a condensed list of possible CIM return codes.

| CIM return code | Description | Method | Explanation |
|-------------------------------|---|---|--|
| 0x0000 | Success | GetFreeExtends() ListConfiguration Backups() | The parameters are fine. The method completed successfully. |
| | | AddNode() | The node was successfully added. |
| | | CheckValidity() | The information about the certificate was successfully obtained. |
| | | DeleteAccount() | The account was successfully deleted. |
| | | GenerateCIMOM Certificate() EnableAuto Generation() DisableAuto Generation() | The certificate was successfully deleted. |
| | | CreateCode() | The new account was successfully created. |
| | | SetDefault Validity() | The validity was successfully set. |
| | | GrantGlobal Access() GrantSystem Access() | The role was successfully changed. |
| | | CreateGatewayID() AddHardwareIDs ToCollection() | The collection was successfully created. |
| | | DeleteStorage HardwareID() | The StorageHardwareID was successfully deleted. |
| CreateStorage HardwareID() | The StorageHardwareID was successfully created. | | |

| CIM return code | Description | Method | Explanation |
|------------------------|------------------------------------|-------------------------------------|---|
| 0x0000 | Success (continued) | AttachDevice() | The volume was successfully attached. |
| | | DeleteProtocolController() | The controller was successfully deleted. |
| | | CreateProtocolControllerWithPorts() | A clone was successfully created. |
| | | DeleteRemoteClusterPartnership() | The cluster partnership was successfully deleted. |
| | | CreateRemoteClusterPartnership() | The cluster partnership was successfully established. |
| | | DeleteHardwareIDCollection() | The collection was successfully created. |
| | | DeleteCertificate() | The certificate was successfully deleted. |
| | | DeleteSynchronizedSet() | The SynchronizedSet was successfully deleted. |
| | | ModifySynchronisation() | The method was successfully run. |
| EvictNode() | The node was successfully evicted. | | |

| CIM return code | Description | Method | Explanation |
|-----------------|--|---|---|
| 0x0000 | Success (continued) | RestartService() | The CIMOM reboots. |
| | | Shutdown() | The shutdown for the node/cluster was successfully initiated. |
| | | SetLocale() | The locale was set. |
| | | SetTimezone() | The time zone for the cluster was successfully set. |
| | | SetPasswords() ModifyReset Password ChangeFeature() | The passwords were changed. |
| | | GetResetPassword ChangeFeature Status() | The feature status was successfully retrieved. |
| | | StartStatistics Collection() | The statistics collection was started. |
| | | DetachDevice() | The volume was successfully detached. |
| | | StopStatistics Collection() | The statistics collection was stopped. |
| | | Backup Configuration() | A backup was successfully created. |
| | | Reload Configuration() | The configuration was reloaded. |
| | | Restore Configuration() Delete Configuration Backup() | A restore was successfully made. |
| | | AttachReplica() | The copy relationship was successfully established. |
| | | CreateSynchronized Set() | The SynchronizedSet was successfully created. |
| SetPassword() | The password was successfully changed. | | |

| CIM return code | Description | Method | Explanation |
|------------------------|-----------------------------|---|--|
| 0x0000 | Job completed with no error | CreateOrModifyStoragePool() | The pool was successfully created. |
| | | CreateOrModifyElementFromStoragePool() | The volume was successfully created. The pool was successfully modified. |
| | | DeleteStoragePool() | The pool was successfully deleted. |
| | | ReturnToStoragePool() | The volume was successfully deleted. |
| | | RequestDiscovery() | BackendVolume discovery was successful. |
| | | SetIOGroup() | The change was successful. |
| | | SetQuorum() | The method was successful. |
| | | IncludeBackendVolume() | The volume was successfully included. |
| | | ModifySynchronizedSet() | The CLI command was successfully run. |
| 0x0000 | Job started successfully | MigrateVolume() MigrateVolumeToImageMode() | The migration job was started. |
| 0x0001 | Not supported | SetLocales() | The cluster does not support locales. |
| | | SetPasswords() | The cluster does not support password change (CISCO). |
| | | ModifyResetPasswordChangeFeature() GetResetPasswordChangeFeatureStatus() | The cluster does not support the reset password change feature. |
| | | Upgrade() | The method was called on a 2145 Cluster Configuration Service. |

