Driving IP-based physical security through global standardization

ONVIF™

Test Specification

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1 Introduction

The goal of the ONVIF test specification is to make it possible to realize fully interoperable IP physical security implementations from different vendors. The ONVIF test specification describes the test cases needed to verify the [ONVIF Core] and [ONVIF Coformance] requirements. It also describes the test framework, test setup, pre-requisites, test policies needed for the execution of the described test cases.

This ONVIF Test Specification acts as an entry document for respective function test specification documents and these function test specification documents act as supplementary documents to the [ONVIF Core], clarifying the requirements wherever needed. And also these documents act as input documents to the development of test tool which will be used to test the ONVIF device implementation conformance towards the [ONVIF Core]. This test tool is referred as Network Video Client (NVC) hereafter.

An NVT implementation which claims conformance to [ONVIF Core] MUST successfully execute all the mandatory test cases defined in the respective function test specification documents.

2 Normative References

[ONVIF Core]	ONVIF Core Specification version 1.02 June, 2010.
[ONVIF DM WSDL]	ONVIF Device Management Service WSDL, ver 1.1, June 2010.
[ONVIF Event WSDL]	ONVIF Event Service WSDL, ver 1.1, June 2010.
[ONVIF Media WSDL]	ONVIF Media Service WSDL, ver 1.1, June 2010.
[ONVIF PTZ WSDL]	ONVIF PTZ Service WSDL, ver 2.0, June 2010.
[ONVIF Schema]	ONVIF Schema, ver 1.1, June 2010.
[ONVIF Topic Namespace]	ONVIF Topic Namespace XML, ver 1.1, June 2010.
[ONVIF Conformance]	ONVIF Conformance Process Specification, May 2009
[ONVIF Base Test]	ONVIF Base Test Specification version 1.02.4, July 2011. URL:http://www.onvif.org/imwp/download.asp?ContentID=20603
[ONVIF Media Test]	ONVIF Media Test Specification version 1.02.4, July 2011. URL:http://www.onvif.org/imwp/download.asp?ContentID=20604
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[RFC 952]	"DOD INTERNET HOST TABLE SPECIFICATION", K. Harrenstien, M. Stahl and E. Feinler, October 1985 URL:http://www.ietf.org/rfc/rfc952
[RFC 1123]	"Requirements for Internet Hosts -- Application and Support", R. Braden, October 1989 URL:http://www.ietf.org/rfc/rfc1123
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[RFC 2136] "Dynamic Updates in the Domain Name System (DNS UPDATE)", P. Vixie et. Al, April 1997.
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[RFC 2435] "RFC2435 - RTP Payload Format for JPEG-compressed Video", L. Berc et al., October 1998.
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[RFC 2780] "IANA Allocation Guidelines For Values in the Internet", S. Bradner and V. Paxson, March 2000
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[RFC 3315] "Dynamic Host Configuration Protocol for IPv6 (DHCPv6)", R. Droms et al., July 2003.
URL:http://www.ietf.org/rfc/rfc3315.txt

[RFC 3550] "RTP: A Transport Protocol for Real-Time Applications", H. Schulzrinne et. Al., July 2003.
URL:http://www.ietf.org/rfc/rfc3550

[RFC 3927] "Dynamic Configuration of IPv4 Link-Local Addresses", S. Cheshire, B. Aboba and E. Guttman, May 2005.
URL:http://www.ietf.org/rfc/rfc3927

[RFC 3984] "RTP Payload Format for H.264 Video", S. Wenger et al., February 2005.
URL:http://www.ietf.org/rfc/rfc3984

[RFC 3986] "Uniform Resource Identifier (URI): Generic Syntax", T. Berners-Lee et. Al., January 2005.
URL:http://www.ietf.org/rfc/rfc3986

[RFC 4122] "A Universally Unique Identifier (UUID) URN Namespace", P. Leach, M. Mealling and R. Salz, July 2005.
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[RFC 4566] "SDP: Session Description Protocol", M. Handley, V. Jacobson and C. Perkins, July 2006.
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[RFC 4862] "IPv6 Stateless Address Auto configuration", S. Thomson, D. Narten and T. Jinmei, September 2007.
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[SOAP 1.2, Part 1] "SOAP Version 1.2 Part 1: Messaging Framework", M. Gudgin (Ed) et. Al, April 2007.
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[SOAP 1.2, Part 2] "SOAP Version 1.2 Part 2: Adjuncts (Second Edition)", M. Gudgin (Ed) et. Al, April 2007.
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[WS-Addressing] "Web Services Addressing 1.0 – Core", M. Gudgin (Ed), M. Hadley (Ed) and T. Rogers (Ed), May 2006.
URL:http://www.w3.org/TR/ws-addr-core/#msgaddrprops

