

Request for Quotation (RfQ)

For ONVIF Technical Services Committee

Projects DTT and CTT 24.12 & 25.06

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1. Introduction

ONVIF™ is an open industry forum for the development of a global standard for the interface of IP-based physical security products. Information about ONVIF, its objectives and members can be found on <https://www.onvif.org/>.

The ONVIF Client and Device Test Tools are used by the members of ONVIF to test conformance of IP-based physical security products with the ONVIF Test Specification, which in turn is based on the ONVIF Profile Specifications and ONVIF Network Interface Specifications, and WSDL and XML schemas.

2. Abbreviations

CTT	ONVIF Client Test Tool
DTT	ONVIF Device Test Tool
TTWG	ONVIF Testing Working Group
ODP	ONVIF Developer's Plugfest
WG	Working Group
TSC	ONVIF Technical Services Committee

3. Project Purpose

The purpose of this project is to maintain and enhance the ONVIF Test Specifications and Test Tools. In the case of a vendor change, continuity of specification and tool release is key. Besides securing releases, new functionality shall be integrated into specifications and tools in a controlled manner. This project needs to deliver incremental releases of the ONVIF Test Specifications and ONVIF Device and Client test tool in December 2024 and June 2025.

4. Background

ONVIF Test Specifications are written in XML based DocBook format and published twice a year. Sources are publicly available at github.com/onvif/testspecs.

ONVIF Test Tools are applications that are run by members to test whether their devices or clients conform to the test specifications. Both test tools have been developed using Microsoft Visual Studio. The main logic is coded in C# with some parts like streaming consisting of unmanaged C++ code.

In so called conformance mode tools autonomously run large number of test cases and produce conformance documents as output. Additionally, a so-called diagnostic mode with a rich user interface allows ONVIF members to analyze individual test cases.

5. Service Requested

- Preparation of documents and tools for 24.12 and 25.06 releases.
- Coordinate the development efforts with ONVIF working groups in weekly telcos. Participate at ONVIF face to face working group meetings.
- Participate once or twice a year at relevant ONVIF Developers' Plugfests (ODP) for the purpose of practical field test, to collect member feedback and improvement suggestions and DTT member training.

6. Description of Requested Service

1. The projects MUST be developed in accordance with the schedule outlined in Appendix A.
2. Any deviations from the schedule outlined in Appendix A MUST be approved by ONVIF.
3. The project SHOULD use the following resources (manpower equivalent) for respective projects.
Note that all man-hours include project management, design, and implementation of ONVIF Test Tool test cases and features. It also includes modification of existing test cases and bug fixing, testing including validation of test cases and regression testing as well as maintaining architectural documentation. The optional service buffer MAY be used if needed to finish work items but requires an approval from the ONVIF Technical Services Committee before being used.
 - A) Project DTT & CTT 24.12
 - i. 1880 man-hours total.
 - ii. 500 man-hours for optional service buffer.
 - B) Project DTT & CTT 25.06
 - i. 1500 man-hours total.
 - ii. 400 man-hours for optional service buffer.
4. All development MUST take place in separate branches. Merging requires review approval from working groups.
5. The projects MUST deliver both ONVIF Device and Client Test Tool, corresponding Test Specifications, and DUT Simulator as outlined in Appendix B and Appendix C.
6. The projects MUST follow the technical requirements outlined in Appendix G during the ONVIF Test Tool and DUT Simulator development.
7. The projects MUST respect the style and structure of the ONVIF Test Specification when updating the documents.
8. The final deliverables MUST pass a review before the service is considered delivered; up to 30 days might be required to complete the review. If the workgroup exceeds the 30-day period, the service will automatically be considered delivered for all payment purposes.
9. Any further maintenance and expansion work done to the ONVIF Device Test Tool and/or ONVIF Test Specification is subject to further quotations and separate contracts. A renewed cooperation of the Contractor and ONVIF for these tasks over many development steps is possible and where possible appreciated, however not guaranteed.