| CIM return code | Description | Method | Explanation |
|-----------------|---------------|---|---|
| 0x0002 | Failed | Dump() Clean() Enter() Exit() Clean() GetDump() ClearLog() GetRecord() GetAllRecords() FixRecord() UnfixRecord() ModifyError Settings() Create2062 Cluster() | An unexpected error occurred. A CLI command failed. |
| | | GetDump() | Failure during command processing. The file was not found. |
| | | Reload Configuration() | Failed to reload the configuration. |
| | | CreateCode() | Failed to create the account. |
| | | GrantGlobal Access() GrantSystem Access() | Failed to change the role. |
| | | SetPassword() | Failed to change the password. |
| | | DeleteAccount() | Failed to delete the account. |
| 0x0002 | Unknown error | GenerateCIMOM Certificate() DeleteCertificate() | Failed to generate new certificate due to provider internal reasons. |
| | | EnableAuto Generation() DisableAuto Generation() | Failed due to provider internal reasons. |
| | | SetDefault Validity() | Failed to set validity. |
| | | CheckValidity() | Failed to obtain information on certificate. |
| 0x0004 | Failed | GenerateCIMOM Certificate() DeleteCertificate() | Unexpected error occurred. Failed to generate new certificate due to truststore problems. |

| CIM return code | Description | Method | Explanation |
|-----------------|---------------------|---|---|
| 0x0005 | Wrong Parameter Set | Delete Configuration Backup() | The wrong number or type of parameters were passed. The given backup could not be found. |
| | | Modify Synchronisation() | The wrong number or type of parameters were passed or other parameter checking failed. |
| | | CreateCode() GrantGlobal Access() SetPassword() GrantSystem Access() DeleteAccount() DeleteCertificate() SetDefault Validity() CheckValidity() | One of the parameters is invalid. |
| 0x0005 | Invalid Parameter | Dump(), GetDump() PositionToFirst RecordRoot() GetRecord() FixRecord() UnfixRecord() | One of the mandatory parameters is missing. |
| | | ModifyIP Address() Create2062 Cluster() Add2062Cluster() Add2145Cluster() Reset2062Node() Reload2062Node() | One of the mandatory parameters is missing or invalid. |
| | | CreateOrModify StoragePool() CreateOrModify ElementFrom StoragePool() Delete StoragePool() ReturnTo StoragePool() | At least one of the parameters is invalid. |
| | | CreateGatewayID() GenerateCIMOM Certificate() | One of the parameters was invalid. |
| | | PositionAtRecord() | One of the mandatory parameters is missing or having a negative number of records is not allowed. |

| CIM return code | Description | Method | Explanation |
|------------------------|--|----------------------------|--|
| 0x0006 | CopyType not supported | ModifySynchronizedSet() | The type of copy passed in was different from 3 or 4. |
| 0x0006 | Operation not supported | ModifySynchronizedSet() | The operation code submitted is not valid for the copy type of the synchronized set. |
| 0x0006 | SynchronizedSet is not empty | DeleteSynchronizedSet() | There are still StorageSynchronized associations in the set. All StorageSynchronized associations must be removed before deletion of the set can be run or the Force flag must be set. |
| 0x0006 | User ID already exists | CreateCode() | The user ID that you submitted is used in an already existing account. |
| 0x0006 | In use | GenerateCIMOMCertificate() | Failed to generate new certificate. Existing certificate is still valid and in use. |
| 0x0007 | StorageSynchronized not in the Set | | The synchronized storage does not exist in the set. |
| 0x0008 | StorageSynchronized already in the Set | | The synchronized storage already exists in the set and cannot be added. |
| 0x0009 | StorageSynchronized incompatible with Set | | The synchronized storage is not compatible with the Set. For example, a Flash Copy is synchronized to a Sync Copy set. |
| 0x1000 | Parameters checked – Job started | | The CLI copy command was run and a job object was returned. |
| 0x1000 | LogicalDevices associated to other ProtocolControllers not deleted | DeleteProtocolController() | At least one of the attached storage volumes is attached to another controller so it cannot be deleted. |
| 0x1000 | Invalid LogicalDevice instance | AttachDevice() | The device is not a volume of the RedundancyGroup of the controller. |

