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## REVISION HISTORY

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<td>17.01</td>
<td>Jan, 2017</td>
<td>First issue</td>
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<tr>
<td>17.12</td>
<td>Jul 24, 2017</td>
<td>Check Replay Service related features in Profile G support check section was updated according to #1377.</td>
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<tr>
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<td>The document formatting were updated.</td>
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<td>Oct 19, 2017</td>
<td>Profile T Conformance section added according to #1450.</td>
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<tr>
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<td>Profile T Conformance section updated according to #1567 (GetRelayOutputOptions check added).</td>
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<tr>
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<td>&quot;Advanced Security&quot; was replaced with &quot;Security Configuration&quot; in many places</td>
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<td>Check of Media2 Service\Metadata feature was added into 'Check Metadata Streaming feature category' section</td>
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1 Introduction

The goal of the ONVIF Profiles Conformance Test Specification document is to provide some details about logic of profiles' supporting check.

Profile S Conformance item focuses on ONVIF Profile S specification ([ONVIF Profile S]) as a referenced Profile by an ONVIF device implementation under test.

Profile G Conformance item focuses on ONVIF Profile G specification ([ONVIF Profile G]) as a referenced Profile by an ONVIF device implementation under test.

Profile C Conformance item focuses on ONVIF Profile C specification ([ONVIF Profile C]) as a referenced Profile by an ONVIF device implementation under test.

Profile Q Conformance item focuses on ONVIF Profile Q specification ([ONVIF Profile Q]) as a referenced Profile by an ONVIF device implementation under test.

Profile A Conformance item focuses on ONVIF Profile A specification ([ONVIF Profile A]) as a referenced Profile by an ONVIF device implementation under test.

Profile T Conformance item focuses on ONVIF Profile T specification ([ONVIF Profile T]) as a referenced Profile by an ONVIF device implementation under test.

1.1 Scope

This ONVIF Profiles Conformance Test Specification document defines and regulates the conformance testing procedure for the ONVIF conformant devices. The objective of this specification is to provide the logic of ONVIF Profiles detection according to ONVIF Profile S Specification, ONVIF Profile G Specification, ONVIF Profile C Specification, ONVIF Profile Q Specification, and ONVIF Profile A Specification.

1.2 Normative references

- [ONVIF Network Interface Specs] ONVIF Network Interface Specification documents:  
  https://www.onvif.org/profiles/specifications/

- [ONVIF Conformance] ONVIF Conformance Process Specification: 
  https://www.onvif.org/profiles/conformance/

1.3 Informative References

- [ONVIF Feature Discovery] ONVIF Feature Discovery Specification version 17.01, Jan 2017
1.4 Requirement by the Profile

The following define denotations to indicate the required level by the Profile towards ONVIF device implementation (DUT).

M = mandatory function that shall be SUPPORTED by DUT

C = conditional mandatory function that shall be SUPPORTED by DUT if they support that functionality. On the list of test cases such functionalities are described after C – the content of parenthesis.
2 Terms and Definitions

2.1 Definitions

Profile  See ONVIF Profile Policy.

2.2 Abbreviations

This section describes abbreviations used in this document.

DHCP  Dynamic Host Configuration Protocol
DNS  Domain Name System
DUT  Device Under Test
HTTP  Hyper Text Transport Protocol
IP  Internet Protocol
IPv4  Internet Protocol version 4
IPv6  Internet Protocol version 6
NTP  Network Time Protocol
RTP  Real-time Transport Protocol
RTSP  Real Time Streaming Protocol
UDP  User Datagram Protocol
URI  Uniform Resource Identifier
UTC  Coordinated Universal Time
3 Profile S Conformance

3.1 Feature category classification for ONVIF Profile S

In order for ONVIF Device Test Tool to conduct conformance testing toward [ONVIF Profile S], it would need to identify whether DUT implements the expected feature set.

This section classifies supported features as multiple categories that are related to [ONVIF Profile S] conformance. Those category classifications will be used to do some preliminary checking prior to the test case execution and also they will be used to determine whether DUT can be considered to be [ONVIF Profile S] conformant device.

The following discovery scope is defined as the scope that signals that DUT is [ONVIF Profile S] product.

Table 3.1. Profile S Discovery Scope

<table>
<thead>
<tr>
<th>Discovery Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>onvif://www.onvif.org/Profile/Streaming</td>
</tr>
</tbody>
</table>

The following table shows the classified feature categories based on commands and/or functional blocks that are referenced by DUT.

Table 3.2. Profile S Features Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Streaming</td>
<td>GetStreamUri</td>
</tr>
<tr>
<td></td>
<td>SetSynchronizationPoint</td>
</tr>
<tr>
<td></td>
<td>Media Streaming RTSP</td>
</tr>
<tr>
<td></td>
<td>Media Streaming RTSP (JPEG RTP Header Extension)</td>
</tr>
<tr>
<td>Video Encoder Configuration</td>
<td>GetVideoEncoderConfiguration</td>
</tr>
<tr>
<td></td>
<td>GetVideoEncoderConfigurations</td>
</tr>
<tr>
<td></td>
<td>AddVideoEncoderConfiguration</td>
</tr>
<tr>
<td></td>
<td>RemoveVideoEncoderConfiguration</td>
</tr>
<tr>
<td></td>
<td>SetVideoEncoderConfiguration</td>
</tr>
<tr>
<td></td>
<td>GetCompatibleVideoEncoderConfigurations</td>
</tr>
<tr>
<td></td>
<td>GetVideoEncoderConfigurationOptions</td>
</tr>
<tr>
<td></td>
<td>GetGuaranteedNumberOfVideoEncoderInstances</td>
</tr>
<tr>
<td>User Authentication</td>
<td>WS-UsernameToken Authentication</td>
</tr>
<tr>
<td></td>
<td>HTTP Digest Authentication</td>
</tr>
<tr>
<td>Capabilities</td>
<td>GetCapabilities</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td></td>
<td>GetWsdlUrl</td>
</tr>
<tr>
<td>PTZ</td>
<td>AddPTZConfiguration</td>
</tr>
<tr>
<td></td>
<td>RemovePTZConfiguration</td>
</tr>
<tr>
<td></td>
<td>GetNodes</td>
</tr>
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<td></td>
<td>GetNode</td>
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<tr>
<td></td>
<td>GetConfigurations</td>
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<td>GetConfiguration</td>
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<td></td>
<td>GetConfigurationOptions</td>
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<td>SetConfiguration</td>
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<td></td>
<td>ContinuousMove</td>
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<td></td>
<td>Stop</td>
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<tr>
<td></td>
<td>GetStatus</td>
</tr>
<tr>
<td>PTZ – Absolute Positioning</td>
<td>AbsoluteMove</td>
</tr>
<tr>
<td>PTZ – Relative Positioning</td>
<td>RelativeMove</td>
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<tr>
<td>PTZ – Presets</td>
<td>SetPreset</td>
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<td></td>
<td>GetPresets</td>
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<tr>
<td></td>
<td>GotoPreset</td>
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<td></td>
<td>RemovePreset</td>
</tr>
<tr>
<td>PTZ – Home Position</td>
<td>GotoHomePosition</td>
</tr>
<tr>
<td>PTZ – Auxiliary</td>
<td>Command SendAuxiliaryCommand</td>
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<tr>
<td>Audio Streaming</td>
<td>GetAudioSources</td>
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<td></td>
<td>GetAudioSourceConfiguration</td>
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<tr>
<td></td>
<td>GetAudioSourceConfigurations</td>
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<td>AddAudioSourceConfiguration</td>
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<td>RemoveAudioSourceConfiguration</td>
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<td>SetAudioSourceConfiguration</td>
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<td>GetCompatibleAudioSourceConfigurations</td>
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<td></td>
<td>GetAudioSourceConfigurationOptions</td>
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<tr>
<td></td>
<td>GetAudioEncoderConfiguration</td>
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<td>GetAudioEncoderConfigurations</td>
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<td>AddAudioEncoderConfiguration</td>
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<tr>
<td>Profile</td>
<td>Methods</td>
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<td>Media Streaming - Multicast</td>
<td>RemoveAudioEncoderConfiguration, SetAudioEncoderConfiguration,</td>
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<td></td>
<td>GetCompatibleAudioEncoderConfigurations, GetAudioEncoderConfigurationOptions</td>
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<td></td>
<td>StartMulticastStreaming, StopMulticastStreaming</td>
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<td>Relay Outputs</td>
<td>GetRelayOutputs, SetRelayOutputSettings, SetRelayOutputState</td>
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<td>NTP</td>
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<td>Dynamic DNS</td>
<td>GetDynamicDNS, SetDynamicDNS</td>
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<tr>
<td>Zero Configuration</td>
<td>GetZeroConfiguration, SetZeroConfiguration</td>
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<tr>
<td>IP Address Filtering</td>
<td>GetIPAddressFilter, SetIPAddressFilter, AddIPAddressFilter,</td>
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<td>RemoveIPAddressFilter</td>
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<tr>
<td>Discovery</td>
<td>WS-Discovery, GetDiscoveryMode, SetDiscoveryMode</td>
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<td>GetScopes, SetScopes, AddScopes, RemoveScopes</td>
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<td>Network Configuration</td>
<td>GetHostname, SetHostname, GetDNS, SetDNS</td>
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<td>GetNetworkInterfaces, SetNetworkInterfaces, GetNetworkProtocols</td>
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<td><strong>System</strong></td>
<td><strong>GetDeviceInformation</strong></td>
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<td><strong>GetSystemDateAndTime</strong></td>
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<td><strong>SetSystemFactoryDefault</strong></td>
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<td><strong>Reboot</strong></td>
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<td><strong>User Handling</strong></td>
<td><strong>GetUsers</strong></td>
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<td><strong>SetUser</strong></td>
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<td><strong>Event Handling</strong></td>
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<td><strong>Unsubscribe</strong></td>
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<td><strong>SetSynchronizationPoint (Event Service)</strong></td>
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<td><strong>CreatePullPointSubscription</strong></td>
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<td><strong>PullMessage</strong></td>
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<td><strong>GetEventProperties</strong></td>
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<td><strong>TopicFilter</strong></td>
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<td><strong>MessageContentFilter</strong></td>
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<td><strong>Media Profile Configuration</strong></td>
<td><strong>GetProfiles</strong></td>
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<td><strong>GetProfile</strong></td>
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<td><strong>Video Source Configuration</strong></td>
<td><strong>GetVideoSources</strong></td>
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<td><strong>GetVideoSourceConfiguration</strong></td>
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<td><strong>GetVideoSourceConfigurations</strong></td>
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<td><strong>AddVideoSourceConfiguration</strong></td>
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<td><strong>RemoveVideoSourceConfiguration</strong></td>
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<tr>
<td></td>
<td><strong>SetVideoSourceConfiguration</strong></td>
</tr>
<tr>
<td></td>
<td><strong>GetCompatibleVideoSourceConfigurations</strong></td>
</tr>
</tbody>
</table>
3.2 Profile S support check

Preliminary checking for feature discovery will be performed prior to the test execution. For the details of the preliminary feature discovery, refer to [ONVIF Feature Discovery].

According to the result of test case execution, final determination of [ONVIF Profile S] support toward DUT is performed based on the following procedure.

Procedure:

1. Check that scope list contains the scope given in Table 3.1. If there is no such scope in the scope list of the DUT, then it is determined that [ONVIF Profile S] is not supported.