7. Execution of Service

The execution of the service must fulfill the following requirements:

- The service must be executed by capable and qualified employees or sub-contractors under the same rules.
- The Contractor MUST provide a weekly progress report to the **TTWG** outlining the tasks performed and the issues encountered. The report must be done on GitHub for each project. It must be maintained and show what tasks have been completed, what the next tasks for next week will be and remaining time available to approve new tasks.
- The Contractor MUST build and deliver a backup release at the beginning of the project which will look like an official release with the deliverables listed in Appendix B.
- The contractor must provide the results of the regression tests executed for every release of a prototype. Regression testing of the prototypes, backup build and the final release is restricted to 64-bit versions of Windows 10 operating systems.
- Interpretation issues encountered during development or test case writing MUST be forwarded to and handled by the corresponding working group based on the responsibilities listed in Appendix C.
- Throughout the projects, the working groups may call for telephone conferences and/or face-to-face meetings with the Contractor to address any possible open questions and to review the progress. The Contractor MUST attend those requested telephone conferences and face-to-face meetings.
 - a. The Contractor may be requested to attend ONVIF Face-to-Face Meeting.
 - b. The Contractor may be requested to participate in the 2 ONVIF Developers' Plugfest (ODP) in RFQ time frame and shall run the 'Test Tool Clinic'.
 - c. The working group MUST give the Contractor notice of at least two months in advance if participation is required.
 - d. At least one technical resource and one manager assigned to the projects MUST be legally authorized to travel outside of their home country and must be able to obtain travel documents to planned locations listed in section 10.
 - e. In the event of any cancellation of face-to-face meetings and/or Developers' Plugfest due to unforeseen circumstances the Contractor may be requested to participate in the events through a combination of telephone conferences and remote testing sessions.

8. Protective Rights

1. ONVIF will hold all rights to the ONVIF Device and Client Test Tool software (the development results), its source (test tool and internal tools), documentation, and related inventions, achieved by employees and sub-contractors of the Contractor. Contractor will be required to enter into development agreement related to the rights to ONVIF Device Test Tool software.
2. ONVIF will obtain exclusive and discretionary rights of use without any territorial restrictions or time limits.
3. The Contractor notifies ONVIF if and where it intends to use material in the ONVIF Device Test Tool which is affecting rights of a third party.
4. The Contractor will ensure in an appropriate way that ONVIF can claim inventions made by employees and sub-contractors of the Contractor.

9. Confidentiality

1. The Contractor MUST sign a non-disclosure agreement (NDA) with ONVIF prior to the initiation of the project. This NDA is for ONVIF to share draft technical specifications and other necessary non-public information of ONVIF, needed to fulfil this requested service.
2. The Contractor MUST keep all development results and related documents strictly confidential and must release them only to the ONVIF office and the assigned technical contacts of ONVIF.

10. Quotation

The quotation MUST at least contain the following information:

- Information about the Contractor, including but not limited to; Ownership structure, country of location and previous experience with projects involving test tools, standardization or similar.
- Cost of requested service and all other related costs.
- Cost of travel expenses for two representatives of the Contractor at the ONVIF Face-to-face meetings and/or Developers' Plugfest. Possible travel requests for projects:
 - i. Sept 2024 (Bangkok, Thailand), Nov 2024 (planned location USA) for Test tools v24.12
 - ii. March 2025 (planned location Istanbul, Türkiye), June 2025 (planned location Europe) for Test tools v 25.06

Additional representative(s) of the Contractor at the meetings is subject to approval from ONVIF. Travel arrangements should be consolidated where possible in case the Contractor is working on parallel projects for ONVIF. Travel cost will not be applicable if the meetings are cancelled. Meeting locations are approximate and may be subject to change.

11. References

The following ONVIF documents MUST be used as a reference in the project:

- Profile Specifications (<https://www.onvif.org/profiles>)
- Network Interface Specifications (<https://www.onvif.org/profiles/specifications/>)
- Device Test Specifications (<https://www.onvif.org/profiles/conformance/device-test/>)
- Client Test Specifications (<https://www.onvif.org/profiles/conformance/client-test/>)
- Conformance Process Specification (<https://www.onvif.org/profiles/conformance/>)
- Developer’s Guide for DTT (<https://wush.net/trac/onvif-ext/wiki/DeveloperGuide>)
- ONVIF Technical Specification Development (<https://github.com/onvif/specs>)
- ONVIF Cloud Profile Development (https://wush.net/trac/onvif/wiki/WG_Profile_Cloud)
- ONVIF Audio Profile Development (https://wush.net/trac/onvif/wiki/WG_Profile_Audio)

Documents not publicly available are provided upon request.

These documents MAY be replaced with newer versions after the start of the project. In such a case the **TTWG** will inform the Contractor and discuss appropriate actions.

