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SM CLP Admin Domain Profile SM CLP Command Mapping

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Foreword

The *SM CLP Admin Domain Profile SM CLP Command Mapping* (DSP0803) was prepared by the Server Management Working Group.

Conventions

The pseudo-code conventions utilized in this document are the Recipe Conventions as defined in SNIA SMI-S 1.1.0, Section 7.6.

Acknowledgements

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Introduction

This document defines the SM CLP mapping for CIM elements described in the *SM CLP Admin Domain Profile*. The information in this specification, combined with the *SM CLP-to-CIM Common Mapping Specification 1.0*, is intended to be sufficient to implement SM CLP commands relevant to the classes, properties, and methods described in the *SM CLP Admin Domain Profile* using CIM operations.

The target audience for this specification is implementers of the SM CLP support for the *SM CLP Admin Domain Profile*.

SM CLP Admin Domain Profile SM CLP Command Mapping

1 Scope

This specification contains the requirements for an implementation of the SM CLP to provide access to, and implement the behaviors of, the *SM CLP Admin Domain Profile*.

2 Normative References

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

2.1 Approved References

DMTF DSP1007, *SM CLP Admin Domain Profile 1.0*,
http://www.dmtf.org/standards/published_documents/DSP1007_1.0.pdf

DMTF DSP0216, *SM CLP-to-CIM Common Mapping Specification 1.0*,
http://www.dmtf.org/standards/published_documents/DSP0216_1.0.pdf

SNIA, *Storage Management Initiative Specification (SMI-S) 1.1.0*,
http://www.snia.org/tech_activities/standards/curr_standards/smi

Other References

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

3 Terms and Definitions

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

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

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

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

3.4
mandatory
indicates requirements to be followed strictly in order to conform to the document and from which no deviation is permitted

3.5
may
indicates a course of action permissible within the limits of the document

3.6
need not
indicates a course of action permissible within the limits of the document

3.7
optional
indicates a course of action permissible within the limits of the document

3.8
shall
indicates requirements to be followed strictly in order to conform to the document and from which no deviation is permitted

3.9
shall not
indicates requirements to be followed strictly in order to conform to the document and from which no deviation is permitted

3.10
should
indicates that among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required

3.11
should not
indicates that a certain possibility or course of action is deprecated but not prohibited

4 Symbols and Abbreviated Terms

The following symbols and abbreviations are used in this document.

4.1
CIM
Common Information Model

4.2
CLP
Command Line Protocol

4.3
DMTF
Distributed Management Task Force

4.4
IETF
Internet Engineering Task Force

4.5
SM
Server Management

4.6
SMI-S
Storage Management Initiative Specification

4.7
SNIA
Storage Networking Industry Association

4.8
UFsT
User Friendly selection Tag

5 Recipes

The following is a list of the common recipes used by the mappings in this specification. For a definition of each recipe, see the *SM CLP-to-CIM Common Mapping Specification 1.0* (DSP0216).

- smShowInstance()
- smShowInstances()
- smShowAssociationInstances()
- smShowAssociationInstance()

This mapping does not define any recipes for local reuse.

6 Mappings

The following sections detail the mapping of CLP verbs to CIM Operations for each CIM class defined in the *SM CLP Admin Domain Profile*.

6.1 CIM_AdminDomain

The `cd` and `help` verbs shall be supported as described in DSP0216.

Table 1 lists each SM CLP verb, the required level of support for the verb in conjunction with instances of the target class, and, when appropriate, a cross-reference to the section detailing the mapping for the verb and target. Table 1 is for informational purposes only; in case of a conflict between Table 1 and requirements detailed in the following sections, the text detailed in the following sections supersedes the information in Table 1.

Table 1 – Command Verb Requirements for CIM_AdminDomain

Command Verb	Requirement	Comments
create	Not supported	
delete	Not supported	
dump	Not supported	
load	Not supported	

Command Verb	Requirement	Comments
reset	Not supported	
set	Not supported	
show	Shall	See 6.1.2
start	Not supported	
stop	Not supported	

No mapping is defined for the following verbs for the specified target: `create`, `delete`, `dump`, `load`, `reset`, `start`, and `stop`.

6.1.1 Ordering of Results

When results are returned for multiple instances of CIM_AdminDomain, implementations shall utilize the following algorithm to produce the natural (that is, default) ordering:

- Results for CIM_AdminDomain are unordered; therefore, no algorithm is defined.