2. Check Capabilities feature.
   a. Check that GetCapabilities command is supported by the DUT. If GetCapabilities is not supported by the DUT, then it is determined that [ONVIF Profile S] is not supported by DUT. Otherwise, it is determined that Capabilities category is supported.

3. Check Discovery feature. If Discovery feature is regarded as unsupported, then it is determined that [ONVIF Profile S] is not supported by DUT. This is mandatory feature for any of ONVIF device implementation.

4. Check Discovery Types support. If Discovery/Types/dn:NetworkVideoTransmitter feature is not supported by the DUT, then it is determined that [ONVIF Profile S] is not supported by DUT and certification will be failed.

5. Check Network Configuration feature of ONVIF profile support. If Network Configuration feature is regarded as unsupported, then it is determined that [ONVIF Profile S] is not supported by DUT. This is a mandatory feature for any of ONVIF device implementation.

6. Check System feature of ONVIF profile support. If System feature is regarded as unsupported by DUT, then it is determined that [ONVIF Profile S] is not supported by DUT. This feature is mandatory for any of ONVIF device implementation.
7. Check User Handling feature of ONVIF profile support. If User Handling feature is regarded as unsupported by DUT, then it is determined that [ONVIF Profile S] is not supported by DUT. This is a mandatory feature for any of ONVIF device implementation.

8. Check Event Handling feature of ONVIF profile support. If Event Handling feature is regarded as unsupported by DUT, then it is determined that [ONVIF Profile S] is not supported by DUT. This is a mandatory feature for any of ONVIF device implementation.

   a. Check that WS-BasicNotification is supported by the DUT. If WS-BasicNotification is not supported by the DUT, then it is determined that [ONVIF Profile S] is not supported by DUT. Otherwise, it is determined that WS-BasicNotification is supported.

9. Check NTP feature.

   a. Check that NTP is supported by the DUT. If NTP is regarded as supported, then it is determined that NTP feature category is supported by DUT.

10. Check Dynamic DNS feature.

    a. Check that Dynamic DNS is supported by the DUT. If Dynamic DNS is regarded as supported, then Dynamic DNS feature category is supported by DUT.


    a. Check that Zero Configuration is supported by the DUT. If Zero Configuration is regarded as supported by DUT, then it is determined that Zero Configuration feature category is supported by DUT.

12. Check IP Address Filtering feature.

    a. Check that IP Address Filter is supported by the DUT. If IP Address Filter is regarded as supported, then it is determined that IP Address Filtering feature category is supported by DUT.

13. Check User Authentication feature.

    a. Check that WS-UsernameToken Authentication is supported by the DUT. If WS-UsernameToken is regarded as unsupported by DUT, then it is determined that [ONVIF Profile S] is not supported by DUT. Otherwise, it is determined that WS-UsernameToken Authentication feature is supported by DUT.

    b. Check that HTTP Digest Authentication is supported by the DUT.

14. Check Media Profile Configuration feature.

    a. Check that Media Service is supported by DUT. If Media Service is regarded as unsupported by DUT, then it is determined that [ONVIF Profile S] is not supported by
15. Check Media Streaming feature of ONVIF profile support.
   a. Check that Real-time Streaming is supported by DUT. If Real-time Streaming is regarded unsupported by DUT, then it is determined that [ONVIF Profile S] is not supported by DUT. Otherwise, it is determined that Media Streaming feature category is supported by DUT.

   a. Check that Media Service is supported by DUT. If Media Service is regarded unsupported by DUT, then it is determined that [ONVIF Profile S] is not supported by DUT. Otherwise, it is determined that Video Source Configuration feature category is supported by DUT.

17. Check Video Encoder Configuration feature.
   a. Check that Media Service is supported by the DUT. If Media Service is regarded unsupported by DUT, then it is determined that [ONVIF Profile S] is not supported by DUT. Otherwise, it is determined that Video Encoder Configuration feature category is supported by DUT.

18. Check Metadata Configuration feature.
   a. Check that Media Service is supported by the DUT. If Media Service is regarded as unsupported by DUT, then it is determined that [ONVIF Profile S] is not supported by DUT. Otherwise, it is determined that Metadata Configuration feature category is supported by DUT.

   a. Check that RTP-Multicast/UDP is supported by the DUT. If RTP-Multicast/UDP is regarded as supported, then it is determined that Media Streaming - Multicast feature category is supported by DUT.

20. Check PTZ feature.
   a. Check that PTZ Service and Preset position are supported by DUT. If PTZ Service and Preset position are regarded as supported then, it is determined that PTZ - Presets feature category is supported by DUT.

a. Check that PTZ Service and Home Position are supported by DUT. If PTZ Service and Home Position are regarded as supported, then it is determined that PTZ - Home Position feature category is supported by DUT.

22. Check PTZ – Absolute Positioning feature.

a. Check that PTZ Service and Absolute Move are supported by DUT. If PTZ Service and Absolute Move are regarded as supported, then it is determined that PTZ - Absolute Positioning feature category is supported by DUT.


a. Check that PTZ Service and Relative Move are supported by the DUT. If PTZ Service and Relative Move are regarded as supported, then it is determined that PTZ - Relative Positioning feature category is supported by DUT.

24. Check PTZ – Auxiliary Commands feature.

a. Check that PTZ Service and Auxiliary Commands are supported by DUT. If PTZ Service and Auxiliary Commands are regarded as supported, then it is determined that PTZ - Auxiliary Commands feature category is supported by DUT.

25. Check Audio Streaming feature.

a. Check that Audio feature is supported by DUT. If Audio feature is regarded as supported, then it is determined that Audio Streaming feature category is supported by DUT.


a. Check that Relay Outputs from Device Service are supported by the DUT. If Relay Outputs are regarded as supported, then it is determined that Relay Outputs feature category is supported by DUT.
4 Profile G Conformance

4.1 Feature category classification for ONVIF Profile G

In order for ONVIF Device Test Tool to conduct conformance testing toward [ONVIF Profile G], it would need to identify whether DUT implements the expected feature set.

This section classifies supported features as multiple categories that are related to [ONVIF Profile G] conformance. Those category classifications will be used to do some preliminary checking prior to the test case execution and also they will be used to determine whether DUT can be considered to be [ONVIF Profile G] conformant device.

The following discovery scope is defined as the scope that signals that DUT is [ONVIF Profile G] product.

**Table 4.1. Profile G Discovery Scope**

<table>
<thead>
<tr>
<th>Discovery Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>onvif://www.onvif.org/Profile/G</td>
</tr>
</tbody>
</table>

The following table shows the classified feature categories based on commands and/or functional blocks that are referenced by DUT.

**Table 4.2. Profile G Features Categories**

<table>
<thead>
<tr>
<th>Profile Mandatory Features</th>
<th>HTTP Digest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security</td>
<td>HTTP Digest</td>
</tr>
<tr>
<td>Capabilities</td>
<td>GetServices (Device)</td>
</tr>
<tr>
<td></td>
<td>GetServiceCapabilities (Device)</td>
</tr>
<tr>
<td></td>
<td>GetServiceCapabilities (Recording Control)</td>
</tr>
<tr>
<td></td>
<td>GetServiceCapabilities (Replay)</td>
</tr>
<tr>
<td></td>
<td>GetServiceCapabilities (Recording Search)</td>
</tr>
<tr>
<td></td>
<td>GetServiceCapabilities (Receiver)</td>
</tr>
<tr>
<td></td>
<td>GetServiceCapabilities (Event)</td>
</tr>
<tr>
<td></td>
<td>MaxPullPoint capability is supported and value is not less than 2</td>
</tr>
<tr>
<td></td>
<td>GetServiceCapabilities (Media)</td>
</tr>
<tr>
<td></td>
<td>GetWsdlUrl (Device)</td>
</tr>
<tr>
<td>Recording Search – Media Search</td>
<td>FindRecordings (Recording Search)</td>
</tr>
<tr>
<td></td>
<td>GetRecordingSearchResults (Recording Search)</td>
</tr>
<tr>
<td>Profile Conditional Features</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td></td>
</tr>
<tr>
<td>Recording Search – Metadata Search</td>
<td>FindMetadata (Recording Search)</td>
</tr>
<tr>
<td></td>
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<td>GetPTZPositionSearchResults (Recording Search)</td>
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<td>GetRecordingOptions</td>
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</table>

Recording Control – Using an on-board media source

- GetProfiles (Media)
- GetProfile (Media)
- CreateProfile (Media)
- DeleteProfile (Media)
- GetVideoSources (Media)
- GetVideoSourceConfiguration (Media)
- GetVideoSourceConfigurations (Media)
- AddVideoSourceConfiguration (Media)
- RemoveVideoSourceConfiguration (Media)
- SetVideoSourceConfiguration (Media)
- GetCompatibleVideoSourceConfigurations (Media)
- GetVideoSourceConfigurationOptions (Media)
- GetVideoEncoderConfiguration (Media)
- GetVideoEncoderConfigurations (Media)
- AddVideoEncoderConfiguration (Media)
- RemoveVideoEncoderConfiguration (Media)
- SetVideoEncoderConfiguration (Media)
- GetCompatibleVideoEncoderConfigurations (Media)
- GetVideoEncoderConfigurationOptions (Media)
- GetGuaranteedNumberOfVideoEncoderInstances (Media)
- GetMetadataConfiguration (Media)
- GetMetadataConfigurations (Media)
### AddMetadataConfiguration (Media)
- RemoveMetadataConfiguration (Media)
- SetMetadataConfiguration (Media)
- GetCompatibleMetadataConfigurations (Media)
- GetMetadataConfigurationOptions (Media)
- GetAudioSources (Media)
- GetAudioSourceConfiguration (Media)
- GetAudioSourceConfigurations (Media)
- AddAudioSourceConfiguration (Media)
- RemoveAudioSourceConfiguration (Media)
- SetAudioSourceConfiguration (Media)
- GetCompatibleAudioSourceConfigurations (Media)
- GetAudioSourceConfigurationOptions (Media)
- GetAudioEncoderConfiguration (Media)
- GetAudioEncoderConfigurations (Media)
- AddAudioEncoderConfiguration (Media)
- RemoveAudioEncoderConfiguration (Media)
- SetAudioEncoderConfiguration (Media)
- GetCompatibleAudioEncoderConfigurations (Media)
- GetAudioEncoderConfigurationOptions (Media)

### Recording Control – Using a Receiver as Source
- GetReceivers (Receiver)
- GetReceiver (Receiver)
- CreateReceiver (Receiver)
- DeleteReceiver (Receiver)
- ConfigureReceiver (Receiver)
- SetReceiverMode (Receiver)
- GetReceiverState (Receiver)
- tns1:Receiver/ChangeState
- tns1:Receiver/ConnectionFailed

### Recording Configuration/Configuration of the Recording Source
- SetRecordingConfiguration (Recording Control)

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<th>Category</th>
<th>Description</th>
<th>Namespace</th>
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<td>GetTrackConfiguration</td>
<td>tns1:RecordingConfig/TrackConfiguration</td>
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<td></td>
<td>SetTrackConfiguration</td>
<td>tns1:RecordingConfig/TrackConfiguration</td>
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<td>tns1:RecordingConfig/RecordingJobConfiguration</td>
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<td>tns1:RecordingConfig/RecordingJobConfiguration</td>
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<td>WS-Discovery</td>
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<td>GetDiscoveryMode</td>
<td></td>
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<td>SetDiscoveryMode</td>
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<td></td>
<td>GetScopes</td>
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<td></td>
<td>SetScopes</td>
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<td>AddScopes</td>
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<td></td>
<td>SetDNS</td>
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<tr>
<td></td>
<td>GetNetworkInterfaces</td>
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<td>SetNetworkInterfaces</td>
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<td></td>
<td>GetNetworkProtocols</td>
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<td>SetNetworkProtocols</td>
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<td></td>
<td>GetNetworkDefaultGateway</td>
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<tr>
<td></td>
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<tr>
<td>System</td>
<td>GetDeviceInformation</td>
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<tr>
<td></td>
<td>GetSystemDateAndTime</td>
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</tr>
<tr>
<td></td>
<td>SetSystemDateAndTime</td>
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</tr>
<tr>
<td></td>
<td>SetSystemFactoryDefault</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reboot</td>
<td></td>
</tr>
</tbody>
</table>
4.2 Profile G support check

Preliminary checking for feature discovery will be performed prior to the test execution. For the details of the preliminary feature discovery, refer to [ONVIF Feature Discovery].

