
Information technology — Open Virtualization Format (OVF) specification

*Technologies de l'information — Spécification du format de
virtualisation ouvert (OVF)*





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For an explanation on the voluntary nature of Standard, the meaning of the ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword – Supplementary information](#)

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CONTENTS

1	Scope	1
2	Normative references	1
3	Terms and definitions	3
4	Symbols and abbreviated terms	5
5	OVF package	5
5.1	OVF package structure	5
5.2	Virtual disk formats	6
5.3	OVF package options	6
5.4	Distribution as a set of files	7
6	OVF descriptor	7
7	Envelope element	8
7.1	File references	8
7.2	Content element	9
7.3	Extensibility	10
7.4	Conformance	10
8	Virtual hardware description	11
8.1	VirtualHardwareSection	11
8.2	Extensibility	12
8.3	Virtual hardware elements	12
8.4	Ranges on elements	14
9	Core metadata sections	16
9.1	DiskSection	17
9.2	NetworkSection	18
9.3	ResourceAllocationSection	18
9.4	AnnotationSection	19
9.5	ProductSection	19
9.6	EulaSection	21
9.7	StartupSection	22
9.8	DeploymentOptionSection	23
9.9	OperatingSystemSection	24
9.10	InstallSection	24
9.11	EnvironmentFilesSection	24
9.12	BootDeviceSection	25
9.13	SharedDiskSection	25
9.14	ScaleOutSection	26
9.15	PlacementGroupSection and PlacementSection	27
9.16	EncryptionSection	28
10	Internationalization	29
10.1	Internal resource bundles	29
10.2	External resource bundles	29
10.3	Message content in external file	30
11	OVF environment and OVF environment file	30
11.1	Transport media	31
11.2	Transport media type	31
	ANNEX A (informative) Symbols and conventions	33
	ANNEX B (normative) OVF XSD	34
	ANNEX C (informative) OVF mime type registration template	35
	ANNEX D (informative) OVF examples	37
D.1	Examples of OVF package structure	37
D.2	Examples of distribution of files	37
D.3	Example of envelope element	38
D.4	Example of file references	38
D.5	Example of content element	39
D.6	Examples of extensibility	39
D.7	Examples of VirtualHardwareSection	40

D.8	Examples of virtual hardware elements.....	40
D.9	Example of ranges on elements	41
D.10	Example of DiskSection	42
D.11	Example of NetworkSection.....	42
D.12	Example of ResourceAllocationSection.....	42
D.13	Example of annotation	43
D.14	Example of Product section	43
D.15	Example of EULA section	43
D.16	Example of StartupSection	44
D.17	Example of DeploymentOptionSection	44
D.18	Example of OperatingSystemSection	45
D.19	Example of InstallSection	45
D.20	Example of EnvironmentFilesSection	45
D.21	Example of BootDeviceSection	45
D.22	Example of SharedDiskSection	46
D.23	Example of ScaleOutSection	46
D.24	Example of PlacementGroupSection.....	47
D.25	Example of EncryptionSection.....	48
D.26	Example of internationalization.....	49
D.27	Example of message content in an external file	50
D.28	Example of environment document	51
ANNEX E	(informative) Network port profile examples	52
E.1	Example 1 (OVF descriptor for one virtual system and one network with an inlined network port profile)	52
E.2	Example 2 (OVF descriptor for one virtual system and one network with a locally referenced network port profile).....	53
E.3	Example 3 (OVF descriptor for one virtual system and one network with a network port profile referenced by a URI)	55
E.4	Example 4 (OVF descriptor for two virtual systems and one network with two network port profiles referenced by URIs).....	57
E.5	Example 5 (networkportprofile1.xml)	59
E.6	Example 6 (networkportprofile2.xml)	60
ANNEX F	(informative) Deployment considerations.....	61
F.1	OVF package structure deployment considerations.....	61
F.2	Virtual hardware deployment considerations.....	61
F.3	Core metadata sections deployment considerations.....	61

Tables

Table 1 – XML namespace prefixes	8
Table 2 – Actions for child elements with <code>ovf:required</code> attribute	12
Table 3 – HostResource element	13
Table 4 – Elements for virtual devices and controllers	14
Table 5 – Core metadata sections	16
Table 6 – Property types	21
Table 7 – Property qualifiers	21
Table 8 – Availability attributes	27
Table 9 – Affinity Attributes	28
Table 10 – Allowed combinations of scoped affinity and availability	28
Table 11 – Core sections for OEF	31

American National Standard
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Open Virtualization Format (OVF) Specification

1 Scope

The *Open Virtualization Format (OVF) Specification* describes an open, secure, efficient and extensible format for the packaging and distribution of software to be run in virtual systems.