6.1.2 Show

This section describes how to implement the `show` verb when applied to an instance of CIM_AdminDomain. Implementations shall support the use of the `show` verb with CIM_AdminDomain.

The `show` verb is used to display information about the management domain.

6.1.2.1 Show a Single Instance

This command form is for the `show` verb applied to a single instance of CIM_AdminDomain.

6.1.2.1.1 Command Form

```
show <CIM_AdminDomain single instance>
```

6.1.2.1.2 CIM Requirements

See the “CIM Elements” section in the *SM CLP Admin Domain Profile*.

6.1.2.1.3 Behavior Requirements

6.1.2.1.3.1 Preconditions

The Admin Domain is a special case where we never show anything but ElementName.

6.1.2.1.3.2 Pseudo Code

```
$instance=<CIM_AdminDomain single instance>
if (#all == true)   {
   #propertylist[] = { “ElementName” };
}
else {
   #propertylist[] = {};
}
&smShowInstance ( $instance.getObjectPath(), #propertylist[] );
&smEnd;
```

6.2 CIM_ConcreteCollection

The `cd` and `help` verbs shall be supported as described in DSP0216.

Table 2 lists each SM CLP verb, the required level of support for the verb in conjunction with instances of the target class, and, when appropriate, a cross-reference to the section detailing the mapping for the verb and target. Table 2 is for informational purposes only; in case of a conflict between Table 2 and requirements detailed in the following sections, the text detailed in the following sections supersedes the information in Table 2.

Table 2 – Command Verb Requirements for CIM_ConcreteCollection

Command Verb	Requirement	Comments
create	Not supported	
delete	Not supported	
dump	Not supported	
load	Not supported	
reset	Not supported	
set	Not supported	
show	Shall	See 6.2.2
start	Not supported	
stop	Not supported	

No mapping is defined for the following verbs for the specified target: `create`, `delete`, `dump`, `load`, `reset`, `start`, and `stop`.

6.2.1 Ordering of Results

When results are returned for multiple instances of CIM_ConcreteCollection, implementations shall utilize the following algorithm to produce the natural (that is, default) ordering:

- Results for CIM_ConcreteCollection are unordered; therefore, no algorithm is defined.

6.2.2 Show

This section describes how to implement the `show` verb when applied to an instance of CIM_ConcreteCollection. Implementations shall support the use of the `show` verb with CIM_ConcreteCollection.

The `show` verb is used to display information about the collection.

6.2.2.1 Show a Single Instance

This command form is for the `show` verb applied to a single instance of CIM_ConcreteCollection.

6.2.2.1.1 Command Form

```
show <CIM_ConcreteCollection single instance>
```

6.2.2.1.2 CIM Requirements

See the “CIM Elements” section in the *SM CLP Admin Domain Profile*.

6.2.2.1.3 Behavior Requirements

6.2.2.1.3.1 Preconditions

`#all` is true if the "-all" option was specified with the command; otherwise, `#all` is false.

6.2.2.1.3.2 Pseudo Code

```
$instance=<CIM_ConcreteCollection single instance>
#propertylist[] = NULL;
if (false == #all) {
   #propertylist[] = { //all non-key mandatory properties }
}
&smShowInstance ( $instance.getObjectPath(), #propertylist[] );
&smEnd;
```

6.2.2.2 Show Multiple Instances

This command form is for the `show` verb applied to multiple instances of CIM_ConcreteCollection. This command form corresponds to UFsT-based selection within a scoping system.

6.2.2.2.1 Command Form

```
show <CIM_ConcreteCollection multiple instances>
```

6.2.2.2.2 CIM Requirements

See the "CIM Elements" section in the *SM CLP Admin Domain Profile*.

6.2.2.2.3 Behavior Requirements

6.2.2.2.3.1 Preconditions

`$containerInstance` contains the instance of CIM_AdminDomain for which we are displaying scoped CIM_ConcreteCollection instances. The CLP Admin Domain Profile requires that the CIM_ConcreteCollection instance be associated with its scoping AdminDomain instance via an instance of the CIM_OwningCollectionElement association.

`#all` is true if the "-all" option was specified with the command; otherwise, `#all` is false.

6.2.2.2.3.2 Pseudo Code

```
#propertylist[] = NULL;
if (false == #all) {
   #propertylist[] = { //all non-key mandatory properties }
}
&smShowInstances ( "CIM_ConcreteCollection", "CIM_OwningCollectionElement",
   $containerInstance.getObjectPath(), #propertylist[] );
&smEnd;
```

6.3 CIM_MemberOfCollection

The `cd` and `help` verbs shall be supported as described in DSP0216.