According to the result of test case execution, final determination of [ONVIF Profile G] support toward DUT is performed based on the following procedure.

Procedure:

1. Check that scope list contains the scope given in Table 4.1. If there is no such scope in the scope list of the DUT, then it is determined that [ONVIF Profile G] is not supported.

2. Check Capabilities feature.

   a. Check that GetServices command is supported by the DUT. If Device Service/Capabilities/GetServices is not supported by the DUT, then it is determined that [ONVIF Profile G] is not supported by DUT and certification will be failed. Otherwise, it is determined that Capabilities category is supported with the following features included:

      i. GetServices (Device Management Service)
      ii. GetServiceCapabilities (Device Management Service)
      iii. GetServiceCapabilities (Event Service)
3. Check Discovery feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

- WS-Discovery
- GetDiscoveryMode (Device Management Service)
- SetDiscoveryMode (Device Management Service)
- GetScopes (Device Management Service)
- SetScopes (Device Management Service)
- AddScopes (Device Management Service)
- RemoveScopes (Device Management Service)

4. Check Discovery Types support. If Discovery/Types/tds:Device is not supported by the DUT, then it is determined that [ONVIF Profile G] is not supported by DUT and certification will be failed.

5. Check Network Configuration feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

- GetHostname (Device Management Service)
- SetHostname (Device Management Service)
- GetDNS (Device Management Service)
- SetDNS (Device Management Service)
- GetNetworkInterfaces (Device Management Service)
- SetNetworkInterfaces (Device Management Service)
- GetNetworkProtocols (Device Management Service)
- SetNetworkProtocols (Device Management Service)
- GetNetworkDefaultGateway (Device Management Service)
- SetNetworkDefaultGateway (Device Management Service)

6. Check System feature category of ONVIF profile support. This feature is a mandatory for any of ONVIF device implementation. The following features are defined as supported:
• GetDeviceInformation (Device Management Service)

• GetSystemDateAndTime (Device Management Service)

• SetSystemDateAndTime (Device Management Service)

• SetSystemFactoryDefault (Device Management Service)

• Reboot (Device Management Service)

7. Check User Handling feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

• GetUsers (Device Management Service)

• CreateUsers (Device Management Service)

• DeleteUsers (Device Management Service)

• SetUser (Device Management Service)

8. Check Event Handling feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

• Renew (Event Service)

• Unsubscribe (Event Service)

• SetSynchronizationPoint (Event Service)

• CreatePullPointSubscription (Event Service)

• PullMessage (Event Service)

• GetEventProperties (Event Service)

• TopicFilter (Event Service)

• MessageContentFilter (Event Service)

9. Check that at least two PullPoint subscriptions are supported by the DUT. If Device Service/Event/MaxPullPoints is not supported by the DUT or it has value less than 2, then it is determined that [ONVIF Profile G] is not supported by DUT and certification will be failed. Otherwise, it is determined that Event Handling is supported with the following feature category included:

a. At least two PullPoint subscriptions

a. Check that HTTP Digest Authentication is supported by the DUT. If Security\Digest is regarded as unsupported by DUT, then it is determined that [ONVIF Profile G] is not supported by DUT and certification will be failed. Otherwise, it is determined that HTTP Digest Authentication feature is supported by DUT.

11. Check Recording Search Service related features.

a. Check that Recording Search Service is supported by DUT. If Recording Search Service is regarded as unsupported by DUT, then it is determined that [ONVIF Profile G] is not supported by DUT and certification will be failed. Otherwise, it is determined that Recording Search related features are supported by DUT. Those features are:

i. Capabilities feature category

   • GetServiceCapabilities (Recording Search Service)

ii. Recording Control

   • FindRecordings (Recording Search)
   • GetRecordingSearchResults (Recording Search)
   • EndSearch (Recording Search)
   • FindEvents (Recording Search)
   • GetEventSearchResults (Recording Search)
   • GetRecordingSummary (Recording Search)
   • GetRecordingInformation (Recording Search)
   • GetMediaAttributes (Recording Search)
   • tns1:RecordingHistory/Track/State
   • tns1:RecordingHistory/Recording/State
   • XPath dialect filtering

b. Check that Recording Search – Metadata Search feature category is supported by the DUT. If Recording Search Service\Metadata Search is regarded as supported by DUT, then it is determined that the following features are supported by the DUT:

   • FindMetadata (Recording Search)
c. Check that Recording Search – PTZ Position Search feature category is supported by the DUT. If **Recording Search Service\PTZ Position Search** is regarded as supported by DUT, then it is determined that the following features are supported by the DUT:

- **FindPTZPosition (Recording Search)**
- **GetPTZPositionSearchResults (Recording Search)**

12. Check Replay Service related features.

a. Check that Replay Service is supported by DUT. If **Replay Service** is regarded as unsupported by DUT, then it is determined that [ONVIF Profile G] is not supported by DUT and certification will be failed. Otherwise, it is determined that Replay related features are supported by DUT. Those features are:

i. Capabilities feature category

- **GetServiceCapabilities (Replay Service)**

ii. Replay Control

- RTP header extension
- "onvif-replay" RTSP feature tag
- Media Replay
- **GetReplayUri (Replay)**
- **SetReplayConfiguration (Replay)**
- **GetReplayConfiguration (Replay)**

b. Check that at least one from **Recording Control Service\Encoding\JPEG**, **Recording Control Service\Encoding\H.264**, and **Recording Control Service\Encoding\MPEG4** features is supported by DUT. If **Recording Control Service\Encoding\JPEG**, **Recording Control Service\Encoding\H.264**, and **Recording Control Service\Encoding\MPEG4** features are regarded as unsupported by DUT, then it is determined that [ONVIF Profile G] is not supported by DUT and certification will be failed. Those features are:

i. **Replay Control**
c. Check that Reverse Replay feature is supported by the DUT. If Replay Service \Reverse Replay is regarded as supported by DUT, then it is determined that Reverse Replay feature is supported by the DUT:

i. Replay Control
   • Reverse Replay

13. Check Recording Control Service related features.

a. Check that Recording Service is supported by DUT. If Recording Control Service is regarded as unsupported by DUT, then it is determined that [ONVIF Profile G] is not supported by DUT and certification will be failed. Otherwise, it is determined that Recording control related features are supported by DUT. Those features are:

i. Capabilities feature category
   • GetServiceCapabilities (Recording Control Service)

ii. Recording Control
   • GetRecordings (Recording Control)
   • CreateRecordingJob (Recording Control)
   • DeleteRecordingJob (Recording Control)
   • GetRecordingJobs (Recording Control)
   • GetRecordingJobState (Recording Control)
   • SetRecordingJobMode (Recording Control)
   • GetRecordingOptions (Recording Control)
   • tns1:RecordingConfig/JobState

iii. Recording Configuration/Configuration of the Recording Source
   • SetRecordingConfiguration (Recording Control)
   • GetRecordingConfiguration (Recording Control)
   • GetTrackConfiguration (Recording Control)
b. Check that tns1:RecordingConfig/DeleteTrackData event is supported by the DUT. If \textbf{Recording Control/Recording Control Events/RecordingConfig/DeleteTrackData} is regarded as supported by DUT, then it is determined that the following feature is supported by the DUT:

\begin{itemize}
  \item tns1:RecordingConfig/DeleteTrackData
\end{itemize}

c. Check that tns1:RecordingConfig/RecordingConfiguration event is supported by the DUT. If \textbf{Recording Control/Recording Control Events/RecordingConfig/RecordingConfiguration} is regarded as supported by DUT, then it is determined that the following feature is supported by the DUT:

\begin{itemize}
  \item tns1:RecordingConfig/RecordingConfiguration
\end{itemize}

d. Check that tns1:RecordingConfig/RecordingJobConfiguration event is supported by the DUT. If \textbf{Recording Control/Recording Control Events/RecordingConfig/RecordingJobConfiguration} is regarded as supported by DUT, then it is determined that the following feature is supported by the DUT:

\begin{itemize}
  \item tns1:RecordingConfig/RecordingJobConfiguration
\end{itemize}

e. Check that tns1:RecordingConfig/TrackConfiguration event is supported by the DUT. If \textbf{Recording Control/Recording Control Events/RecordingConfig/TrackConfiguration} is regarded as supported by DUT, then it is determined that the following feature is supported by the DUT:

\begin{itemize}
  \item tns1:RecordingConfig/TrackConfiguration
\end{itemize}

f. Check that GetRecordingOptions is supported by DUT. If \textbf{Recording Control Service/Recording Options} is regarded as unsupported by DUT, then it is determined that [ONVIF Profile G] is not supported by DUT and certification will be failed. Otherwise, it is determined that GetRecordingOptions is supported by DUT.

14. Check Receiver Service related features.

a. Check that Receiver Service is supported by DUT. If Receiver Service is regarded as supported by DUT, then it is determined that Receiver related features are supported by DUT. Those features are:

i. Capabilities feature category
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- GetServiceCapabilities (Receiver Service)
  ii. Recording Control – Using a Receiver as Source
    - GetReceivers (Receiver)
    - GetReceiver (Receiver)
    - CreateReceiver (Receiver)
    - DeleteReceiver (Receiver)
    - ConfigureReceiver (Receiver)
    - SetReceiverMode (Receiver)
    - GetReceiverState (Receiver)
    - tns1:Receiver/ChangeState
    - tns1:Receiver/ConnectionFailed

- Media Streaming using RTSP

15. Check Media Service related features.

a. Check that Media Service is supported by DUT. If Media Service is regarded as supported by DUT, then it is determined that Media related features are supported by DUT. Those features are:

i. Capabilities feature category
   - GetServiceCapabilities (Media)

ii. Recording Control – Using an on-board media source
   - GetProfiles (Media)
   - GetProfile (Media)
   - CreateProfile (Media)
   - DeleteProfile (Media)
   - GetVideoSourceConfigurations (Media)
   - AddVideoSourceConfiguration (Media)
• RemoveVideoSourceConfiguration (Media)
• GetCompatibleVideoSourceConfigurations (Media)
• GetVideoEncoderConfiguration (Media)
• GetVideoEncoderConfigurations (Media)
• AddVideoEncoderConfiguration (Media)
• RemoveVideoEncoderConfiguration (Media)
• SetVideoEncoderConfiguration (Media)
• GetCompatibleVideoEncoderConfigurations (Media)
• GetVideoEncoderConfigurationOptions (Media)
• GetGuaranteedNumberOfVideoEncoderInstances (Media)
• GetMetadataConfiguration (Media)
• GetMetadataConfigurations (Media)
• AddMetadataConfiguration (Media)
• RemoveMetadataConfiguration (Media)
• SetMetadataConfiguration (Media)
• GetCompatibleMetadataConfigurations (Media)
• GetMetadataConfigurationOptions (Media)
• GetVideoSources (Media)
• GetVideoSourceConfiguration (Media)
• SetVideoSourceConfiguration (Media)
• GetVideoSourceConfigurationOptions (Media)

b. Check that Audio related features are supported by DUT. If Media Service/Audio is regarded as supported by DUT, then it is Audio related features related features are supported by DUT. Those features are:

