Request for Quotation (RfQ)

For ONVIF Technical Services Committee

Projects DTT and CTT

24.12 & 25.06

Circulation: June 7, 2024
Quotation Due: July 14, 2024
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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

<table>
<thead>
<tr>
<th>CTT</th>
<th>ONVIF Client Test Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTT</td>
<td>ONVIF Device Test Tool</td>
</tr>
<tr>
<td>TTWG</td>
<td>ONVIF Testing Working Group</td>
</tr>
<tr>
<td>ODP</td>
<td>ONVIF Developer’s Plugfest</td>
</tr>
<tr>
<td>WG</td>
<td>Working Group</td>
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<tr>
<td>TSC</td>
<td>ONVIF Technical Services Committee</td>
</tr>
</tbody>
</table>

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 discrentional 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/)
- 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

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| ONVIF Test Specification Draft            | • 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 | • 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     | • 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                 | • 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            | • 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         | • 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             | • 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

<table>
<thead>
<tr>
<th>Delivery Package</th>
<th>Item</th>
<th>Target</th>
<th>Editing Responsibility</th>
<th>Review Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test Specification</strong></td>
<td>Internal Releases Notes</td>
<td>Workgroup</td>
<td>Contractor</td>
<td>TTWG Chair</td>
</tr>
<tr>
<td></td>
<td>Official Release Notes</td>
<td>Public</td>
<td>TTWG</td>
<td>All WGs</td>
</tr>
<tr>
<td></td>
<td>Test Specifications</td>
<td>Public</td>
<td>Contractor</td>
<td>TTWG</td>
</tr>
<tr>
<td></td>
<td>DocBook Test Specification XML files</td>
<td>Workgroup</td>
<td>Contractor</td>
<td>TTWG</td>
</tr>
<tr>
<td></td>
<td>Test Case Summary for Profile Conformance</td>
<td>Public</td>
<td>Contractor</td>
<td>All WGs</td>
</tr>
<tr>
<td></td>
<td>Total List of Test Cases</td>
<td>WG</td>
<td>Contractor</td>
<td>All WGs</td>
</tr>
<tr>
<td><strong>ONVIF Test Tools</strong></td>
<td>Binaries</td>
<td>ONVIF Members</td>
<td>Contractor</td>
<td>All WGs</td>
</tr>
<tr>
<td></td>
<td>Source Code</td>
<td>Workgroup</td>
<td>Contractor</td>
<td>TTWG Chair</td>
</tr>
<tr>
<td></td>
<td>Help Files</td>
<td>ONVIF Members</td>
<td>Contractor</td>
<td>TTWG</td>
</tr>
<tr>
<td></td>
<td>Installation Guide</td>
<td>ONVIF Members</td>
<td>Contractor</td>
<td>TTWG</td>
</tr>
<tr>
<td></td>
<td>Internal Release Notes</td>
<td>Workgroup</td>
<td>Contractor</td>
<td>All WGs</td>
</tr>
<tr>
<td></td>
<td>Official Release Notes</td>
<td>ONVIF Members</td>
<td>TTWG</td>
<td>All WGs</td>
</tr>
<tr>
<td></td>
<td>Errata Document</td>
<td>ONVIF Members</td>
<td>TTWG Chair</td>
<td>TTWG Chair</td>
</tr>
<tr>
<td></td>
<td>Test Coverage Map</td>
<td>Workgroup</td>
<td>Contractor</td>
<td>TTWG</td>
</tr>
<tr>
<td></td>
<td>Service Specification Coverage</td>
<td>Workgroup</td>
<td>Contractor</td>
<td>TTWG</td>
</tr>
<tr>
<td><strong>Conformance Specifications</strong></td>
<td>Profile Specifications</td>
<td>Public</td>
<td>TTWG</td>
<td>TTWG</td>
</tr>
<tr>
<td></td>
<td>Addon Specifications</td>