| CIM return code | Description | Method | Explanation |
|------------------------|---|---|--|
| 0x1000 | LogicalDevice not associated to Controller | DetachDevice() | The device has no Protocol ControllerFor Unit association to this controller. |
| 0x1000 | ID already created | CreateStorageHardwareID() | The WWPN is already assigned to an existing storage hardware ID. |
| 0x1000 | Specified instance not found | DeleteStorageHardwareID() | The storage hardware ID could not be found. |
| 0x1000 | Invalid HardwareID instance | CreateGatewayID() AddHardwareIDsToCollection() | The storage hardware ID could not be found or is already a member of another collection. |
| 0x1001 | Size not supported | CreateOrModifyElementFromStoragePool() | The requested size is not supported by the primordial pools. The size parameter contains the nearest supported size larger than the requested one. The size requested was not a multiple of 512. The nearest supported size that can be requested is returned in size. |
| 0x1001 | Device Number Conflict | AttachDevice() | The specified device number is already occupied. |
| 0x1001 | Hardware implementation does not support specified IDType | CreateStorageHardwareID() | The type of ID is different from 2. |
| 0x8000 | Invalid ComputerSystem | AddNode() | The submitted ComputerSystem was not a IBMTSSVC_CandidateNode. |
| | | EvictNode() | The submitted ComputerSystem was not a IBMTSSVC_Node. |
| | | Shutdown() | The submitted ComputerSystem was not a IBMTSSVC_Node of IBMTSSVC_Cluster. |
| 0x8000 | Invalid Locale | SetLocale() | The submitted Locale was greater than 9. |
| 0x8000 | Invalid Type | Dump() | A type greater than 2 was passed in. |

| CIM return code | Description | Method | Explanation |
|------------------------|--|---|--|
| 0x8000 | Connection refused | GetDump() | We lost connection to the cluster or failed to connect to a node (CISCO only). |
| 0x8000 | Backup not found | Restore Configuration() | The specified backup was not found. |
| 0x8000 | Delete failed | Delete Configuration Backup() | The deletion of the backup directory failed. The failure might have been caused by a sharing violation. |
| 0x8000 | IOGroup must have Nodes aggregated | SetIOGroup() | The IO group does not have any nodes. |
| 0x8000 | Invalid ID | SetQuorum() | The quorum ID is a number greater than 2. |
| 0x8000 | Invalid Volume | IncludeBackend Volume() | The volume is not expelled. |
| 0x8000 | CopyType not supported | AttachReplica() | The type of copy passed in was different from 2 or 3. |
| | | CreateReplica() | The type of copy passed in was different from 3 or 4. |
| 0x8000 | Ports are from multiple IOGroups | CreateProtocol ControllerWith Ports() | All ports are required to belong to the same IO group. |
| 0x8000 | HardwareID still bound to AuthorizationSubject. Force required | DeleteStorage HardwareID() | The hardware ID has access granted to a storage volume and Force was not specified. |
| 0x8000 | Host is member of a LUN mapping | DeleteHardware IDCollection() | To delete this host either use this host to run the RemoveAccess method for each privilege and controller this host is associated to or set "Force" equal to "True." |
| 0x8000 | Record(s) not found | GetRecord() GetAllRecords() | No records were found. |
| 0x8000 | Cannot connect to cluster | Create2062 Cluster() Add2062 Cluster() | Unable to connect to the cluster. |
| 0x8000 | Connection to cluster refused | Add2145Cluster() | The connection to the cluster was refused. |

| CIM return code | Description | Method | Explanation |
|------------------------|--|---|--|
| 0x8000 | Connection to switch refused | Reset2062Node() Reload2062Node() | The connection to the switch was refused. |
| 0x8000 | Cluster IP not found | RemoveCluster() | The IP for the cluster cannot be found. |
| 0x8001 | Maximum number of Nodes for Cluster exceeded | AddNode() | All IO groups already have two nodes assigned to them. |
| 0x8001 | Invalid Prefix | Dump() | A file prefix and feature log type were passed in at the same time. |
| 0x8001 | File not found | GetDump() | The given file path was not found (CISCO). |
| 0x8001 | Backup script failed | Backup Configuration() | The backup script returned with an error. |
| 0x8001 | Restore script failed | Restore Configuration() | The backup script returned with an error. |
| 0x8001 | Operation not allowed for current state | Modify Configuration() | The operation submitted is not allowed in the current state of the synchronized storage. For example, you cannot have a "prepare" operation on a synchronized storage in "synchronized" state. |
| 0x8001 | Operation not allowed for current SyncState | Modify Synchronized Set() | The operation is not allowed with the current SyncState of the set. |
| 0x8001 | Unsupported protocol | CreateProtocol ControllerWith Ports() | Protocol != 2. |
| 0x8001 | Syntax error in ClusterName | Create2062 Cluster() Add2062Cluster() Reset2062Node() Reload2062Node() | The cluster name is not valid because of a syntax error. |
| 0x8002 | Invalid ExtraCapacitySet | AddNode() | The submitted ExtraCapacitySet was not a IBMTSSVC_ IOGroupSet. |
| 0x8002 | Secure copy failed | Backup Configuration() | The download of the backup file using secure copy failed. |