• GetAudioSourceConfigurations (Media)
• AddAudioSourceConfiguration (Media)
• RemoveAudioSourceConfiguration (Media)
• GetCompatibleAudioSourceConfigurations (Media)
• GetAudioEncoderConfiguration (Media)
• GetAudioEncoderConfigurations (Media)
• AddAudioEncoderConfiguration (Media)
• RemoveAudioEncoderConfiguration (Media)
• SetAudioEncoderConfiguration (Media)
• GetCompatibleAudioEncoderConfigurations (Media)
• GetAudioEncoderConfigurationOptions (Media)
• GetAudioSources (Media)
• GetAudioSourceConfiguration (Media)
• SetAudioSourceConfiguration (Media)
• GetAudioSourceConfigurationOptions (Media)

16. Check that at least one from Recording Control – Using an on-board media source and Recording Control – Using a Receiver as Source is supported by DUT. If both Media Service and Receiver Service is regarded as unsupported by DUT, then it is determined that [ONVIF Profile G] is not supported by DUT and certification will be failed.
5 Profile C Conformance

5.1 Feature category classification for ONVIF Profile C

In order for ONVIF Device Test Tool to conduct conformance testing toward [ONVIF Profile C], it would need to identify whether DUT implements the expected feature set.

This section classifies supported features as multiple categories that are related to [ONVIF Profile C] conformance. Those category classifications will be used to do some preliminary checking prior to the test case execution and also they will be used to determine whether DUT can be considered to be [ONVIF Profile C] conformant device.

The following discovery scope is defined as the scope that signals that DUT is [ONVIF Profile C] product.

Table 5.1. Profile C Discovery Scope

| onvif://www.onvif.org/Profile/C |

The following table shows the classified feature categories based on commands and/or functional blocks that are referenced by DUT.

Table 5.2. Profile C Features Categories

<table>
<thead>
<tr>
<th>Profile Mandatory Features</th>
<th>Capabilities</th>
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<td>GetServices (Device)</td>
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<tr>
<td>GetServiceCapabilities (Device)</td>
<td></td>
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<tr>
<td>GetServiceCapabilities (Event)</td>
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<tr>
<td>MaxPullPoint capability is supported and value is not less than 2</td>
<td></td>
</tr>
<tr>
<td>GetServiceCapabilities (Access Control)</td>
<td></td>
</tr>
<tr>
<td>GetServiceCapabilities (Door Control)</td>
<td></td>
</tr>
<tr>
<td>GetWsdlUrl (Device)</td>
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</tbody>
</table>

| System component information – Access points | GetAccessPointInfoList (Access Control) |
|                                             | GetAccessPointInfo (Access Control)   |

| System component information – Doors | GetDoorInfoList (Door Control) |
|                                     | GetDoorInfo (Door Control)     |

| System component information – Areas | GetAreaInfoList (Access Control) |
|                                     | GetAreaInfo (Access Control)    |

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<thead>
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<th>Access point state</th>
<th>GetAccessPointState (Access Control)</th>
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<td>tns1:AccessPoint/State/Enabled</td>
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<tr>
<th>Door state</th>
<th>GetDoorState (Door Control)</th>
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<td>tns1:Door/State/DoorPhysicalState</td>
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<td>tns1:Door/State/LockPhysicalState</td>
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<td>tns1:Door/State[DoubleLockPhysicalState]</td>
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<td>tns1:Door/State/DoorAlarm</td>
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<table>
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<tr>
<th>Door control</th>
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<td>LockDoor (Door Control)</td>
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<td>UnlockDoor (Door Control)</td>
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<td>DoubleLockDoor (Door Control)</td>
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<td>BlockDoor (Door Control)</td>
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<td>LockOpenReleaseDoor (Door Control)</td>
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<table>
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<tr>
<th>Access control decisions</th>
<th>tns1:AccessControl/AccessGranted/Credential</th>
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<td>tns1:AccessControl/Denied/CredentialNotFound/Card</td>
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<tr>
<th>Event Handling</th>
<th>Renew (Event)</th>
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<td>Unsubscribe (Event)</td>
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<tr>
<td></td>
<td>SetSynchronizationPoint (Event)</td>
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</tbody>
</table>
### Profile Conditional Features

| Configuration change – Access points | tns1:Configuration/AccessPoint/Changed  
tns1:Configuration/AccessPoint/Removed |
| Configuration change – Doors         | tns1:Configuration/Door/Changed       
tns1:Configuration/Door/Removed        |
| Configuration change – Areas         | tns1:Configuration/Area/Changed      
tns1:Configuration/Area/Removed        |
| Access Point Control                | EnableAccessPoint (Access Control)   
DisableAccessPoint (Access Control)   |
| External authorization              | ExternalAuthorization (Access Control)  
tns1:AccessControl/Request/Credential  
tns1:AccessControl/Request/Anonymous  
tns1:AccessControl/Request/Timeout    |
| Duress                               | tns1:AccessControl/Duress            |
| Persistent notification storage      | Seek (Event)                          |
| IP Filtering                         | GetIPAddressFilter (Device)          
SetIPAddressFilter (Device)            
AddIPAddressFilter (Device)            
RemoveIPAddressFilter (Device)         |

### Device Mandatory Features

| Discovery | WS-Discovery  
GetDiscoveryMode (Device)  
SetDiscoveryMode (Device)  
GetScopes (Device)  
SetScopes (Device)  
AddScopes (Device)  
RemoveScopes (Device) |
| Network Configuration | GetHostname (Device)  
SetHostname (Device) |
## 5.2 Profile C support check

Preliminary checking for feature discovery will be performed prior to the test execution. For the details of the preliminary feature discovery, refer to [ONVIF Feature Discovery].

According to the result of test case execution, final determination of [ONVIF Profile C] support toward DUT is performed based on the following procedure.

**Procedure:**

1. Check that scope list contains the scope given in Table 5.1. If there is no such scope in the scope list of the DUT, then it is determined that [ONVIF Profile C] is not supported.

2. Check Capabilities feature.

   a. Check that GetServices command is supported by the DUT. If **Device Service/Capabilities/GetServices** is not supported by the DUT, then it is determined that [ONVIF Profile C] is not supported by DUT and certification will be failed. Otherwise, it is determined that Capabilities category is supported with the following features included:

      - GetServices (Device Management Service)
3. Check Discovery feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

- WS-Discovery
- GetDiscoveryMode (Device Management Service)
- SetDiscoveryMode (Device Management Service)
- GetScopes (Device Management Service)
- SetScopes (Device Management Service)
- AddScopes (Device Management Service)
- RemoveScopes (Device Management Service)

4. Check Discovery Types support. If Discovery/Types/tds:Device is not supported by the DUT, then it is determined that [ONVIF Profile C] is not supported by DUT and certification will be failed.

5. Check Network Configuration feature category of ONVIF profile support. This is mandatory a feature for any of ONVIF device implementation. The following features are defined as supported:

- GetHostname (Device Management Service)
- SetHostname (Device Management Service)
- GetDNS (Device Management Service)
- SetDNS (Device Management Service)
- GetNetworkInterfaces (Device Management Service)
- SetNetworkInterfaces (Device Management Service)
- GetNetworkProtocols (Device Management Service)
- SetNetworkProtocols (Device Management Service)
- GetNetworkDefaultGateway (Device Management Service)
6. Check System feature category of ONVIF profile support. This feature is mandatory for any of ONVIF device implementation. The following features are defined as supported:

- GetDeviceInformation (Device Management Service)
- GetSystemDateAndTime (Device Management Service)
- SetSystemDateAndTime (Device Management Service)
- SetSystemFactoryDefault (Device Management Service)
- Reboot (Device Management Service)

7. Check User Handling feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

- GetUsers (Device Management Service)
- CreateUsers (Device Management Service)
- DeleteUsers (Device Management Service)
- SetUser (Device Management Service)

8. Check Event Handling feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

- Notify (Event Service)
- Subscribe (Event Service)
- Renew (Event Service)
- Unsubscribe (Event Service)
- SetSynchronizationPoint (Event Service)
- CreatePullPointSubscription (Event Service)
- PullMessage (Event Service)
- GetEventProperties (Event Service)
- TopicFilter (Event Service)
9. Check that at least two PullPoint subscriptions are supported by the DUT. If Event Service/Event/MaxPullPoint is not supported by the DUT or it has value less than 2, then it is determined that [ONVIF Profile C] is not supported by DUT and certification will be failed. Otherwise, it is determined that Event Handling feature category is supported with the following feature included:

- At least two PullPoint subscriptions


a. Check that HTTP Digest Authentication is supported by the DUT. If Security/Digest is regarded as unsupported by DUT, then it is determined that [ONVIF Profile C] is not supported by DUT and certification will be failed. Otherwise, it is determined that HTTP Digest Authentication feature is supported by DUT.

11. Check Persistent notification storage feature category of ONVIF profile support. If Event Service/Persistent notification storage is regarded as supported by DUT, then it is determined that Store events feature category with Seek (Event Service) feature is supported by DUT.

12. Check Access Control Service related features.

a. Check that Access Control Service is supported by DUT. If Access Control Service is regarded as unsupported by DUT, then it is determined that [ONVIF Profile C] is not supported by DUT and certification will be failed. Otherwise, it is determined that Access Control related features are supported by DUT. Those features are:

   i. Capabilities feature category

      • GetServiceCapabilities (Access Control Service)

   ii. System component information – Access points feature category

      • GetAccessPointInfoList (Access Control Service)
      • GetAccessPointInfo (Access Control Service)

   iii. System component information – Areas feature category

      • GetAreaInfoList (Access Control Service)
      • GetAreaInfo (Access Control Service)

   iv. Access point state feature category

      • GetAccessPointState (Access Control Service)
• tns1:AccessPoint/State/Enabled

v. Access control decisions

• tns1:AccessControl/AccessGranted/Credential

• tns1:AccessControl/Denied/Credential

b. Check that Access point control feature category is supported by the DUT. If Access Control Service\Access Point Entity\Enable/Disable Access Point is regarded as supported by DUT, then it is determined that EnableAccessPoint (Access Control Service) and DisableAccessPoint (Access Control Service) features are supported by the DUT.

c. Check that tns1:AccessControl/AccessGranted/Anonymous feature is supported by the DUT. If Access Control Service\Access Point Entity\Anonymous Access is regarded as supported by DUT, then it is determined that tns1:AccessControl/AccessGranted/Anonymous features are supported by the DUT.

d. Check that tns1:AccessControl/Denied/Anonymous feature is supported by the DUT. If Access Control Service\Access Point Entity\Anonymous Access and Access Control Service\Access Point Entity\External Authorization is regarded as supported by DUT, then it is determined that tns1:AccessControl/Denied/Anonymous feature is supported by the DUT.