<td>Public</td>
<td>TTWG</td>
<td>TTWG</td>
</tr>
</tbody>
</table>
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.
<table>
<thead>
<tr>
<th>Tool</th>
<th>Task Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTT</td>
<td>Investigate and create tests for Media signing. Matrix with suggestions on how to test signed video is available in the ticket.</td>
<td><a href="https://github.com/onvif/dtt/issues/170">https://github.com/onvif/dtt/issues/170</a></td>
</tr>
<tr>
<td>DTT</td>
<td>Identify improvement areas and come up with a technical overview/solution</td>
<td><a href="https://github.com/onvif/dtt/issues/221">https://github.com/onvif/dtt/issues/221</a></td>
</tr>
<tr>
<td>DTT</td>
<td>Cloud Uplink: Produce test tool to verify connect and disconnect operation</td>
<td><a href="https://github.com/onvif/dtt/issues/16">https://github.com/onvif/dtt/issues/16</a></td>
</tr>
<tr>
<td>DTT</td>
<td>Cloud Uplink: Finalise tests for Connect and Stream</td>
<td><a href="https://github.com/onvif/dtt/issues/15">https://github.com/onvif/dtt/issues/15</a></td>
</tr>
<tr>
<td>DTT</td>
<td>Cloud Uplink: Review the implementation of the new “Service Endpoint” in test tool</td>
<td><a href="https://github.com/onvif/dtt/issues/12">https://github.com/onvif/dtt/issues/12</a></td>
</tr>
<tr>
<td>DTT</td>
<td>Create test cases for Audio Profile based on the Audio profile specification</td>
<td><a href="https://wush.net/trac/onvif/wiki/WG_Profile_Audio">https://wush.net/trac/onvif/wiki/WG_Profile_Audio</a></td>
</tr>
<tr>
<td>DTT</td>
<td>License Plate Recognition event does not show error/success information but results in an exception</td>
<td><a href="https://github.com/onvif/dtt/issues/212">https://github.com/onvif/dtt/issues/212</a></td>
</tr>
<tr>
<td>DTT</td>
<td>Internal error raised when testing high resolution cameras</td>
<td><a href="https://github.com/onvif/dtt/issues/213">https://github.com/onvif/dtt/issues/213</a></td>
</tr>
<tr>
<td>DTT</td>
<td>Add test for https URI in discovery</td>
<td><a href="https://github.com/onvif/dtt/issues/3">https://github.com/onvif/dtt/issues/3</a></td>
</tr>
<tr>
<td>DTT</td>
<td>DTT raises warnings other than Errors for invalid PTZ Coordinates in Spherical format not Generic range as space suggests</td>
<td><a href="https://github.com/onvif/dtt/issues/163">https://github.com/onvif/dtt/issues/163</a></td>
</tr>
<tr>
<td>DTT</td>
<td>Simplify errata process in Command line tool</td>
<td><a href="https://github.com/onvif/dtt/issues/210">https://github.com/onvif/dtt/issues/210</a></td>
</tr>
<tr>
<td>CTT</td>
<td>Add test case for choosing of Authentication header for RTSP</td>
<td><a href="https://github.com/onvif/ctt/issues/71">https://github.com/onvif/ctt/issues/71</a></td>
</tr>
<tr>
<td>CTT</td>
<td>PTZ support in Simulator - Add support for GetCompatibleConfigurations command</td>
<td><a href="https://github.com/onvif/ctt/issues/12">https://github.com/onvif/ctt/issues/12</a></td>
</tr>
<tr>
<td>CTT</td>
<td>Improve diagnostic performance</td>
<td><a href="https://github.com/onvif/ctt/issues/3">https://github.com/onvif/ctt/issues/3</a></td>
</tr>
<tr>
<td>CTT</td>
<td>Investigate using device simulator approach for cloud profile testing</td>
<td><a href="https://github.com/onvif/ctt/issues/77">https://github.com/onvif/ctt/issues/77</a></td>
</tr>
</tbody>
</table>
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)
   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.