| CIM return code | Description | Method | Explanation |
|------------------------|---|--|---|
| 0x8002 | Secure copy failed | Upload Configuration() | The upload of the backup file using secure copy failed. |
| | | CreateStorage HardwareID() | The name of the element and setting are required to be null. |
| 0x8002 | Syntax error in Node or Node is invalid | Create2062 Cluster() Add2062Cluster() Reset2062Node() Reload2062 Node() | The node contains a syntax error, or the specified node is invalid. |
| 0x8003 | Maximum number of Nodes for IOGroup exceeded | AddNode() | The submitted IO group set already has two nodes assigned to it. |
| 0x8003 | Creation of backup dir failed | Backup Configuration() | The backup directory cannot be created. |
| 0x8003 | Clear command failed | Upload Configuration() | The cluster /tmp/ directory cannot be cleared. |
| 0x8003 | Invalid username or password (only ResetNode) | Add2062Cluster() Reset2062Node() Reload2062Node() | The user name or password are invalid. |
| 0x8004 | Delete/rename of old backup files failed | N/A | The backup directory cannot be renamed or deleted. |
| 0x8004 | Wrong SwitchIP / can't connect to switch | Create2062 Cluster() Add2062Cluster() | The IP for the switch is not correct, so a connection to the switch cannot be made. |
| 0x8004 | SwitchIP is not configured | Reset2062Node() Reload2062Node() | The IP for the switch is not configured. |
| 0x8005 | Syntax error in ClusterIP | N/A | The IP for the cluster contains a syntax error. |
| 0x8006 | Invalid Slot | N/A | The slot is not valid. |
| 0x8007 | Cannot upload public key to switch | N/A | The public key cannot be uploaded to the switch. |
| 0x8100 | Cluster Scope Violation | N/A | One or more parameters were out of the cluster scope. |
| 0x8200 | N/A | N/A | The method was run successfully but one or more parameters were ignored. |

Common information model and command line interface

The following table is a condensed list of CIM return codes and their corresponding SAN Volume Controller Command-Line Interface (CLI) error codes.

| CIM return code | SAN Volume Controller CLI error code | Description |
|-----------------|--------------------------------------|--|
| 0x9001 | CMMVC5700E | The parameter list is not valid. |
| 0x9002 | CMMVC5701E | No object ID was specified. |
| 0x9003 | CMMVC5702E | %1 is below the minimum level. |
| 0x9004 | CMMVC5703E | %1 is above the maximum level. |
| 0x9005 | CMMVC5704E | %1 is not divisible by the permitted step level. |
| 0x9006 | CMMVC5705E | A required parameter is missing. |
| 0x9007 | CMMVC5706E | %1 is not a valid argument for the -x parameter. |
| 0x9008 | CMMVC5707E | Required parameters are missing. |
| 0x9009 | CMMVC5708E | The %1 parameter is missing its associated arguments. |
| 0x900A | CMMVC5709E | %1 is not a supported parameter. |
| 0x900B | CMMVC5710E | No self-describing structure for identifier parameter [%1]. |
| 0x900C | CMMVC5711E | %1 is not valid data. |
| 0x900D | CMMVC5712E | Required data is missing. |
| 0x900E | CMMVC5713E | Some parameters cannot be used together. |
| 0x900F | CMMVC5714E | There are no items in the parameter list. |
| 0x9010 | CMMVC5715E | There is no parameter list. |
| 0x9011 | CMMVC5716E | Nonnumeric data was entered for a numeric field (%1). Enter a numeric value. |
| 0x9012 | CMMVC5717E | No match was found for the specified unit. |
| 0x9013 | CMMVC5718E | An unexpected return code was received. |
| 0x9014 | CMMVC5719E | A value of %2 requires the parameter %1 to be specified. |
| 0x9015 | CMMVC5720E | %1 is not a valid argument for the -o parameter. |
| 0x9016 | CMMVC5721E | %1 is not a valid time-stamp format. The valid format is MMDDHHmmYY. |
| 0x9017 | CMMVC5722E | %1 is not a valid month. |
| 0x9018 | CMMVC5723E | %1 is not a valid day. |
| 0x9019 | CMMVC5724E | %1 is not a valid hour. |
| 0x901A | CMMVC5725E | %1 is not a valid minute. |
| 0x901B | CMMVC5726E | %1 are not valid seconds. |
| 0x901C | CMMVC5727E | %1 is not a valid filter. |

