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**Information technology — Virtualization  
Management Specification —**

*Technologies de l'information — Spécifications pour la gestion de la  
virtualisation*

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# American National Standard

*for Information Technology –  
Virtualization Management Specification*

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Developed by



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American National Standard  
for Information Technology –

## Virtualization Management Specification

Secretariat

**Information Technology Industry Council**

Approved May 29, 2012

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**Foreword** (This foreword is not part of American National Standard INCITS 483-2012.)

*Virtualization Management* was prepared by the System Virtualization, Partitioning, and Clustering Working Group of the DTMF.

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Requests for interpretation, suggestions for improvement or addenda, or defect reports are welcome. They should be sent to InterNational Committee for Information Technology Standards (INCITS), ITI, 1101 K Street, NW, Suite 610, Washington, DC 20005.

This standard was processed and approved for submittal to ANSI by INCITS. Committee approval of this standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, INCITS had the following members:

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# American National Standard for Information Technology –

## Virtualization Management Specification

### Introduction

The information in this standard should be sufficient for a provider or consumer of this data to unambiguously identify the classes, properties, methods, and values that shall be instantiated to subscribe, advertise, produce, or consume an indication using the DMTF Common Information Model (CIM) Schema.

The target audience for this standard is implementers who are writing CIM-based providers or consumers of management interfaces that represent the components described in this document.

### Document conventions

#### Typographical conventions

The following typographical conventions are used in this document:

- Document titles are marked in *italics*.
- Important terms that are used for the first time are marked in italics.
- ABNF rules are in `monospaced font`.

The following conventions are followed for defining formats of entries such as URIs:

- Literal characters within a format definition are surrounded by single quotes.
- Names of variables within a format are in standard text and are explicitly defined by means of a "Where: variable-name is ..." section that follows the format definition.
- A specific value of a variable within a generalized example of a formatted entry is displayed in *italics*.
- Definitions of formats are case sensitive.
- Whitespace, if any, in formats is explicitly indicated.

In XML and MOF examples, an ellipsis (" . . . ") indicates omitted or optional entries that would typically occupy the position of the ellipsis.

### ABNF usage conventions

Format definitions in this document are specified using ABNF (see [RFC 5234](#)), with the following deviations:

- Literal strings are to be interpreted as case-sensitive Unicode characters, as opposed to the definition in [RFC 5234](#) that interprets literal strings as case-insensitive US-ASCII characters.

## Experimental material

Experimental material has yet to receive sufficient review to satisfy the adoption requirements set forth by the DMTF. Experimental material is included in this document as an aid to implementers who are interested in likely future developments. Experimental material may change as implementation experience is gained. It is likely that experimental material will be included in an upcoming revision of the document. Until that time, experimental material is purely informational.

Experimental content is indicated by an Experimental Note.

In places where the Experimental Note cannot be used (for example, tables or figures), the "EXPERIMENTAL" label is used alone.

## DMTF component documents

Table 1 lists the DMTF component documents that were combined to create this standard.

**Table 1 – Component documents**

Document Number	Document Title	Version
DSP1041	<i>Resource Allocation Profile</i>	1.1.0
DSP1042	<i>System Virtualization Profile</i>	1.0.0
DSP1043	<i>Allocation Capabilities Profile</i>	1.0.0
DSP1044	<i>Processor Resource Virtualization Profile</i>	1.0.0
DSP1045	<i>Memory Resource Virtualization Profile</i>	1.0.0
DSP1047	<i>Storage Resource Virtualization Profile</i>	1.0.0
DSP1050	<i>Ethernet Port Resource Virtualization Profile</i>	1.0.0
DSP1057	<i>Virtual System Profile</i>	1.0.0
DSP1059	<i>Generic Device Resource Virtualization Profile</i>	1.0.0
DSP1097	<i>Virtual Ethernet Switch Profile</i>	1.0.0

# 1 Scope

## 1.1 Resource Allocation Profile

Clause 5 sets the basic resource allocation pattern for resource pools, allocations, and setting data. It also defines the resource-pool-lifecycle management and relationships.