Table 3 lists each SM CLP verb, the required level of support for the verb in conjunction with instances of the target class, and. when appropriate, a cross-reference to the section detailing the mapping for the verb and target. Table 3 is for informational purposes only; in case of a conflict between Table 3 and

requirements detailed in the following sections, the text detailed in the following sections supersedes the information in Table 3.

Table 3 – Command Verb Requirements for CIM_MemberOfCollection

Command Verb	Requirement	Comments
create	Not supported	
delete	Not supported	
dump	Not supported	
load	Not supported	
reset	Not supported	
set	Not supported	
show	Shall	See 6.3.2
start	Not supported	
stop	Not supported	

No mappings are defined for the following verbs for the specified target: `create`, `delete`, `dump`, `load`, `reset`, `set`, `start`, and `stop`.

6.3.1 Ordering of Results

When results are returned for multiple instances of CIM_MemberOfCollection, implementations shall utilize the following algorithm to produce the natural (that is, default) ordering:

- Results for CIM_MemberOfCollection are unordered; therefore, no algorithm is defined.

6.3.2 Show

This section describes how to implement the `show` verb when applied to an instance of CIM_MemberOfCollection. Implementations shall support the use of the `show` verb with CIM_MemberOfCollection.

The `show` command is used to display information about the CIM_MemberOfCollection instance or instances.

6.3.2.1 Show Multiple Instances – CIM_ConcreteCollection Reference

This command form is for the `show` verb applied to multiple instances. This command form corresponds to a `show` command issued against CIM_MemberOfCollection where only one reference is specified and the reference is to an instance of CIM_ConcreteCollection.

6.3.2.1.1 Command Form

```
show <CIM_MemberOfCollection multiple instances>
```

6.3.2.1.2 CIM Requirements

See the “CIM Elements” section in the *SM CLP Admin Domain Profile*.

6.3.2.1.3 Behavior Requirements

6.3.2.1.3.1 Preconditions

`$instance` contains the instance of CIM_ConcreteCollection which is referenced by CIM_MemberOfCollection.

6.3.2.1.3.2 Pseudo Code

```
&smShowAssociationInstances ( “CIM_MemberOfCollection”, $instance.getObjectPath() );
&smEnd;
```

6.3.2.2 Show a Single Instance – CIM_PhysicalElement Reference

This command form is for the `show` verb applied to a single instance. This command form corresponds to the `show` command issued against CIM_MemberOfCollection where the reference specified is to an instance of CIM_PhysicalElement. An instance of CIM_PhysicalElement is referenced by exactly one instance of CIM_MemberOfCollection. Therefore, a single instance will be returned.

6.3.2.2.1 Command Form

```
show <CIM_MemberOfCollection single instance>
```

6.3.2.2.2 CIM Requirements

See the “CIM Elements” section in the *SM CLP Admin Domain Profile*.

6.3.2.2.3 Behavior Requirements

6.3.2.2.3.1 Preconditions

`$instance` contains the instance of CIM_PhysicalElement which is referenced by CIM_MemberOfCollection.

6.3.2.2.3.2 Pseudo Code

```
&smShowAssociationInstances ( “CIM_MemberOfCollection”, $instance.getObjectPath() );
&smEnd;
```

6.3.2.3 Show a Single Instance – Both References

This command form is for the `show` verb applied to a single instance. This command form corresponds to the `show` command issued against CIM_MemberOfCollection where both references are specified and therefore the desired instance is unambiguously identified.

6.3.2.3.1 Command Form

```
show <CIM_MemberOfCollection single instance>
```

6.3.2.3.2 CIM Requirements

See the “CIM Elements” section in the *SM CLP Admin Domain Profile*.

6.3.2.3.3 Behavior Requirements

6.3.2.3.3.1 Preconditions

`$instanceA` contains the instance of CIM_ConcreteCollection which is referenced by CIM_MemberOfCollection.

`$instanceB` contains the instance of CIM_PhysicalElement which is referenced by CIM_MemberOfCollection.

6.3.2.3.3.2 Pseudo Code

```
&smShowAssociationInstance ( “CIM_MemberOfCollection”, $instanceA.getObjectPath(),
      $instanceB.getObjectPath() );
&smEnd;
```

6.4 CIM_OwningCollectionElement

The `cd` and `help` verbs shall be supported as described in DSP0216.