e. Check that tns1:AccessControl/AccessTaken/Credential and tns1:AccessControl/AccessNotTaken/Credential features are supported by the DUT. If Access Control Service\Access Point Entity\Access Taken is regarded as supported by DUT, then it is determined that tns1:AccessControl/AccessTaken/Credential and tns1:AccessControl/AccessNotTaken/Credential features are supported by the DUT.

f. Check that tns1:AccessControl/AccessTaken/Anonymous and tns1:AccessControl/AccessNotTaken/Anonymous features are supported by the DUT. If Access Control Service\Access Point Entity\Access Taken and Access Control Service\Access Point Entity\Anonymous Access are regarded as supported by DUT, then it is determined that tns1:AccessControl/AccessTaken/Anonymous and tns1:AccessControl/AccessNotTaken/Anonymous features are supported by the DUT.

g. Check that tns1:AccessControl/Denied/CredentialNotFound/ Card feature are supported by the DUT. If Access Control Service\Access Control Events \AccessControl/Denied/CredentialNotFound/ Card is regarded as supported by DUT, then it is determined that tns1:AccessControl/Denied/CredentialNotFound/ Card feature is supported by the DUT.
h. Check that External authorization feature category is supported by the DUT. If \texttt{AccessControl\External Authorization} is regarded as supported by DUT, then it is determined that External authorization feature category is supported by DUT. Those features are:

- \texttt{ExternalAuthorization (Access Control)}
- \texttt{tns1:AccessControl/Request/Credential}
- \texttt{tns1:AccessControl/Request/Timeout}

i. Check that \texttt{tns1:AccessControl/Request/Anonymous} of External authorization feature category is supported by the DUT. If \texttt{AccessControl\External Authorization} and \texttt{Access Control Service\Access Point Entity\Anonymous Access} is regarded as supported by DUT, then it is determined that \texttt{tns1:AccessControl/Request/Anonymous} feature is supported by the DUT.

j. Check that \texttt{tns1:Configuration/AccessPoint/Changed} feature are supported by the DUT. If \texttt{Access Control Service\Access Control Events\Configuration\AccessPoint/Changed} is regarded as supported by DUT, then it is determined that \texttt{tns1:Configuration/AccessPoint/Changed} feature is supported by the DUT.

k. Check that \texttt{tns1:Configuration/AccessPoint/Removed} feature are supported by the DUT. If \texttt{Access Control Service\Access Control Events\Configuration\AccessPoint/Removed} is regarded as supported by DUT, then it is determined that \texttt{tns1:Configuration/AccessPoint/Removed} feature is supported by the DUT.

l. Check that \texttt{tns1:Configuration/Area/Changed} feature are supported by the DUT. If \texttt{Access Control Service\Access Control Events\Configuration\Area/Changed} is regarded as supported by DUT, then it is determined that \texttt{tns1:Configuration/Area/Changed} feature is supported by the DUT.

m. Check that \texttt{tns1:Configuration/Area/Removed} feature are supported by the DUT. If \texttt{Access Control Service\Access Control Events\Configuration\Area/Removed} is regarded as supported by DUT, then it is determined that \texttt{tns1:Configuration/Area/Removed} feature is supported by the DUT.

n. Check that Duress feature category is supported by the DUT. If \texttt{Access Control Service\Access Point Entity\Duress} is regarded as supported by DUT, then it is determined that \texttt{tns1:AccessControl/Duress} feature is supported by the DUT.

13. Check Door Control Service related features.
a. Check that Door Control Service is supported by DUT. If **Door Control Service** is regarded as unsupported by DUT, then it is determined that [ONVIF Profile C] is not supported by DUT and certification will be failed. Otherwise, it is determined that Door Control related features are supported by DUT. Those features are:

i. Capabilities feature category
   - GetServiceCapabilities (Door Control Service)

ii. System component information – Doors feature category
   - GetDoorInfoList (Door Control Service)
   - GetDoorInfo (Door Control Service)

iii. Door state feature category
   - GetDoorState (Door Control Service)
   - tns1:Door/State/DoorMode

b. Check that AccessDoor (Door Control Service) feature is supported by the DUT. If **Door Control Service\Door Entity\Access Door** is regarded as unsupported by DUT, then it is determined that [ONVIF Profile C] is not supported by DUT and certification will be failed. Otherwise, it is determined that AccessDoor (Door Control Service) feature is supported by the DUT.

c. Check that LockDoor (Door Control Service) feature is supported by the DUT. If **Door Control Service\Door Entity\Lock Door** is regarded as unsupported by DUT, then it is determined that [ONVIF Profile C] is not supported by DUT and certification will be failed. Otherwise, it is determined that LockDoor (Door Control Service) feature is supported by the DUT.

d. Check that UnlockDoor (Door Control Service) feature is supported by the DUT. If **Door Control Service\Door Entity\Unlock Door** is regarded as unsupported by DUT, then it is determined that [ONVIF Profile C] is not supported by DUT and certification will be failed. Otherwise, it is determined that UnlockDoor (Door Control Service) feature is supported by the DUT.

e. Check that DoubleLockDoor (Door Control Service) feature is supported by the DUT. If **Door Control Service\Door Entity\Double Lock Door** is regarded as supported by DUT, then it is determined that DoubleLockDoor (Door Control Service) feature is supported by the DUT.
f. Check that BlockDoor (Door Control Service) feature is supported by the DUT. If Door Control Service\Door Entity\Block Door is regarded as supported by DUT, then it is determined that BlockDoor (Door Control Service) feature is supported by the DUT.

g. Check that LockDownDoor (Door Control Service) and LockDownReleaseDoor (Door Control Service) features are supported by the DUT. If Door Control Service\Door Entity\Lock Down Door is regarded as supported by DUT, then it is determined that LockDownDoor (Door Control Service) and LockDownReleaseDoor (Door Control Service) features are supported by the DUT.

h. Check that LockOpenDoor (Door Control Service) and LockOpenReleaseDoor (Door Control Service) features are supported by the DUT. If Door Control Service\Door Entity\Lock Open Door is regarded as supported by DUT, then it is determined that LockOpenDoor (Door Control Service) and LockOpenReleaseDoor (Door Control Service) features are supported by the DUT.

i. Check that tns1:Door/State/DoorPhysicalState feature are supported by the DUT. If Door Control Service\Door Entity\Door Monitor is regarded as supported by DUT, then it is determined that tns1:Door/State/DoorPhysicalState feature is supported by the DUT.

j. Check that tns1:Door/State/LockPhysicalState feature are supported by the DUT. If Door Control Service\Door Entity\Lock Monitor is regarded as supported by DUT, then it is determined that tns1:Door/State/LockPhysicalState feature is supported by the DUT.

k. Check that tns1:Door/State/DoubleLockPhysicalState feature are supported by the DUT. If Door Control Service\Door Entity\Double Lock Monitor is regarded as supported by DUT, then it is determined that tns1:Door/State/DoubleLockPhysicalState feature is supported by the DUT.

l. Check that tns1:Door/State/DoorAlarm feature are supported by the DUT. If Door Control Service\Door Entity\Alarm is regarded as supported by DUT, then it is determined that tns1:Door/State/DoorAlarm feature is supported by the DUT.

m. Check that tns1:Door/State/DoorTamper feature are supported by the DUT. If Door Control Service\Door Entity\Tamper is regarded as supported by DUT, then it is determined that tns1:Door/State/DoorTamper feature is supported by the DUT.

n. Check that tns1:Door/State/DoorFault feature are supported by the DUT. If Door Control Service\Door Entity\Fault is regarded as supported by DUT, then it is determined that tns1:Door/State/DoorFault feature is supported by the DUT.
o. Check that tns1:Configuration/Door/Changed feature are supported by the DUT. If `Access Control Service\Access Control Events\Configuration/Door/Changed` is regarded as supported by DUT, then it is determined that tns1:Configuration/Door/Changed feature is supported by the DUT.

p. Check that tns1:Configuration/Door/Removed feature are supported by the DUT. If `Access Control Service\Access Control Events\Configuration/Door/Removed` is regarded as supported by DUT, then it is determined that tns1:Configuration/Door/Removed feature is supported by the DUT.
6 Profile Q Conformance

6.1 Feature category classification for ONVIF Profile Q

In order for ONVIF Device Test Tool to conduct conformance testing toward [ONVIF Profile Q], it would need to identify whether DUT implements the expected feature set.

This section classifies supported features as multiple categories that are related to [ONVIF Profile Q] conformance. Those category classifications will be used to do some preliminary checking prior to the test case execution and also they will be used to determine whether DUT can be considered to be [ONVIF Profile Q] conformant device.

The following discovery scope is defined as the scope that signals that DUT is [ONVIF Profile Q] product.

**Table 6.1. Profile Q Discovery Scope**

<table>
<thead>
<tr>
<th>Discovery Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>onvif://www.onvif.org/Profile/Q/FactoryDefault</td>
</tr>
<tr>
<td>onvif://www.onvif.org/Profile/Q/Operational</td>
</tr>
</tbody>
</table>

The following table shows the classified feature categories based on commands and/or functional blocks that are referenced by DUT.