12. Contacts

General contact:

ONVIF

Kevin A. Schader, Executive Director

onvif_ed@inventures.com

San Ramon, CA 94583

Phone: +1.925.275.6672

Fax: +1.925.275.6691

www.onvif.org

Technical Contact:

Technical issues and questions concerning the ONVIF specifications, schemas, and this Request for Quotation MUST be addressed to:

ONVIF TSC

Todd Johnson, TSC Chair

Phone: 559-214-5449

E-mail: todd.johnson@pelco.com

ONVIF TSC Testing WG

Madhu Rao, TTWG Chair

Phone: +91 9840921405

E-mail: madhu.rao@developer.onvif.org

Appendix A - Timeline for Service

Due dates correspond to end of day in UTC time. See [Appendix B](#) for definition of deliverables.

- 7 Jun 2024 Circulation of this Request for Quotation
- 15 Jul 2024 Quotation must be received by the **ONVIF Office** and **TTWG** by e-mail
- 29 Jul 2024 Contractor selected & agreement signed.

Project DTT & CTT 24.12

- 12 Aug 2024 Delivery of ONVIF Test Tools Backup Build Release
- 02 Sep 2024 Delivery of ONVIF Test Tools 1st Prototype & Test Specification 1st Draft
- Sep 2024 F2F Meetings (Bangkok, Thailand)
- 07 Oct 2024 Delivery of ONVIF Test Tools 2nd Prototype & Test Specification 2nd Draft
- Nov 2024 Developers' Plugfest and F2F Meetings in USA
- 18 Nov 2024 Delivery of ONVIF Test Tools & Test Specification Release Candidate
- 16 Dec 2024 Delivery of Test Tools & Test Specification v24.12

Project DTT & CTT 25.06

- 13 Jan 2025 Delivery of ONVIF Tests Tool Backup Build Release
- 10 Feb 2025 Delivery of ONVIF Test Tools 1st Prototype & Test Specification 1st Draft
- March 2025 F2F Meetings (Istanbul, Türkiye)
- 17 Mar 2025 Delivery of ONVIF Tests Tool 2nd Prototype & Test Specification 2nd Draft
- 14 Apr 2025 Delivery of ONVIF Tests Tool 3rd Prototype & Test Specification 3rd Draft
- June 2025 Developers' Plugfest (Italy, to be confirmed)
- June 2025 F2F Meetings (Italy, to be confirmed)
- 26 May 2025 Delivery of ONVIF Tests Tool & Test Specification Release Candidate
- 16 June 2025 Delivery of ONVIF Test Tools & Test Specification v25.06

Appendix B - Definition of Deliverables

Name	Description
ONVIF Test Specification Draft	<ul style="list-style-type: none"> • Document template updated. • “Test Cases/Use-Cases” integrated into their corresponding Test Specification document in draft form. • History document must be provided for each specification document and kept up to date with each subsequent delivery.
ONVIF Test Specification Release Candidate	<ul style="list-style-type: none"> • Only stable “Test Cases/Use-Cases” are included in this delivery. • Total List of “Test Cases/Use-Cases” must be provided. • Only fixes requested by WG are allowed after this release.
ONVIF Test Specification Final Release	<ul style="list-style-type: none"> • Issues identified in Release Candidate fixed or documented in release notes. • All tickets for the corresponding Milestone have been addressed or postponed (DTT & CTT 24.12 for December 2024 release, DTT & CTT 25.06 for June 2025 release)
ONVIF Test Tool Prototype	<ul style="list-style-type: none"> • Partial implementation of “Test Cases/Use-Cases” validation and Test Tool features. Only tested “Test Cases/Use-Cases” and features should be delivered. • List of “Test Cases/Use-Cases” and features implemented in the prototype must also be provided.
ONVIF Test Tool Backup Release	<ul style="list-style-type: none"> • Only stable “Test Cases/Use-Cases” and Features are included in this delivery. • Total List of “Test Cases/Use-Cases” must be provided.
ONVIF Test Tool Release Candidate	<ul style="list-style-type: none"> • Only stable “Test Cases/Use-Cases” and Features are included in this delivery. • Only fixes requested by WG are allowed after this release.
ONVIF Test Tool Final Release	<ul style="list-style-type: none"> • Issues identified in Release Candidate fixed or documented in release notes. • All tickets for the corresponding Milestone have been addressed or postponed (DTT & CTT 24.12 for December 2024 release, DTT & CTT 25.06 for June 2025 release)