[WS-BaseNotification] "Web Services Base Notification 1.3", OASIS Standard, October 2006
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[WS-Discovery] "Web Services Dynamic Discovery (WS-Discovery)", J. Beatty et. Al., April 2005.
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[XML-Schema, Part 1] "XML Schema Part 1: Structures Second Edition", H. S. Thompson (Ed) et. Al, October 2004.
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[XML-Schema, Part 2] "XML Schema Part 2: Datatypes Second Edition", P. V. Biron (ed) et. Al, October 2004.
URL:http://www.w3.org/TR/xmlschema-2/

3 Requirement Level

The general interpretation of the requirement levels is as defined in [RFC2119]. The following sections describe how the requirement levels affect the test procedure.

3.1 MUST

Test cases that cover parts of the [ONVIF Core] that are mandatory to implement in all ONVIF conformant products have the requirement level "MUST". The test result for these test cases MUST be "PASSED" for the DUT to be ONVIF conformant.

3.2 MUST IF SUPPORTED

The requirement level "MUST IF SUPPORTED" is used for test cases that cover parts of the [ONVIF Core] that are mandatory to implement if and only if the DUT supports the referenced service, feature or functional block in any possible way.

If the DUT does support the referenced service, feature or functional block, then the test result MUST be "PASSED" for the DUT to be ONVIF conformant.

If the DUT does not support the referenced service, feature or functional block, then the DUT MUST correctly reply with a proper fault message to be ONVIF conformant. The test result in this case MUST be like "DEVICE FEATURE NOT SUPPORTED BY NVT".

3.3 SHOULD, SHOULD IF SUPPORTED and OPTIONAL

The "SHOULD" level indicates that the service, functional block or feature, SHOULD be implemented by the DUT. The "SHOULD IF SUPPORTED" level indicates that the service, functional block or feature, SHOULD be implemented by the DUT if supported by the DUT in any way. The "OPTIONAL" level indicates that the service, functional block or feature, MAY or MAY NOT be implemented by the DUT. Failure to comply with these requirement levels is not a violation of the ONVIF Conformance

requirement. However, if the ONVIF support is implemented, then it MUST be done in conformance with the [ONVIF Core].

If the referenced part of the [ONVIF Core] has been implemented in the DUT, then the test result MUST be “PASSED” for the DUT to be ONVIF conformant.

If the referenced part of the [ONVIF Core] has not been implemented in the DUT, then the test should not be executed.

3.4 MUST IF IMPLEMENTED [A]

The requirement level “MUST IF IMPLEMENTED [A]” is used for test cases that cover parts of the [ONVIF Core] that are mandatory to implement if and only if the DUT implements ‘A’ in conformance with the [ONVIF Core].

Here ‘A’ refers to the service, feature or functional block in [ONVIF Core] which has requirement level of “SHOULD/ SHOULD IF SUPPORTED/ OPTIONAL” (Ex: IPv6).

If DUT implements ‘A’ in conformance with [ONVIF Core], then the test result MUST be “PASSED” for the DUT to be ONVIF conformant.

If DUT doesn’t implement ‘A’ in conformance with [ONVIF Core], then the test case should not be executed.

3.5 MUST IF SUPPORTED [A] & IMPLEMENTED [B]

The requirement level “MUST IF SUPPORTED [A] & IMPLEMENTED [B]” is used for test cases that cover parts of the [ONVIF Core] that are mandatory to implement if and only if the DUT supports ‘A’ in any possible way and the DUT implements ‘B’ in conformance with the [ONVIF Core].

Here ‘A’ refers to the service, feature or functional block in [ONVIF Core] that is mandatory to be implemented if DUT supports it (Ex: PTZ). ‘B’ refers to the service, feature or functional block in [ONVIF Core] that has requirement level of “SHOULD/ SHOULD IF SUPPORTED/ OPTIONAL” (Ex: IPv6).

If the DUT supports ‘A’ in any possible way and implements ‘B’ in conformance with [ONVIF Core], then the test result MUST be “PASSED” for the DUT to be ONVIF conformant.