**Table 6.2. Profile Q Features Categories**

<table>
<thead>
<tr>
<th>Profile Mandatory Features</th>
<th>GetServices (Device)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capabilities</td>
<td>GetServiceCapabilities (Device)</td>
</tr>
<tr>
<td></td>
<td>GetServiceCapabilities (Event)</td>
</tr>
<tr>
<td></td>
<td>MaxUsernameLength capability is supported</td>
</tr>
<tr>
<td></td>
<td>MaxPasswordLength capability is supported</td>
</tr>
<tr>
<td>Network Configuration</td>
<td>GetHostname (Device)</td>
</tr>
<tr>
<td></td>
<td>SetHostname (Device)</td>
</tr>
<tr>
<td></td>
<td>GetDNS (Device)</td>
</tr>
<tr>
<td></td>
<td>SetDNS (Device)</td>
</tr>
<tr>
<td></td>
<td>GetNetworkInterfaces (Device)</td>
</tr>
<tr>
<td></td>
<td>SetNetworkInterfaces (Device)</td>
</tr>
<tr>
<td></td>
<td>GetNetworkProtocols (Device)</td>
</tr>
<tr>
<td></td>
<td>SetNetworkProtocols (Device)</td>
</tr>
<tr>
<td>Function</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>GetNetworkDefaultGateway</td>
<td>Retrieve default gateway configuration</td>
</tr>
<tr>
<td>SetNetworkDefaultGateway</td>
<td>Set default gateway configuration</td>
</tr>
<tr>
<td>GetZeroConfiguration</td>
<td>Retrieve zero configuration</td>
</tr>
<tr>
<td>SetZeroConfiguration</td>
<td>Set zero configuration</td>
</tr>
<tr>
<td>GetDeviceInformation</td>
<td>Retrieve device information</td>
</tr>
<tr>
<td>GetSystemDateAndTime</td>
<td>Retrieve system date and time</td>
</tr>
<tr>
<td>SetSystemDateAndTime</td>
<td>Set system date and time</td>
</tr>
<tr>
<td>GetNTP</td>
<td>Retrieve NTP configuration</td>
</tr>
<tr>
<td>SetNTP</td>
<td>Set NTP</td>
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<tr>
<td>GetSystemFactoryDefault</td>
<td>Retrieve factory default</td>
</tr>
<tr>
<td>SetSystemFactoryDefault</td>
<td>Set factory default</td>
</tr>
<tr>
<td>Reboot</td>
<td>Reboot the device</td>
</tr>
<tr>
<td>MaxUsers capability is supported</td>
<td>Maximum number of users supported</td>
</tr>
<tr>
<td>GetUsers</td>
<td>Retrieve user information</td>
</tr>
<tr>
<td>CreateUsers</td>
<td>Create a new user</td>
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<tr>
<td>DeleteUsers</td>
<td>Delete an existing user</td>
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<tr>
<td>SetUser</td>
<td>Set user information</td>
</tr>
<tr>
<td>tns1:Monitoring/ProcessorUsage</td>
<td>Monitoring processor usage</td>
</tr>
<tr>
<td>tns1:Monitoring/OperatingTime/LastReset</td>
<td>Operating time last reset</td>
</tr>
<tr>
<td>tns1:Monitoring/OperatingTime/LastReboot</td>
<td>Operating time last reboot</td>
</tr>
<tr>
<td>tns1:Monitoring/OperatingTime/LastClockSynchronization</td>
<td>Operating time last clock synchronization</td>
</tr>
<tr>
<td>MaxPullPoint capability is supported and value is not less than 2</td>
<td>Maximum pull point supported and value is not less than 2</td>
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<tr>
<td>SetSynchronizationPoint</td>
<td>Set synchronization point</td>
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<tr>
<td>CreatePullPointSubscription</td>
<td>Create pull point subscription</td>
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<td>Pull messages</td>
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<td>GetEventProperties</td>
<td>Retrieve event properties</td>
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<td>Renew</td>
<td>Renew event</td>
</tr>
<tr>
<td>Unsubscribe</td>
<td>Unsubscribe event</td>
</tr>
<tr>
<td>TopicFilter</td>
<td>Topic filter</td>
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<tr>
<td>GetRemoteUser</td>
<td>Retrieve remote user</td>
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<td>SetRemoteUser</td>
<td>Set remote user</td>
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<tr>
<td>Section</td>
<td>Function</td>
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<td>-------------------------------</td>
<td>---------------------------------------------------------------</td>
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<tr>
<td><strong>Firmware Upgrade</strong></td>
<td>StartFirmwareUpgrade (Device)</td>
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<tr>
<td><strong>Backup and Restore</strong></td>
<td>GetSystemUris (Device)</td>
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<td></td>
<td>StartSystemRestore (Device)</td>
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<td><strong>TLS Configuration - Keystore</strong></td>
<td>CreateCertificationPath (Security Configuration)</td>
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<td>CreatePKCS10CSR (Security Configuration)</td>
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<td>CreateRSAKeyPair (Security Configuration)</td>
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<td>CreateSelfSignedCertificate (Security Configuration)</td>
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<td>DeleteCertificate (Security Configuration)</td>
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<tr>
<td></td>
<td>DeleteCertificationPath (Security Configuration)</td>
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<td>DeleteKey (Security Configuration)</td>
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<td></td>
<td>GetAllCertificates (Security Configuration)</td>
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<td>GetAllCertificationPaths (Security Configuration)</td>
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<td>GetAllKeys (Security Configuration)</td>
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<td>GetAllPassphrases (Security Configuration)</td>
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<td></td>
<td>GetCertificate (Security Configuration)</td>
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<td>GetCertificationPath (Security Configuration)</td>
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<td><strong>TLS Configuration - TLS Server</strong></td>
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<td></td>
<td>ReplaceServerCertificateAssignment (Security Configuration)</td>
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<td><strong>Media Service</strong></td>
<td>GetProfiles (Media)</td>
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<td></td>
<td>GetStreamUri (Media)</td>
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<td>Service/State</td>
<td>Value</td>
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<td>------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
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<td>GetServiceCapabilities (Media)</td>
<td>Media Streaming using RTSP</td>
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<td>Standard Events for Device Management</td>
<td>tns1:Device/HardwareFailure/FanFailure</td>
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<tr>
<td></td>
<td>tns1:Device/HardwareFailure/PowerSupplyFailure</td>
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<td></td>
<td>tns1:Device/HardwareFailure/StorageFailure</td>
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<tr>
<td></td>
<td>tns1:Device/HardwareFailure/TemperatureCritical</td>
</tr>
<tr>
<td></td>
<td>tns1:Monitoring/Backup/Last</td>
</tr>
<tr>
<td><strong>Factory Default State</strong></td>
<td>**Factory Default State is signaled by the scope value</td>
</tr>
<tr>
<td></td>
<td>onvif://www.onvif.org/Profile/Q/FactoryDefault</td>
</tr>
<tr>
<td></td>
<td>Anonymous access in Factory Default State</td>
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<td></td>
<td>User configuration in Factory Default State</td>
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<td>Device Discovery</td>
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<td>GetScopes (Device)</td>
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<td>ZeroConfiguration Network Configuration</td>
<td>Dynamic IP configuration enabled in Factory Default State</td>
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<td>Automatic IP Assignment</td>
<td>IPv4 DHCP enabled in Factory Default State</td>
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<td></td>
<td>IP v6 stateless autoconfiguration enabled in Factory Default State</td>
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<tr>
<td><strong>Operational State</strong></td>
<td>Operational State is signaled by the scope value</td>
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<tr>
<td></td>
<td>onvif://www.onvif.org/Profile/Q/Operational</td>
</tr>
<tr>
<td>Authentication</td>
<td>HTTP digest authentication</td>
</tr>
<tr>
<td>Default Access Policy</td>
<td>Default Access Policy</td>
</tr>
</tbody>
</table>

### 6.2 Profile Q support check

Preliminary checking for feature discovery will be performed prior to the test execution. For the details of the preliminary feature discovery, refer to [ONVIF Feature Discovery].

According to the result of test case execution, final determination of [ONVIF Profile Q] support toward DUT is performed based on the following procedure.

**Procedure:**

---

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1. Check that scope list contains at least one scope given in Table 6.1. If there is no such scope on the scope list of the DUT, then it is determined that [ONVIF Profile Q] is not supported.

2. Check Discovery Types support. If Discovery/Types/tds:Device is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed.

3. Check Capabilities feature category of ONVIF profile support:
   a. Check that GetServices command is supported by the DUT. If Device Service/Capabilities/GetServices is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that Capabilities category is supported with the following features included:
      • GetServices (Device Management Service)
      • GetServiceCapabilities (Device Management Service)
      • GetServiceCapabilities (Event Service)
   b. Check that MaxUsernameLength capability is supported by the DUT. If Device Service/Security/MaxUsernameLength capability is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that Capabilities category is supported with the following features included:
      • MaxUsernameLength capability is supported
   c. Check that MaxPasswordLength capability is supported by the DUT. If Device Service/Security/MaxPasswordLength capability is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that Capabilities category is supported with the following features included:
      • MaxPasswordLength capability is supported

4. Check Network feature category of ONVIF profile support:
   a. The following features are a mandatory features for any of ONVIF device implementation and are defined as supported:
      • GetHostname (Device Management Service)
      • SetHostname (Device Management Service)
- GetDNS (Device Management Service)
- SetDNS (Device Management Service)
- GetNetworkInterfaces (Device Management Service)
- SetNetworkInterfaces (Device Management Service)
- GetNetworkProtocols (Device Management Service)
- SetNetworkProtocols (Device Management Service)
- GetNetworkDefaultGateway (Device Management Service)
- SetNetworkDefaultGateway (Device Management Service)

b. Check that ZeroConfiguration capability is supported by the DUT. If Device Service/Network/Zero Configuration is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that Network feature category is supported with the following features included:

- GetZeroConfiguration (Device)
- SetZeroConfiguration (Device)

5. Check System feature category of ONVIF profile support:

a. This feature is mandatory for any of ONVIF device implementation. The following features are defined as supported:

- GetDeviceInformation (Device Management Service)
- GetSystemDateAndTime (Device Management Service)
- SetSystemDateAndTime (Device Management Service)
- SetSystemFactoryDefault (Device Management Service)
- Reboot (Device Management Service)

b. Check that NTP capability is supported by the DUT. If Device Management/Network/NTP is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that System category is supported with the following features included:
6. Check User Handling feature category of ONVIF profile support:

a. The following features are mandatory for any ONVIF device implementation and are defined as supported:

- GetUsers (Device Management Service)
- CreateUsers (Device Management Service)
- DeleteUsers (Device Management Service)
- SetUser (Device Management Service)

b. Check that MaxUsers capability is supported by the DUT. If `Device Service/Security/Maximum Users` is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that User Handling category is supported with the following features included:

- MaxUsers capability is supported

7. Check Standard Events for Monitoring feature category of ONVIF profile support:

a. Check that `tns1:Monitoring/ProcessorUsage` feature is supported by the DUT. If `Monitoring events/ProcessorUsage` is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that `tns1:Monitoring/ProcessorUsage` feature is supported by the DUT.

b. Check that `tns1:Monitoring/OperatingTime/LastReset` feature is supported by the DUT. If `Monitoring events/OperatingTime/LastReset` is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that `tns1:Monitoring/OperatingTime/LastReset` feature is supported by the DUT.

c. Check that `tns1:Monitoring/OperatingTime/LastReboot` feature is supported by the DUT. If `Monitoring events/OperatingTime/LastReboot` is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that `tns1:Monitoring/OperatingTime/LastReboot` feature is supported by the DUT.
d. Check that tns1:Monitoring/OperatingTime/LastClockSynchronization feature is supported by the DUT. If Monitoring events\Monitoring/OperatingTime/LastClockSynchronization is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that tns1:Monitoring/OperatingTime/LastClockSynchronization feature is supported by the DUT.

8. Check Event Handling feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

   - Notify (Event Service)
   - Subscribe (Event Service)
   - Renew (Event Service)
   - Unsubscribe (Event Service)
   - SetSynchronizationPoint (Event Service)
   - CreatePullPointSubscription (Event Service)
   - PullMessage (Event Service)
   - GetEventProperties (Event Service)
   - TopicFilter (Event Service)

9. Check Remote User Management feature category of ONVIF profile support. If Device Service\Security\Remote User Handling is regarded as supported by DUT, then it is determined that Remote User Management feature category with the following features is supported by DUT:

   - GetRemoteUser (Device)
   - SetRemoteUser (Device)

10. Check Firmware Upgrade feature category of ONVIF profile support. If Device Service\System\HTTP Firmware Upgrade is regarded as supported by DUT, then it is determined that Firmware Upgrade feature category with the following features is supported by DUT:

   - StartFirmwareUpgrade (Device)

11. Check Backup and Restore feature category of ONVIF profile support. If Device Service\System\HTTP System Backup is regarded as supported by DUT, then it is determined that Backup and Restore feature category with the following features is supported by DUT:
• GetSystemUris (Device)

• StartSystemRestore (Device)

12. If Security Configuration Service is regarded as supported:

a. Check TLS Configuration - Keystore feature category of ONVIF profile support:

   i. If Security Configuration Service\Keystore features support\RSA Key Pair Generation is not supported by the DUT and Security Configuration Service\Keystore features support\PKCS#12 Container Upload is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by the DUT and certification will be failed. Otherwise, it is determined that feature is supported by the DUT:

   1. If Security Configuration Service\Keystore features support\RSA Key Pair Generation is regarded as supported by the DUT:

      • CreateRSAKeyPair (Security Configuration)
      • GetKeyStatus (Security Configuration)
      • GetAllKeys (Security Configuration)
      • DeleteKey (Security Configuration)

   2. If Security Configuration Service\Keystore features support\PKCS#12 Container Upload is regarded as supported by the DUT:

      • DeleteCertificate (Security Configuration)
      • DeleteCertificationPath (Security Configuration)
      • DeleteKey (Security Configuration)
      • DeletePassphrase (Security Configuration)
      • GetAllCertificates (Security Configuration)
      • GetAllCertificationPaths (Security Configuration)
      • GetAllKeys (Security Configuration)
      • GetAllPassphrases (Security Configuration)
      • GetCertificate (Security Configuration)
ii. If **Security Configuration Service\Keystore features support\RSA Key Pair Generation** is supported by the DUT:

1. If **Security Configuration Service\Keystore features support\Self-Signed Certificate Creation With RSA** is not supported by the DUT or **Security Configuration Service\Keystore features support\PKCS10 External Certification With RSA** is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that feature is supported by the DUT:

   • CreatePKCS10CSR (Security Configuration)
   • CreateSelfSignedCertificate (Security Configuration)
   • DeleteCertificate (Security Configuration)
   • GetAllCertificates (Security Configuration)
   • GetCertificate (Security Configuration)
   • UploadCertificate (Security Configuration)

iii. If **Security Configuration Service\Keystore features support\PKCS#8 Container Upload** is regarded as supported by the DUT, then it is determined that the following feature is supported by the DUT:

   • UploadKeyPairInPKCS8 (Security Configuration)

iv. If DUT returns MaximumNumberOfKeys less than 16, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed.

v. If DUT returns MaximumNumberOfCertificates less than 16, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed.

b. Check TLS Configuration - TLS server feature category of ONVIF profile support:
i. If **Security Configuration Service\TLS features support\TLS Server Support** is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that feature is supported by the DUT:

- CreateCertificationPath (Security Configuration)
- GetCertificationPath (Security Configuration)
- GetAllCertificationPaths (Security Configuration)
- DeleteCertificationPath (Security Configuration)
- AddTLSServerCertificateAssignment (Security Configuration)
- RemoveTLSServerCertificateAssignment (Security Configuration)
- ReplaceTLSServerCertificateAssignment (Security Configuration)
- GetAssignedServerCertificates (Security Configuration)

13. Check Media Service feature category of ONVIF profile support:

a. If **Media Service** is regarded as supported by DUT, then it is determined that the following features is supported by DUT:

- GetProfiles (Media)

b. If **Media Service** is regarded as supported by DUT and **Device Service/Capabilities/GetServices** is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following features is supported by DUT:

- GetServiceCapabilities (Media)

c. If **Media Service** is regarded as supported by DUT and **Media Service/Real-time Streaming** is not supported by the DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following features is supported by DUT:

- GetStreamUri (Media)
- Media Streaming using RTSP

14. Check Standard events for Device Management feature category of ONVIF profile support:
a. Check that tns1:Device/HardwareFailure/FanFailure feature is supported by the DUT. If Monitoring events\Device/HardwareFailure/FanFailure is regarded as supported by DUT, then it is determined that tns1:Device/HardwareFailure/FanFailure feature is supported by the DUT.

b. Check that tns1:Device/HardwareFailure/PowerSupplyFailure feature is supported by the DUT. If Monitoring events\Device/HardwareFailure/PowerSupplyFailure is regarded as supported by DUT, then it is determined that tns1:Device/HardwareFailure/PowerSupplyFailure feature is supported by the DUT.

c. Check that tns1:Device/HardwareFailure/StorageFailure feature is supported by the DUT. If Monitoring events\Device/HardwareFailure/StorageFailure is regarded as supported by DUT, then it is determined that tns1:Device/HardwareFailure/StorageFailure feature is supported by the DUT.

d. Check that tns1:Device/HardwareFailure/TemperatureCritical feature is supported by the DUT. If Monitoring events\Device/HardwareFailure/TemperatureCritical is regarded as supported by DUT, then it is determined that tns1:Device/HardwareFailure/TemperatureCritical feature is supported by the DUT.

e. Check that tns1:Monitoring/Backup/Last feature is supported by the DUT. If Monitoring events\Monitoring/Backup/Last is regarded as supported by DUT, then it is determined that tns1:Monitoring/Backup/Last feature is supported by the DUT.

15. Check Device Discovery feature category of ONVIF profile support:

a. The following features are a mandatory features for any of ONVIF device implementation and are defined as supported:

   • WS-Discovery
   • GetScopes (Device)

16. If Profile Q is regarded as supported by DUT the following feature categories and related features will be regarded as supported:

a. Factory Default State feature category:

   i. Factory Default State is signalled by the scope value onvif://www.onvif.org/Profile/Q/FactoryDefault

   ii. Anonymous access in Factory Default State

   iii. User configuration in Factory Default State
b. ZeroConfiguration Network Configuration feature category:
   i. Dynamic IP configuration enabled in Factory Default State

c. Automatic IP Assignment feature category:
   i. IPv4 DHCP enabled in Factory Default State

d. Operational State feature category:
   i. Operational State is signaled by the scope value onvif://www.onvif.org/Profile/Q/Operational

17. If Profile Q is regarded as supported by DUT and Device Service\Network\IPv6 is regarded as supported by DUT the following related features will be regarded as supported:
   a. IPv6 stateless autoconfiguration enabled in Factory Default State

   a. Check that Default Access Policy is supported by the DUT. If Device Service\Security\Default Access Policy is regarded as unsupported by DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that Default Access Policy feature is supported by DUT.

19. Check Authentication feature category.
   a. Check that HTTP Digest Authentication is supported by the DUT. If Security\Digest is regarded as unsupported by DUT, then it is determined that [ONVIF Profile Q] is not supported by DUT and certification will be failed. Otherwise, it is determined that HTTP Digest Authentication feature is supported by DUT.

6.3 Profile Q testing preparation

If a DUT has Profile Q scope, the test tool prepares a DUT to Quick Install test cases during conformance procedure following the procedure of Profile Q testing preparation test case:

Procedure:

1. ONVIF Client invokes SetSystemFactoryDefault with parameters
   - FactoryDefault := Hard

2. The DUT responds with a SetSystemFactoryDefaultResponse message.

3. Until timeout1 timeout expires repeat the following steps:
a. The DUT will send Multicast Hello message after it is successfully rebooted with parameters:
   • EndpointReference.Address equal to unique endpoint reference of the DUT
   • Types list
   • Scopes list := scopesList
   • XAddrs list := xaddrsList
   • MetadataVersion

b. If xaddrsList contains URI address with not a LinkLocal IPv4 address from ONVIF Client subnet, go to step 6.

4. If timeout1 timeout expires for step 3 without Hello with URI address with not a LinkLocal IPv4 address from ONVIF Client subnet, FAIL the test and skip other steps.

5. ONVIF client waits for 5 seconds after Hello was received.

6. ONVIF Client invokes SetNTP without any authentication with parameters
   • FromDHCP := true
   • NTPManual skipped

7. The DUT responds with a SetNTPResponse message.

8. ONVIF client invokes GetSystemDateAndTime without any authentication.

9. The DUT responds with GetSystemDateAndTimeResponse message with parameters
   • SystemDateAndTime := dateAndTimeSettings

10. ONVIF Client invokes SetSystemDateAndTime without any authentication with parameters
    • DateTimeType := NTP
    • DaylightSavings := dateAndTimeSettings.DaylightSavings
    • TimeZone := dateAndTimeSettings.TimeZone
    • UTCDateTime skipped

11. The DUT responds with a SetSystemDateAndTime message.

12. ONVIF Client invokes GetServiceCapabilities.
13. The DUT responds with a **GetServiceCapabilitiesResponse** message with parameters

   • Capabilities =: cap


15. ONVIF Client invokes **GetUsers** without any authentication.

16. The DUT responds with a **GetUsersResponse** message with parameters.

   • User list =: userList

17. If userList contains user with user level Administrator:

   a. Set the following:

      • passwordLength := cap.Security.MaxPasswordLength
      • userLogin := Username of user with user level equal to Administrator from userList
      • password := random string, contains passwordLength ASCII characters

   b. ONVIF Client invokes **SetUser** with parameters

      • User[0].Username := userLogin
      • User[0].Password := password
      • User[0].UserLevel := Administrator
      • Extension skipped

   c. If the DUT responds with **SetUserResponse** message, skip other steps.

   d. If the DUT returns **env:Sender:OperationProhibited:Password** SOAP 1.2 fault:

      d.a. Set the following:

         • password := random string, contains passwordLength ASCII characters

      d.b. Go to the step b.

   e. If the DUT returns other SOAP 1.2 fault, FAIL the test and skip other steps.

18. If userList does not contain user with user level Administrator:

   a. Set the following:
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- `userLoginLength` := `cap.Security.MaxUserNameLength`
- `userLogin` := random string, contains `userLoginLength` low case alphabet characters, differs from usernames listed in userList
- `password` := random string, contains `passwordLength` ASCII characters

b. ONVIF Client invokes `CreateUsers` with parameters

- User[0].Username := `userLogin`
- User[0].Password := `password`
- User[0].UserLevel := Administrator
- Extension skipped

c. If the DUT responds with `CreateUsersResponse` message, skip other steps.

d. If the DUT returns `env:Sender|ter:OperationProhibited|ter:Password` SOAP 1.2 fault:

  d.a. Set the following:

      - `password` := random string, contains `passwordLength` ASCII characters

  d.b. Go to the step b.

  d.c. If the DUT returns other SOAP 1.2 fault, FAIL the test.

Test Result:

PASS –

- DUT passes all assertions.

FAIL –

- The DUT did not send `SetSystemFactoryDefaultResponse` message.
- The DUT did not send `GetServiceCapabilitiesResponse` message.
- The DUT did not send `GetUsersResponse` message.
- The DUT did not send `SetUsersResponse` message.
- The DUT did not send `CreateUsersResponse` message.
• The DUT did not send **SetNTPResponse** message.

• The DUT did not send **GetSystemDateAndTimeResponse** message.

• The DUT did not send **SetSystemDateAndTimeResponse** message.

**Note:** User with username *userLogin* and password *password* shall be used for further test cases.

**Note:** *timeout1* will be taken from Reboot Timeout field of ONVIF Device Test Tool.

**Note:** IPv4 address from Hello shall be used for further test cases.

**Note:** Onvif Client uses password values from Management tab for CreateUsers and StUser operations if 'Provide own passwords' is active on Management tab.
7 Profile A Conformance

7.1 Feature category classification for ONVIF Profile A

In order for ONVIF Device Test Tool to conduct conformance testing toward [ONVIF Profile A], it would need to identify whether DUT implements the expected feature set.

This section classifies supported features as multiple categories that are related to [ONVIF Profile A] conformance. Those category classifications will be used to do some preliminary checking prior to the test case execution and they will be used to determine whether DUT can be considered [ONVIF Profile A] conformant device.

The following discovery scope is defined as the scope that signals that DUT is [ONVIF Profile A] product.

Table 7.1. Profile A Discovery Scope

<table>
<thead>
<tr>
<th>Discovery Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>onvif://www.onvif.org/Profile/A</td>
</tr>
</tbody>
</table>

The following table shows the classified feature categories based on commands and/or functional blocks that are referenced by DUT.