## 1.2 System Virtualization Profile

Clause 6 is an autonomous profile that specifies the minimum top-level object model needed for the representation of host systems and the discovery of hosted virtual computer systems. In addition, it specifies a service for the manipulation of virtual computer systems and their resources, including operations for the creation, deletion, and modification of virtual computer systems and operations for the addition or removal of virtual resources to or from virtual computer systems.

## 1.3 Allocation Capabilities Profile

Clause 7 extends the management capability of referencing profiles by adding the ability to represent the default, supported and range of property values for resource allocation requests for a given resource, and the mutability of properties in a Resource Allocation Setting Data instance.

## 1.4 Processor Resource Virtualization Profile

Clause 8 is a component profile that extends the management capabilities of the specialized profiles by adding the support to represent and manage the allocation of processor resources to virtual systems.

## 1.5 Memory Resource Virtualization Profile

Clause 9 is a component DMTF management profile that extends the management capabilities of the referencing profile by adding the support to represent and manage the allocation of memory to virtual systems.

## 1.6 Storage Resource Virtualization Profile

Clause 10 is a component profile that extends the management capabilities of the referencing profile by adding the support to represent and manage the allocation of storage to virtual systems.

## 1.7 Ethernet Port Resource Virtualization Profile

Clause 11 is a component DMTF management profile that extends the management capabilities of the referencing profile by adding the support to represent and manage the allocation of Ethernet ports to virtual systems.

## 1.8 Virtual System Profile

Clause 12 is an autonomous profile that defines the minimum object model needed to provide for the inspection of a virtual system and its components. In addition, it defines optional basic control operations for activating, deactivating, pausing, or suspending a virtual system.

## 1.9 Generic Device Resource Virtualization Profile

Clause 13 is a concrete component profile that specializes the abstract Resource Allocation Profile described in clause 5 and the abstract [Allocation Capabilities Profile](#) described in clause 7.

Clause 13 is intended for use when a more specific resource allocation profile (for example, the [Processor Resource Virtualization Profile](#) described in clause 8, the [Memory Resource Virtualization Profile](#) described in clause 9, and so on) for common resource types has not yet been defined or approved, or when the device in question is an unusual device type for which no more specific profile exists.

## 1.10 Virtual Ethernet Switch Profile

Clause 14 is an autonomous DMTF management profile that defines the minimum object model needed to provide for the inspection of a virtualization system's internal Ethernet switch and its components.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated or versioned references, only the edition cited (including any corrigenda or DMTF update versions) applies. For references without a date or version, the latest published edition of the referenced document (including any corrigenda or DMTF update versions) applies.

DMTF, *CIM Schema 2.27*,  
<http://dmtof.org/standards/cim/schemas>

DMTF DSP0004, *CIM Infrastructure Specification 2.6*,  
[http://www.dmtf.org/standards/published\\_documents/DSP0004\\_2.6.pdf](http://www.dmtf.org/standards/published_documents/DSP0004_2.6.pdf)

DMTF DSP0200, *CIM Operations over HTTP 1.3*,  
[http://www.dmtf.org/standards/published\\_documents/DSP0200\\_1.3.pdf](http://www.dmtf.org/standards/published_documents/DSP0200_1.3.pdf)

DMTF DSP0201, *Specification for the Representation of CIM in XML 2.3.1*,  
[http://www.dmtf.org/standards/published\\_documents/DSP201.pdf](http://www.dmtf.org/standards/published_documents/DSP201.pdf)

DMTF DSP0207, *WBEM URI Mapping Specification 1.0*,  
[http://www.dmtf.org/standards/published\\_documents/DSP0207\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP0207_1.0.pdf)

DMTF DSP1001, *Management Profile Specification Usage Guide 1.0*,  
[http://www.dmtf.org/standards/published\\_documents/DSP1001\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1001_1.0.pdf)

DMTF DSP1012, *Boot Control Profile 1.0*,  
[http://www.dmtf.org/standards/published\\_documents/DSP1012\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1012_1.0.pdf)

DMTF DSP1014, *Ethernet Port Profile 1.0*,  
[http://www.dmtf.org/standards/published\\_documents/DSP1014\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1014_1.0.pdf)