| CIM return code | SAN Volume Controller CLI error code | Description |
|------------------------|---|--|
| 0x901D | CMMVC5728E | %1 must be in the format minute:hour:day:month:weekday. |
| 0x901E | CMMVC5729E | One or more components in the list are not valid. |
| 0x901F | CMMVC5730E | %1 is only valid when %2 has a value of %3. |
| 0x9020 | CMMVC5731E | %1 can only be entered when %2 has been entered. |
| 0x9021 | CMMVC5732E | The shared memory interface (SMI) is not available. |
| 0x9022 | CMMVC5733E | Enter at least one parameter. |
| 0x9023 | CMMVC5734E | A combination of values was entered that is not valid. |
| 0x9024 | CMMVC5735E | The name entered is not valid. |
| 0x9025 | CMMVC5736E | -c is not a valid unit. |
| 0x9026 | CMMVC5737E | The parameter %1 has been entered multiple times. Enter the parameter once. |
| 0x9027 | CMMVC5738E | The argument %1 contains too many letters. |
| 0x9028 | CMMVC5739E | The argument %1 does not contain enough letters. |
| 0x9029 | CMMVC5740E | The filter flag %1 is not valid. |
| 0x902A | CMMVC5741E | The filter value %1 is not valid. |
| 0x903A | CMMVC5987E | %1 is not a valid command line option. |
| 0x903B | CMMVC6007E | The two passwords that were entered do not match. |
| 0x903C | CMMVC6009E | Unable to malloc a block of memory to copy the returned data. |
| 0x9101 | CMMVC5742E | AE_ParamOutOfRange. A parameter specified is out of range. |
| 0x9102 | CMMVC5743E | AE_ParamNotInStep. A parameter specified does not comply with the step value. |
| 0x9103 | CMMVC5744E | AE_TooManyCandidates. Too many objects were specified in the request. |
| 0x9104 | CMMVC5745E | AE_TooFewCandidates. Too few objects were specified in the request. |
| 0x9105 | CMMVC5746E | AE_InvalidObjectType. The requested operation cannot be applied to the object specified. |
| 0x9106 | CMMVC5747E | AE_InvalidRequestId. The action requested is invalid. This is an internal error. |
| 0x9107 | CMMVC5748E | AE_NotSupportedYet. The action requested is invalid. This is an internal error. |