If the DUT doesn’t support ‘A’ or doesn’t implement ‘B’ in conformance with [ONVIF Core], then the test case should not be executed.

3.6 SHOULD IF IMPLEMENTED [A]

The requirement level “SHOULD IF IMPLEMENTED [A]” is used for test cases that cover parts of the [ONVIF Core] that SHOULD be implemented if and only if the DUT implements ‘A’ in conformance with the [ONVIF Core].

Here ‘A’ refers to the service, feature or functional block in [ONVIF Core] which has requirement level of “SHOULD/ SHOULD IF SUPPORTED/ OPTIONAL” (Ex: IPv6).

Failure to comply with this requirement level is not a violation of the ONVIF Conformance requirement. However, if the ONVIF support is implemented, then it MUST be done in conformance with the [ONVIF Core].

If DUT implements ‘A’ in conformance with [ONVIF Core] and the reference part of [ONVIF Core] is implemented, then the test result MUST be “PASSED” for the DUT to be ONVIF conformant.

If DUT doesn’t implement ‘A’ in conformance with [ONVIF Core] or the reference part of [ONVIF Core] is not implemented, then the test case should not be executed.

3.7 SHOULD IF SUPPORTED [A] & IMPLEMENTED [B]

The requirement level "SHOULD IF SUPPORTED [A] & IMPLEMENTED [B]" is used for test cases that cover parts of the [ONVIF Core] that SHOULD be implemented if and only if the DUT supports 'A' in any possible way and the DUT implements 'B' in conformance with the [ONVIF Core].

Here 'A' refers to the service, feature or functional block in [ONVIF Core] that is mandatory to be implemented if DUT supports it (Ex: PTZ). 'B' refers to the service, feature or functional block in [ONVIF Core] that has requirement level of "SHOULD/ SHOULD IF SUPPORTED/ OPTIONAL" (Ex: IPv6).

Failure to comply with this requirement level is not a violation of the ONVIF Conformance requirement. However, if the ONVIF support is implemented, then it MUST be done in conformance with the [ONVIF Core].

If the DUT supports 'A' in any possible way, implements 'B' in conformance with [ONVIF Core] and implements the referenced part of [ONVIF Core], then the test result MUST be "PASSED" for the DUT to be ONVIF conformant.

If the DUT doesn't support 'A' or doesn't implement 'B' in conformance with [ONVIF Core] or doesn't implement the referenced part of [ONVIF Core], then the test case should not be executed.

3.8 Combination of the above requirement level

Other than the above requirement levels, some combination of the above keywords of requirement level is also possible. For example, the requirement level "MUST IF SUPPORTED [A] & IMPLEMENTED [B] & IMPLEMENTED [C]" will be used for test cases that cover parts of [ONVIF Core] that are mandatory to implement if and only if the DUT supports 'A' in any possible way and the DUT implements 'B' in conformance with the [ONVIF Core] and also the DUT implements 'C' in conformance with the [ONVIF Core].

4 Scope

This ONVIF Test Specification defines testing procedure for the ONVIF NVT (Network Video Transmitter) implementation. This ONVIF Test Specification will not cover the complete set of requirements as defined in [ONVIF Core]; instead it would cover subset of it.

In terms of the detailed test procedures of each service and functionality, refer to the respective function test specification documents below.

[ONVIF Base Test]	ONVIF Base Test Specification version 1.02.4, July 2011 URL:http://www.onvif.org/imwp/download.asp?ContentID=20603
[ONVIF Media Test]	ONVIF Media Test Specification version 1.02.4, July 2011 URL:http://www.onvif.org/imwp/download.asp?ContentID=20604
[ONVIF PTZ Test]	ONVIF PTZ Test Specification version 1.02.4, July 2011 URL:http://www.onvif.org/imwp/download.asp?ContentID=20605

[ONVIF Base Test] defines test procedure for handling fundamentals / basics of [ONVIF Core] such as IP Configuration, Device discovery, Event handling, Security, Device management service etc..

[ONVIF Media Test] defines test procedures for handling Media profiles and configurations (Media service part) as well as test procedures for handling real-time viewing / streaming functionality using various streaming protocols such as HTTP, RTSP, RTP, RTCP etc..

[ONVIF PTZ Test] defines test procedure for handling PTZ nodes and configurations (PTZ service).