DMTF DSP1022, *CPU Profile 1.0*,  
[http://www.dmtf.org/standards/published\\_documents/DSP1022\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1022_1.0.pdf)

DMTF DSP1026, *System Memory Profile 1.0*,  
[http://www.dmtf.org/standards/published\\_documents/DSP1026\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1026_1.0.pdf)

DMTF DSP1027, *Power State Management Profile 1.0*,  
[http://www.dmtf.org/standards/published\\_documents/DSP1027\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1027_1.0.pdf)

DMTF DSP1033, *Profile Registration Profile 1.0*,  
[http://www.dmtf.org/standards/published\\_documents/DSP1033\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1033_1.0.pdf)

DMTF DSP1035, *Host LAN Network Port Profile 1.0*,  
[http://www.dmtf.org/standards/published\\_documents/DSP1035\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1035_1.0.pdf)



DMTF DSP1052, *Computer System Profile 1.0*,  
[http://www.dmtf.org/standards/published\\_documents/DSP1052\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1052_1.0.pdf)

DMTF DSP1053, *Base Metrics Profile 1.0*,  
[http://www.dmtf.org/standards/published\\_documents/DSP1053\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1053_1.0.pdf)

DMTF DSP1054, *Indications Profile 1.0*,  
[http://www.dmtf.org/standards/published\\_documents/DSP1054\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1054_1.0.pdf)

IETF RFC1738, *Uniform Resource Locators (URL)*, December 1994,  
<http://www.ietf.org/rfc/rfc1738.txt>

IETF RFC3986, *Uniform Resource Identifier (URI): Generic Syntax*,  
<http://tools.ietf.org/html/rfc3986>

IETF RFC5234, *ABNF: Augmented BNF for Syntax Specifications*, January 2008,  
<http://tools.ietf.org/html/rfc5234>

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>

SNIA SMI-S, *Storage Management Technical Specification 1.3*,  
[http://www.snia.org/tech\\_activities/standards/curr\\_standards/smi/SMI-S\\_Technical\\_Position\\_v1.3.0r5.zip](http://www.snia.org/tech_activities/standards/curr_standards/smi/SMI-S_Technical_Position_v1.3.0r5.zip)

NOTE This standard refers to the following clauses of SNIA SMI-S: 1.3, Part 2 *Common Profiles*:

Clause 6: *Generic Target Ports* profile 1.0

Clause 14: *Generic Initiator Ports* profile 1.0

This standard refers to the following clauses of SNIA SMI-S: 1.3, Part 3 *Block Devices*:

Clause 5: *Block Services* package 1.3

Clause 15: *Extent Composition* subprofile 1.2

This standard refers to the following clauses of SNIA SMI-S: 1.3, Part 6 *Host Elements*:

Clause 6: *Storage HBA* profile 1.3

Clause 7: *Host Discovered Resources* profile 1.2

NOTE All parts of the SNIA SMI-S Storage Management Technical Specification have been approved as American National Standards, under the designation INCITS 388-2011. All parts of the specification are available at the ANSI Electronic Standards Store (ESS) on the ANSI website, [www.ansi.org](http://www.ansi.org).

### 3 Terms and definitions

In this document, some terms have a specific meaning beyond the normal English meaning. Those terms are defined in this clause.

The terms "shall" ("required"), "shall not," "should" ("recommended"), "should not" ("not recommended"), "may," "need not" ("not required"), "can" and "cannot" in this document are to be interpreted as described in [ISO/IEC Directives, Part 2](#), Annex H. The terms in parenthesis are alternatives for the preceding term, for use in exceptional cases when the preceding term cannot be used for linguistic reasons. Note that [ISO/IEC Directives, Part 2](#), Annex H specifies additional alternatives. Occurrences of such additional alternatives shall be interpreted in their normal English meaning.

The terms "clause," "subclause," "paragraph," and "annex" in this document are to be interpreted as described in [ISO/IEC Directives, Part 2](#), Clause 5.

The terms "normative" and "informative" in this document are to be interpreted as described in [ISO/IEC Directives, Part 2](#), Clause 3. In this document, clauses, subclauses, or annexes labeled "(informative)" do not contain normative content. Notes and examples are always informative elements.