Table 4 lists each SM CLP verb, the required level of support for the verb in conjunction with instances of the target class, and, when appropriate, a cross-reference to the section detailing the mapping for the verb and target. Table 4 is for informational purposes only; in case of a conflict between Table 4 and requirements detailed in the following sections, the text detailed in the following sections supersedes the information in Table 4.

Table 4 – Command Verb Requirements for CIM_OwningCollectionElement

Command Verb	Requirement	Comments
create	Not supported	
delete	Not supported	
dump	Not supported	
load	Not supported	
reset	Not supported	
set	Not supported	
show	Shall	See 6.4.2.
start	Not supported	
stop	Not supported	

No mappings are defined for the following verbs for the specified target: `create`, `delete`, `dump`, `load`, `reset`, `set`, `start`, and `stop`.

6.4.1 Ordering of Results

When results are returned for multiple instances of CIM_OwningCollectionElement, implementations shall utilize the following algorithm to produce the natural (that is, default) ordering:

- Results for CIM_OwningCollectionElement are unordered; therefore, no algorithm is defined.

6.4.2 Show

This section describes how to implement the `show` verb when applied to an instance of CIM_OwningCollectionElement. Implementations shall support the use of the `show` verb with CIM_OwningCollectionElement.

The `show` command is used to display information about the CIM_OwningCollectionElement instance or instances.

6.4.2.1 Show a Single Instance – CIM_AdminDomain Reference

This command form is for the `show` verb applied to a single instance. This command form corresponds to a `show` command issued against CIM_OwningCollectionElement where only one reference is specified and the reference is to an instance of CIM_AdminDomain.

6.4.2.1.1 Command Form

```
show <CIM_OwningCollectionElement single instance>
```

6.4.2.1.2 CIM Requirements

See the “CIM Elements” section in the *SM CLP Admin Domain Profile*.

6.4.2.1.3 Behavior Requirements

6.4.2.1.3.1 Preconditions

`$instance` contains the instance of CIM_AdminDomain which is referenced by CIM_OwningCollectionElement.

6.4.2.1.3.2 Pseudo Code

```
&smShowAssociationInstances ( “CIM_OwningCollectionElement”,
      $instance.getObjectPath() );
&smEnd;
```

6.4.2.2 Show a Single Instance – CIM_ConcreteCollection Reference

This command form is for the `show` verb applied to a single instance. This command form corresponds to a `show` command issued against CIM_OwningCollectionElement where the reference specified is to an instance of CIM_ConcreteCollection. An instance of CIM_ConcreteCollection is referenced by exactly one instance of CIM_OwningCollectionElement. Therefore, a single instance will be returned.

6.4.2.2.1 Command Form

```
show <CIM_OwningCollectionElement single instance>
```

6.4.2.2.2 CIM Requirements

See the “CIM Elements” section in the *SM CLP Admin Domain Profile*.

6.4.2.2.3 Behavior Requirements

6.4.2.2.3.1 Preconditions

`$instance` contains the instance of CIM_ConcreteCollection which is referenced by CIM_OwningCollectionElement.

6.4.2.2.3.2 Pseudo Code

```
&smShowAssociationInstances ( “CIM_OwningCollectionElement”,
      $instance.getObjectPath() );
&smEnd;
```

6.4.2.3 Show Single Instance – Both References

This command form is for the `show` verb applied to a single instance. This command form corresponds to the `show` command issued against CIM_OwningCollectionElement where both references are specified and therefore the desired instance is unambiguously identified.

6.4.2.3.1 Command Form

```
show <CIM_OwningCollectionElement single instance>
```

401 #### 6.4.2.3.2 CIM Requirements

402 See the “CIM Elements” section in the *SM CLP Admin Domain Profile*.

403 #### 6.4.2.3.3 Behavior Requirements

404 ##### 6.4.2.3.3.1 Preconditions

405 `$instanceA` contains the instance of CIM_AdminDomain which is referenced by
406 CIM_OwningCollectionElement.

407 `$instanceB` contains the instance of CIM_ConcreteCollection which is referenced by
408 CIM_OwningCollectionElement.

409 ##### 6.4.2.3.3.2 Pseudo Code

```
410 &smShowAssociationInstance ( “CIM_OwningCollectionElement”,
411       $instanceA.getObjectPath(), $instanceB.getObjectPath() );
412 &smEnd;
```

413 ## 6.5 CIM_SystemComponent

414 The `cd` and `help` verbs shall be supported as described in DSP0216.

415 Table 5 lists each SM CLP verb, the required level of support for the verb in conjunction with instances of
416 the target class, and, when appropriate, a cross-reference to the section detailing the mapping for the
417 verb and target. Table 5 is for informational purposes only; in case of a conflict between Table 5 and
418 requirements detailed in the following sections, the text detailed in the following sections supersedes the
419 information in Table 5.