| CIM return code | SAN Volume Controller CLI error code | Description |
|------------------------|---|---|
| 0x9108 | CMMVC5749E | AE_DumpFileExists. The specified dump file name already exists. |
| 0x9109 | CMMVC5750E | AE_DumpFileCreateError. Cannot create the dump file. The file system is probably full. |
| 0x910A | CMMVC5751E | AE_DumpFileWriteError. Cannot write to the dump file. |
| 0x910B | CMMVC5752E | AE_ObjectNotEmpty. The request failed. The object contains child objects. You must first delete the child objects. |
| 0x910C | CMMVC5753E | AE_InvalidObject. The specified object does not exist or is not a suitable candidate. |
| 0x910D | CMMVC5754E | AE_InvalidObjectName. The specified object does not exist, or the name that is supplied does not meet the naming rules. |
| 0x910E | CMMVC5755E | AE_SizeMismatch. Cannot create because the sizes of the specified objects do not match. |
| 0x910F | CMMVC5756E | AE_ObjectMapped. Cannot perform the request as the object is already mapped. |
| 0x9110 | CMMVC5757E | AE_NoSDSdefaults.SDS The defaults are not found. This is an internal error. |
| 0x9111 | CMMVC5758E | AE_NameExists. The object name already exists. |
| 0x9112 | CMMVC5759E | AE_MemoryAllocationFailed. Memory cannot be allocated. This is an internal error. |
| 0x9113 | CMMVC5760E | AE_AddNodeCallFailed. Failed to add the node to the cluster member list. |
| 0x9114 | CMMVC5761E | AE_DeleteNodeCallFailed. Failed to delete the node from the cluster member list. |
| 0x9115 | CMMVC5762E | AE_ClusterTimerExpired. The request did not complete before the timeout period has expired. |
| 0x9116 | CMMVC5763E | AE_NodeUnpendFailed. The node failed to go online. |
| 0x9117 | CMMVC5764E | AE_InvalidModeChange. The requested mode change is invalid. This is an internal error. |
| 0x9118 | CMMVC5765E | AE_NoMatchingCandidate. The selected object is no longer a candidate. A change occurred during the request. |
| 0x9119 | CMMVC5766E | AE_NoAssociations. |
| 0x911A | CMMVC5767E | AE_InvalidParams. One or more of the parameters specified are invalid. |
| 0x911B | CMMVC5768E | AE_UnfixedErrorsExist. Not used. |

| CIM return code | SAN Volume Controller CLI error code | Description |
|------------------------|---|---|
| 0x911C | CMMVC5769E | AE_NotAllNodesOnline. The requested operation requires all nodes to be online. One or more nodes are not online. |
| 0x911D | CMMVC5770E | AE_InvalidSSHKeyFile. The supplied ssh key file is invalid. |
| 0x911E | CMMVC5771E | AE_ForceRequired. The requested operation did not complete. This usually occurs when a child object exists. To force the operation, specify the force flag. |
| 0x911F | CMMVC5772E | AE_SoftwareUpgradeInProgress. The operation requested cannot be performed because a software upgrade is in progress. |
| 0x9120 | CMMVC5773E | AE_InvalidMode. The object selected is in the wrong mode to perform the requested operation. |
| 0x9121 | CMMVC5774E | AE_InvalidSSHUserId. The supplied user ID is not valid. |
| 0x9122 | CMMVC5775E | AE_InvalidDirectory. The specified directory attribute is not valid. |
| 0x9123 | CMMVC5776E | AE_DirectoryListingFailed. The directory listing cannot be retrieved. |
| 0x9124 | CMMVC5777E | AE_IncorrectPowerDomain. The node cannot be added to the IO Group because the other node in the IO Group is in the same power domain. |
| 0x9125 | CMMVC5778E | AE_ClusterAlreadyCreated. Cannot create another cluster because a cluster already exists. |
| 0x9126 | CMMVC5779E | AE_TooManyClustersExistAlready. |
| 0x9127 | CMMVC5780E | AE_ClusterIDCannotBeDeleted. |
| 0x9128 | CMMVC5781E | AE_InvalidClusterID. The cluster ID specified is invalid. |
| 0x9129 | CMMVC5782E | AE_ObjectOffline. The specified object is offline. |
| 0x912A | CMMVC5783E | AE_InformationNotAvailable |
| 0x912B | CMMVC5784E | AE_ClusterNameNotUniqueUseId. The specified cluster name is not unique. You must specify the cluster using the cluster ID. |
| 0x912C | CMMVC5785E | AE_IllegalCharacterInFilename. The specified filename contains an illegal character. |

Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully.

Features

These are the major accessibility features in the SAN Volume Controller Console :

- You can use screen-reader software and a digital speech synthesizer to hear what is displayed on the screen. The following screen readers have been tested: JAWS v4.5 and IBM Home Page Reader v3.0.
- You can operate all features using the keyboard instead of the mouse.

Navigating by keyboard

You can use keys or key combinations to perform operations and initiate many menu actions that can also be done through mouse actions. You can navigate the SAN Volume Controller Console and help system from the keyboard by using the following key combinations:

- To traverse to the next link, button, or topic, press Tab inside a frame (page).
- To expand or collapse a tree node, press → or ←, respectively.
- To move to the next topic node, press V or Tab.
- To move to the previous topic node, press ^ or Shift+Tab.
- To scroll all the way up or down, press Home or End, respectively.
- To go back, press Alt+←.
- To go forward, press Alt+→.
- To go to the next frame, press Ctrl+Tab.
- To move to the previous frame, press Shift+Ctrl+Tab.
- To print the current page or active frame, press Ctrl+P.
- To select, press Enter.