Appendix C - Delivery Packages and Responsibilities

Delivery Package	Item	Target	Editing Responsibility	Review Responsibility
Test Specification	Internal Releases Notes	Workgroup	Contractor	TTWG Chair
	Official Release Notes	Public	TTWG	All WGs
	Test Specifications	Public	Contractor	TTWG
	DocBook Test Specification XML files	Workgroup	Contractor	TTWG
	Test Case Summary for Profile Conformance	Public	Contractor	All WGs
	Total List of Test Cases	WG	Contractor	All WGs
ONVIF Test Tools	Binaries	ONVIF Members	Contractor	All WGs
	Source Code	Workgroup	Contractor	TTWG Chair
	Help Files	ONVIF Members	Contractor	TTWG
	Installation Guide	ONVIF Members	Contractor	TTWG
	Internal Release Notes	Workgroup	Contractor	All WGs
	Official Release Notes	ONVIF Members	TTWG	All WGs
	Errata Document	ONVIF Members	TTWG Chair	TTWG Chair
	Test Coverage Map	Workgroup	Contractor	TTWG
	Service Specification Coverage	Workgroup	Contractor	TTWG
Conformance Specifications	Profile Specifications	Public	TTWG	TTWG
	Addon Specifications	Public	TTWG	TTWG

Appendix D - Tools and Documentation

The below information is not publicly available but may be provided upon request.

See technical contact information in section 12.

Tools

- Access Policy Generator Tool
https://wush.net/trac/onvif-ext/browser/Source/DTT_Src/Tools/AccessPolicyGen
- Tool for extracting service request information from specification files
https://wush.net/trac/onvif-ext/browser/Source/DTT_Src/Tools/TestSpecRequestsExtractor
- Test automation of ONVIF DTT from command line mode
https://wush.net/trac/onvif-ext/wiki/ONVIF_DTT_Auto
- Coverage Maps generator
https://wush.net/trac/onvif-ext/browser/Source/DTT_Src/Tools/CoverageMapsGenerator

Documentation

- DTT Software Architecture and Technical Documentation
https://wush.net/trac/onvif-ext/wiki/DTT_Evolution_Documentation
- Service Specification Coverage https://wush.net/trac/onvif-ext/wiki/DTT_Service_Spec_Coverage
- Generate PDF from DocBook Test specification XML files
<https://wush.net/trac/onvif-ext/wiki/TestSpecifications>

Appendix E - Project DTT and CTT 24.12 & 25.06 – Scope-of-work (Service based)

This appendix lists possible work items based on ONVIF work group tickets. The purpose of this appendix is to give the Contractor an idea of the scope of work. The decision which work items to prioritize will be done in the projects. The flexibility to change prioritization and/or the scope of work during the project is the main motivator for having the contract service based.

The **TTWG** uses a ticket system to manage all work items for the Contractor and for the working group. The tickets for Device and Client test tool are maintained at <https://github.com/onvif/dtt> and <https://github.com/onvif/ctt> respectively. Only tickets targeted at the DTT and CTT 24.12 are part of this Scope-of-work. Issues reported on GitHub at <https://github.com/onvif/testspecs/issues> and <https://github.com/onvif/testspecs/discussions> may also translate into tickets. Additional tickets may be created during the project and will be prioritized by the workgroup.

Tool	Task Description	Reference
DTT	Investigate and create tests for Media signing. Matrix with suggestions on how to test signed video is available in the ticket.	https://github.com/onvif/dtt/issues/170
DTT	Identify improvement areas and come up with a technical overview/solution	https://github.com/onvif/dtt/issues/221
DTT	Cloud Uplink: Produce test tool to verify connect and disconnect operation	https://github.com/onvif/dtt/issues/16
DTT	Cloud Uplink: Finalise tests for Connect and Stream	https://github.com/onvif/dtt/issues/15
DTT	Cloud Uplink: Review the implementation of the new "Service Endpoint" in test tool	https://github.com/onvif/dtt/issues/12
DTT	Review test sketches of WebRTC and Uplink using WebSocket to create new tests in test tool.	https://wush.net/trac/onvif/ticket/2807 , https://wush.net/trac/onvif/ticket/2808
DTT	Create test cases for Audio Profile based on the Audio profile specification	https://wush.net/trac/onvif/wiki/WG_Profile_Audio
DTT	License Plate Recognition event does not show error/success information but results in an exception	https://github.com/onvif/dtt/issues/212
DTT	Internal error raised when testing high resolution cameras	https://github.com/onvif/dtt/issues/213
DTT	Add test for https URI in discovery	https://github.com/onvif/dtt/issues/3
DTT	DTT raises warnings other than Errors for invalid PTZ Coordinates in Spherical format not Generic range as space suggests	https://github.com/onvif/dtt/issues/163
DTT	Simplify errata process in Command line tool	https://github.com/onvif/dtt/issues/210
CTT	Add test case for choosing of Authentication header for RTSP	https://github.com/onvif/ctt/issues/71
CTT	PTZ support in Simulator - Add support for GetCompatibleConfigurations command	https://github.com/onvif/ctt/issues/12
CTT	Improve diagnostic performance	https://github.com/onvif/ctt/issues/3
CTT	Investigate using device simulator approach for cloud profile testing	https://github.com/onvif/ctt/issues/77