420 **Table 5 – Command Verb Requirements for CIM_SystemComponent**

Command Verb	Requirement	Comments
create	Not supported	
delete	Not supported	
dump	Not supported	
load	Not supported	
reset	Not supported	
set	Not supported	
show	Shall	See 6.5.2
start	Not supported	
stop	Not supported	

421 No mappings are defined for the following verbs for the specified target: `create`, `delete`, `dump`, `load`,
422 `reset`, `set`, `start`, and `stop`.

423 ### 6.5.1 Ordering of Results

424 When results are returned for multiple instances of CIM_SystemComponent, implementations shall utilize
425 the following algorithm to produce the natural (that is, default) ordering:

426 - Results for CIM_SystemComponent are unordered; therefore, no algorithm is defined.

6.5.2 Show

This section describes how to implement the `show` verb when applied to an instance of CIM_SystemComponent. Implementations shall support the use of the `show` verb with CIM_SystemComponent.

The `show` command is used to display information about the CIM_SystemComponent instance or instances.

6.5.2.1 Show Multiple Instances – CIM_AdminDomain Reference

This command form is for the `show` verb applied to multiple instances. This command form corresponds to a `show` command issued against CIM_SystemComponent where only one reference is specified and the reference is to an instance of CIM_AdminDomain.

6.5.2.1.1 Command Form

```
show <CIM_SystemComponent multiple instances>
```

6.5.2.1.2 CIM Requirements

See the “CIM Elements” section in the *SM CLP Admin Domain Profile*.

6.5.2.1.3 Behavior Requirements

6.5.2.1.3.1 Preconditions

`$instance` contains the instance of CIM_AdminDomain which is referenced by CIM_SystemComponent.

6.5.2.1.3.2 Pseudo Code

```
&smShowAssociationInstances ( “CIM_SystemComponent”, $instance.getObjectPath() );
&smEnd;
```

6.5.2.2 Show a Single Instance – CIM_ComputerSystem Reference

This command form is for the `show` verb applied to a single instance. This command form corresponds to a `show` command issued against CIM_SystemComponent where the reference specified is to an instance of CIM_ComputerSystem. An instance of CIM_ComputerSystem is referenced by exactly one instance of CIM_SystemComponent in the *SM CLP Admin Domain Profile*. Therefore, a single instance will be returned for this mapping.

6.5.2.2.1 Command Form

```
show <CIM_SystemComponent single instance>
```

6.5.2.2.2 CIM Requirements

See the “CIM Elements” section in the *SM CLP Admin Domain Profile*.

6.5.2.2.3 Behavior Requirements

6.5.2.2.3.1 Preconditions

`$instance` contains the instance of CIM_AdminDomain which is referenced by CIM_SystemComponent.

462 **6.5.2.2.3.2 Pseudo Code**

```
463 &smShowAssociationInstances ( “CIM_SystemComponent”, $instance.getObjectPath() );
464 &smEnd;
```

465 **6.5.2.3 Show a Single Instance – Both References**

466 This command form is for the `show` verb applied to a single instance. This command form corresponds to
467 a `show` command issued against CIM_SystemComponent where both references are specified and
468 therefore the desired instance is unambiguously identified.

469 **6.5.2.3.1 Command Form**

```
470 show <CIM_SystemComponent single instance>
```

471 **6.5.2.3.2 CIM Requirements**

472 See the “CIM Elements” section in the *SM CLP Admin Domain Profile*.

473 **6.5.2.3.3 Behavior Requirements**

474 **6.5.2.3.3.1 Preconditions**

475 `$instanceA` contains the instance of CIM_ComputerSystem which is referenced by
476 CIM_SystemComponent.

477 `$instanceB` contains the instance of CIM_AdminDomain which is referenced by
478 CIM_SystemComponent.

479 **6.5.2.3.3.2 Pseudo Code**

```
480 &smShowAssociationInstance ( “CIM_SystemComponent”, $instanceA.getObjectPath(),
481       $instanceB.getObjectPath() );
482 &smEnd;
```

ANNEX A
(informative)

Change Log

Version	Date	Author	Description
1.0.0	2009-06-04		DMTF Standard Release