Accessing the publications

You can view the publications for the SAN Volume Controller in Adobe Portable Document Format (PDF) using the Adobe Acrobat Reader. The PDFs are provided at the following Web site:

<http://www.ibm.com/storage/support/2145>

Related reference

“SAN Volume Controller library and related publications” on page xxi
A list of other publications that are related to this product are provided to you for your reference.

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Glossary

Glossary of terms used in the CIM Agent Developer's Reference Guide.

A

agent code

An open-systems standard that interprets Common Information Model (CIM) requests and responses as they transfer between the client application and the device.

association

A class that contains two references that define a relationship between two referenced objects.

C

CIM See *Common Information Model*.

CIM object manager (CIMOM)

The common conceptual framework for data management that receives, validates, and authenticates the CIM requests from the client application. It then directs the requests to the appropriate component or service provider.

CIMOM

See *CIM object manager*.

class The definition of an object within a specific hierarchy. A class can have properties and methods and can serve as the target of an association.

client application

A storage management program that initiates Common Information Model (CIM) requests to the CIM agent for the device.

Common Information Model (CIM)

A set of standards developed by the Distributed Management Task Force (DMTF). CIM provides a conceptual framework for storage management and an open approach to the design and implementation of storage systems, applications, databases, networks, and devices.

D

device

- In the CIM Agent, the storage server that processes and hosts client application requests.
- IBM definition: A piece of equipment that is used with the computer and does not generally interact directly with the system, but is controlled by a controller.
- HP definition: In its physical form, a magnetic disk that can be attached to a SCSI bus. The term is also used to indicate a physical device that has been made part of a controller configuration; that is, a physical device that is known to the controller. Units (virtual disks) can be created from devices after the devices have been made known to the controller.

device provider

A device-specific handler that serves as a plug-in for the Common Information Model (CIM); that is, the CIM object manager (CIMOM) uses the handler to interface with the device.

I

indication

An object representation of an event.

instance

An individual object that is a member of some class. In object-oriented programming, an object is created by instantiating a class.

M

method

A way to implement a function on a class.

N

namespace

The scope within which a Common Information Model (CIM) schema applies.

O

object In object-oriented design or programming, a concrete realization of a class that consists of data and the operations associated with that data.

object model

A representation, such as a diagram, of objects in a given system. Using symbols similar to standard flowchart symbols, an object model depicts the classes the objects belong to, their associations with each other, the attributes that make them unique, and the operations that the objects can perform and that can be performed on them.

object name

An object that consists of a namespace path and a model path. The namespace path provides access to the Common Information Model (CIM) implementation managed by the CIM Agent, and the model path provides navigation within the implementation.

P

property

In the Common Information Model (CIM), an attribute that is used to characterize instances of a class.

Q

qualifier

A value that provides additional information about a class, association, indication, method, method parameter, instance, property, or reference.

R

reference

A pointer to another instance that defines the role and scope of an object in an association.

S

schema

A group of object classes defined for and applicable to a single namespace.

Within the CIM Agent, the supported schemas are the ones that are loaded through the managed object format (MOF).

Service Location Protocol (SLP)

In the Internet suite of protocols, a protocol that identifies and uses network hosts without having to designate a specific network host name.

SMI-S See *Storage Management Initiative Specification*.

Storage Management Initiative Specification (SMI-S)

A design specification developed by the Storage Networking Industry Association (SNIA) that specifies a secure and reliable interface that allows storage management systems to identify, classify, monitor, and control physical and logical resources in a storage area network. The interface is intended as a solution that integrates the various devices to be managed in a storage area network (SAN) and the tools used to manage them.

W

WBEM

See *Web-Based Enterprise Management*.

Web-Based Enterprise Management (WBEM)

A tiered, enterprise-management architecture that was developed by the Distributed Management Task Force (DMTF). This architecture provides the management design framework that consists of devices, device providers, the object manager, and the messaging protocol for the communication between client applications and the object manager.

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