Appendix F - Technical Requirements for the ONVIF Device and Client Test Tool

1. **The ONVIF Device and Client Test Tool v24.06 MUST be used as a base** for this project.
 - a. The existing functionality of the ONVIF Device and Client Test Tool v24.06 MUST NOT be altered other than to incorporate the functions and operations requested herein or where the workgroup explicitly approves the changes.
2. **The software source code MUST be documented in good practice in English** in the standard source code comments scheme. Documentation MUST at least cover classes, methods, parameters, return values, and exceptions. Level of details of the documentation must be such that ONVIF, or a knowledgeable third party requested by ONVIF, can further develop and/or amend the software.
 - a. The structure and coding practice MUST adhere to the practices recommended by Microsoft (<https://docs.microsoft.com/en-us/dotnet/csharp/fundamentals/coding-style/coding-conventions>)
 - b. The development of DTT must follow the instructions and best practices described in the Developers Guide for DTT (<https://wush.net/trac/onvif-ext/wiki/DeveloperGuide>)
 - c. Implementation MUST be done in C# [C-Sharp] according to respective standards ECMA-334 and ISO/IEC 23270 and SHOULD use the .NET [dotnet] framework.
3. **The software source code MUST be developed using the workgroup-provided Version Control System.** The workgroup is currently using GitHub for version control of the Device Test Tool and Device Test Specification files.
 - a. The executable application, the source code and the accompanying documentation MUST be delivered in electronic form to the workgroups, on the GitHub release platform or as decided by the working group, before the projects closure or on request by the working group.
4. **All external frameworks used MUST be approved by the workgroup** and SHOULD be actively maintained.
 - a. Use of open-source components in the test tool MUST follow the Guidelines for use of Open-Source Software in the ONVIF organization (https://wush.net/trac/onvif-ext/wiki/Guidelines_OSS)
5. **Development and validation of the tool MUST be done** using:
 - a. Ordinary Intel x86 architecture-based PC
 - b. One Ethernet network interface

- c. 64-bit versions of Windows 10 and later versions.
 - d. Graphical User interface in American English language
6. **Test Specification documents must be developed and maintained in DocBook format**, a semantic markup language for technical documentation.
7. **The test specifications and test tools MUST follow best practices established by ONVIF**, including, but not limited to:
- a. All configuration changes made by a DTT test case in a Device Under Test **MUST** be reverted before the test case terminates.
 - b. Test case definitions **MUST** support sequential execution of test cases as well as execution of individual test cases.
 - c. User interaction during execution of tests **SHOULD** be avoided where possible. Introduction of user interaction **MUST** be approved by the work group.
 - d. Help pages **MUST** include images and text describing all operation modes of the ONVIF Device Test Tool.

Appendix G - Outline of Quality Related Deliverables

1. Document and execute test cases to validate the behavior of the ONVIF Device and Client Test Tool, including but not restricted to:
 - a. Correctness of documents generated by the Tool.
 - b. Correctness of test procedure in Conformance Mode.
 - c. Execute Test Tool with sample inputs provided by members of ONVIF.
 - d. Generation of DoC only after a completely successful run.
2. Document and measure code quality at the end of the project.
3. Provide a “lessons learned” document regarding any relevant problems or issues found during development, including but not restricted to:
 - a. Correctness of WSDL files.
 - b. Correctness of technical specifications.
 - c. Ambiguity or limitations of the specifications.
 - d. Process and communication with the workgroup.