The OVF package enables the authoring of portable virtual systems and the transport of virtual systems between virtualization platforms. This version of the specification (2.1) is intended to allow OVF 1.x tools to work with OVF 2.x descriptors in the following sense:

- Existing OVF 1.x tools should be able to parse OVF 2.x descriptors.
- Existing OVF 1.x tools should be able to give warnings/errors if dependencies to 2.x features are required for correct operation.

If a conflict arises between the schema, text, or tables, the order of precedence to resolve the conflicts is schema; then text; then tables. Figures are for illustrative purposes only and are not a normative part of the standard.

A table may constrain the text but it shall not conflict with it.

The profile conforms to the cited CIM Schema classes where used. Any requirements contained in the cited CIM Schema classes shall be met. If a conflict arises the CIM Schema takes precedence.

The profile conforms to the cited OVF XML Schema. It may constrain the schema but it shall not conflict with it. If a conflict arises the OVF XML Schema takes precedence.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

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 DSP0004, *Common Information Model (CIM) Infrastructure Specification* 2.7, http://www.dmtf.org/standards/published_documents/DSP0004_2.7.pdf

DMTF DSP0223, *Generic Operations 1.0*, http://www.dmtf.org/standards/published_documents/DSP0223_1.0.pdf

DMTF DSP0230, *WS-CIM Mapping Specification* 1.0, http://www.dmtf.org/sites/default/files/standards/documents/DSP0230_1.0.2.pdf

DMTF DSP1001, *Management Profile Specification Usage Guide 1.1*, http://www.dmtf.org/standards/published_documents/DSP1001_1.1.pdf

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INCITS 469-2015

DMTF DSP1041, *Resource Allocation Profile (RAP)*

1.1, http://www.dmtf.org/standards/published_documents/DSP1041_1.1.pdf

DMTF DSP1043, *Allocation Capabilities Profile (ACP)*

1.0, http://www.dmtf.org/standards/published_documents/DSP1043_1.0.pdf

DMTF DSP1047, *Storage Resource Virtualization Profile*

1.0, http://www.dmtf.org/standards/published_documents/DSP1047_1.0.pdf

DMTF DSP1050, *Ethernet Port Resource Virtualization Profile 1.0*,

http://www.dmtf.org/standards/published_documents/DSP1050_1.0.pdf

DMTF DSP1057, *Virtual System Profile*

1.0, http://www.dmtf.org/standards/published_documents/DSP1057_1.0.pdf

DMTF DSP8023, *OVF XML Schema Specification for OVF Envelope*

2.0, http://schemas.dmtf.org/ovf/envelope/2/dsp8023_2.0.xsd

DMTF DSP8027, *OVF XML Schema Specification for OVF Environment*

1.1, http://schemas.dmtf.org/ovf/environment/1/dsp8027_1.1.xsd

DMTF DSP8049, *Network Port Profile XML Schema*,

http://schemas.dmtf.org/ovf/networkportprofile/1/dsp8049_1.0.xsd

IETF RFC1738, T. Berners-Lee, *Uniform Resource Locators (URL)*, December

1994, <http://tools.ietf.org/html/rfc1738>

IETF RFC1952, P. Deutsch, *GZIP file format specification version 4.3*, May

1996, <http://tools.ietf.org/html/rfc1952>

IETF RFC2616, R. Fielding et al, *Hypertext Transfer Protocol – HTTP/1.1*, June

1999, <http://tools.ietf.org/html/rfc2616>

IETF Standard 66, *Uniform Resource Identifiers (URI): Generic Syntax*,

<http://tools.ietf.org/html/rfc3986>

IETF Standard 68, *Augmented BNF for Syntax Specifications: ABNF*,

<http://tools.ietf.org/html/rfc5234>

ISO 9660, 1988 Information processing-Volume and file structure of CD-ROM for information

interchange, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=17505

ISO, 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=su&btype>

ISO/IEC/IEEE 9945:2009, *Information technology -- Portable Operating System Interface (POSIX®)*

Base Specifications, Issue 7

http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=50516

W3C, *XML Schema Part 1: Structures Second Edition*, 28 October 2004. W3C Recommendation.

URL: <http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/>

W3C, *XML Schema Part 2: Datatypes Second Edition*, 28 October 2004. W3C Recommendation.

URL: <http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/>

W3C, *XML Encryption Syntax and Processing Version 1.1*, 13 March 2012, W3C Candidate Recommendation

<http://www.w3.org/TR/2012/CR-xmlenc-core1-20120313/>

FIPS 180-2: Secure Hash Standard (SHS)

<http://csrc.nist.gov/publications/fips/fips180-2/fips180-2.pdf>