Table 7.2. Profile A Features Categories

<table>
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<tr>
<th>Profile Mandatory Features</th>
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<td>Security</td>
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<tr>
<td>Capabilities</td>
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<tr>
<td>HTTP Digest Authentication</td>
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<tr>
<td>GetServices (Device)</td>
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<tr>
<td>GetServiceCapabilities (Device)</td>
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<tr>
<td>GetServiceCapabilities (Event)</td>
</tr>
<tr>
<td>GetServiceCapabilities (Access Rules)</td>
</tr>
<tr>
<td>GetServiceCapabilities (Credential)</td>
</tr>
<tr>
<td>GetServiceCapabilities (Schedule)</td>
</tr>
<tr>
<td>GetWsdlUrl (Device)</td>
</tr>
<tr>
<td>MaxPullPoint capability is supported and value is not less than 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Access Profiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>GetAccessProfiles (Access Rules)</td>
</tr>
<tr>
<td>GetAccessProfileList (Access Rules)</td>
</tr>
<tr>
<td>GetAccessProfileInfo (Access Rules)</td>
</tr>
<tr>
<td>GetAccessProfileInfoList (Access Rules)</td>
</tr>
</tbody>
</table>
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CreateAccessProfile (Access Rules)
ModifyAccessProfile (Access Rules)
DeleteAccessProfile (Access Rules)
tns1:Configuration/AccessProfile/Changed
tns1:Configuration/AccessProfile/Removed

Credentials

GetCredentials (Credential)
GetCredentialList (Credential)
GetCredentialInfo (Credential)
GetCredentialInfoList (Credential)
CreateCredential (Credential)
ModifyCredential (Credential)
DeleteCredential (Credential)
GetCredentialAccessProfiles (Credential)
SetCredentialAccessProfiles (Credential)
DeleteCredentialAccessProfiles (Credential)
GetCredentialIdentifiers (Credential)
SetCredentialIdentifier (Credential)
DeleteCredentialIdentifier (Credential)
EnableCredential (Credential)
DisableCredential (Credential)
GetCredentialState (Credential)
GetSupportedFormatTypes (Credential)
tns1:Configuration/Credential/Changed
tns1:Configuration/Credential/Removed

Schedules

GetSchedules (Schedule)
GetScheduleList (Schedule)
GetScheduleInfo (Schedule)
GetScheduleInfoList (Schedule)
CreateSchedule (Schedule)
ModifySchedule (Schedule)
DeleteSchedule (Schedule)
GetScheduleState (Schedule)
tns1:Configuration/Schedule/Changed
<table>
<thead>
<tr>
<th>Event Handling</th>
<th>Renew (Event)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Unsubscribe (Event)</td>
</tr>
<tr>
<td></td>
<td>SetSynchronizationPoint (Event)</td>
</tr>
<tr>
<td></td>
<td>CreatePullPointSubscription (Event)</td>
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<td></td>
<td>PullMessage (Event)</td>
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<tr>
<td></td>
<td>GetEventProperties (Event)</td>
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<td>TopicFilter (Event)</td>
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<tr>
<td>Discovery</td>
<td>WS-Discovery</td>
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<td></td>
<td>GetDiscoveryMode (Device)</td>
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<td>SetDiscoveryMode (Device)</td>
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<td>GetScopes (Device)</td>
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<td>GetNetworkProtocols (Device)</td>
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<td></td>
<td>GetNetworkDefaultGateway (Device)</td>
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<td>SetNetworkDefaultGateway (Device)</td>
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<tr>
<td>System</td>
<td>GetDeviceInformation (Device)</td>
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<td></td>
<td>GetSystemDateAndTime (Device)</td>
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<td></td>
<td>SetSystemDateAndTime (Device)</td>
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<tr>
<td></td>
<td>SetSystemFactoryDefault (Device)</td>
</tr>
<tr>
<td></td>
<td>Reboot (Device)</td>
</tr>
<tr>
<td>User Handling</td>
<td>GetUsers (Device)</td>
</tr>
</tbody>
</table>
Profile Conditional Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset Antipassback Violations</td>
<td><code>ResetAntipassbackViolation</code> (Credential)</td>
</tr>
<tr>
<td>Special Days Schedule</td>
<td><code>GetSpecialDayGroups</code> (Schedule)</td>
</tr>
<tr>
<td>Persistent notification storage</td>
<td><code>Seek</code> (Event)</td>
</tr>
<tr>
<td>IP Filtering</td>
<td><code>GetIPAddressFilter</code> (Device)</td>
</tr>
<tr>
<td></td>
<td><code>SetIPAddressFilter</code> (Device)</td>
</tr>
<tr>
<td></td>
<td><code>AddIPAddressFilter</code> (Device)</td>
</tr>
<tr>
<td></td>
<td><code>RemoveIPAddressFilter</code> (Device)</td>
</tr>
</tbody>
</table>

**7.2 Profile A support check**

Preliminary checking for feature discovery will be performed prior to the test execution. For the details of the preliminary feature discovery, refer to [ONVIF Feature Discovery].

According to the result of test case execution, final determination of [ONVIF Profile A] support toward DUT is performed based on the following procedure.

**Procedure:**

1. Check that scope list contains the scope given in Table 7.1. If there is no such scope in the scope list of the DUT, then it is determined that [ONVIF Profile A] is not supported.

2. Check Discovery Types support. If `Discovery/Types/tds:Device` is not supported by the DUT, then it is determined that [ONVIF Profile A] is not supported by DUT and certification will be failed.
3. Check Security feature category:

   a. Check that HTTP Digest Authentication is supported by the DUT. If Security\Digest is regarded as unsupported by DUT, then it is determined that [ONVIF Profile A] is not supported by DUT and certification will be failed. Otherwise, it is determined that HTTP Digest Authentication feature is supported by DUT.

4. Check Capabilities feature category:

   a. Check that GetServices command is supported by the DUT. If Device Service/Capabilities/GetServices is not supported by the DUT, then it is determined that [ONVIF Profile A] is not supported by DUT and certification will be failed. Otherwise, it is determined that Capabilities category is supported with the following features included:

   - GetServices (Device Management Service)
   - GetServiceCapabilities (Device Management Service)
   - GetServiceCapabilities (Event Service)

   b. The following features are defined as supported, because this is a mandatory feature for any of ONVIF device implementation:

   - GetWsdlUrl (Device)

   c. Check that at least two PullPoint subscriptions are supported by the DUT. If Event Service/Event/MaxPullPoint is not supported by the DUT or it has value less than two, then it is determined that [ONVIF Profile A] is not supported by DUT and certification will be failed. Otherwise, it is determined that Event Handling feature category is supported with the following feature included:

   - At least two PullPoint subscriptions

5. Check Access Rules Service related features:

   a. Check that Access Rules Service is supported by DUT. If Access Rules Service is regarded as unsupported by DUT, then it is determined that [ONVIF Profile A] is not supported by DUT and certification will be failed. Otherwise, it is determined that Access Rules Service related features are supported by DUT. Those features are:

   i. Capabilities feature category:

   - GetServiceCapabilities (Access Rules)

   ii. Access Profiles feature category:
• GetAccessProfiles (Access Rules)
• GetAccessProfileList (Access Rules)
• GetAccessProfileInfo (Access Rules)
• GetAccessProfileInfoList (Access Rules)
• CreateAccessProfile (Access Rules)
• ModifyAccessProfile (Access Rules)
• DeleteAccessProfile (Access Rules)
• tns1:Configuration/AccessProfile/Changed
• tns1:Configuration/AccessProfile/Removed

6. Check Credential Service related features:

   a. Check that Credential Service is supported by DUT. If **Credential Service** is regarded as unsupported by DUT, then it is determined that [ONVIF Profile A] is not supported by DUT and certification will be failed. Otherwise, it is determined that Credential Service related features are supported by DUT. Those features are:

   i. Capabilities feature category:

       • GetServiceCapabilities (Credential)

   ii. Credentials feature category:

       • GetCredentials (Credential)
       • GetCredentialList (Credential)
       • GetCredentialInfo (Credential)
       • GetCredentialInfoList (Credential)
       • CreateCredential (Credential)
       • ModifyCredential (Credential)
       • DeleteCredential (Credential)
       • GetCredentialAccessProfiles (Credential)
       • SetCredentialAccessProfiles (Credential)
- DeleteCredentialAccessProfiles (Credential)
- GetCredentialIdentifiers (Credential)
- SetCredentialIdentifier (Credential)
- DeleteCredentialIdentifier (Credential)
- EnableCredential (Credential)
- DisableCredential (Credential)
- GetCredentialState (Credential)
- GetSupportedFormatTypes (Credential)
- tns1:Configuration/Credential/Changed
- tns1:Configuration/Credential/Removed

b. Check that Reset Antipassback Violations feature category is supported by the DUT. If Credential Service\Reset Antipassback Violation is regarded as supported by DUT, it is determined that Reset Antipassback Violations feature category are supported by DUT. The following features are defined as supported:

- ResetAntipassbackViolation (Credential)
- tns1:Credential/State/ApbViolation

7. Check Schedule Service related features:

a. Check that Schedule Service is supported by DUT. If Schedule Service is regarded as unsupported by DUT, then it is determined that [ONVIF Profile A] is not supported by DUT and certification will be failed. Otherwise, it is determined that Schedule Service related features are supported by DUT. Those features are:

i. Capabilities feature category:

- GetServiceCapabilities (Schedule)

ii. Schedules feature category:

- GetSchedules (Schedule)
- GetScheduleList (Schedule)
- GetScheduleInfo (Schedule)
• GetScheduleInfoList (Schedule)

• CreateSchedule (Schedule)

• ModifySchedule (Schedule)

• DeleteSchedule (Schedule)

• tns1:Configuration/Schedule/Changed

• tns1:Configuration/Schedule/Removed

b. Check that GetScheduleState (Schedule) feature and tns1:Schedule/State/Active feature are supported by the DUT. If Schedule Service\State Reporting is regarded as supported by DUT, it is determined that the following features are defined as supported:

i. GetScheduleState (Schedule)

ii. tns1:Schedule/State/Active

c. Check that Special Days Schedule feature category is supported by the DUT. If Schedule Service\Special Days is regarded as supported by DUT, it is determined that Special Days Schedule feature category are supported by DUT. The following features are defined as supported:

• GetSpecialDayGroups (Schedule)

• GetSpecialDayGroupList (Schedule)

• GetSpecialDayGroupInfo (Schedule)

• GetSpecialDayGroupInfoList (Schedule)

• CreateSpecialDayGroup (Schedule)

• ModifySpecialDayGroup (Schedule)

• DeleteSpecialDayGroup (Schedule)

• tns1:Configuration/SpecialDays/Changed

• tns1:Configuration/SpecialDays/Removed

8. Check Discovery feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:
• WS-Discovery

• GetDiscoveryMode (Device Management Service)

• SetDiscoveryMode (Device Management Service)

• GetScopes (Device Management Service)

• SetScopes (Device Management Service)

• AddScopes (Device Management Service)

• RemoveScopes (Device Management Service)

9. Check Network Configuration feature category of ONVIF profile support. This is mandatory a feature for any of ONVIF device implementation. The following features are defined as supported:

• GetHostname (Device Management Service)

• SetHostname (Device Management Service)

• GetDNS (Device Management Service)

• SetDNS (Device Management Service)

• GetNetworkInterfaces (Device Management Service)

• SetNetworkInterfaces (Device Management Service)

• GetNetworkProtocols (Device Management Service)

• SetNetworkProtocols (Device Management Service)

• GetNetworkDefaultGateway (Device Management Service)

• SetNetworkDefaultGateway (Device Management Service)

10. Check System feature category of ONVIF profile support. This feature is mandatory for any of ONVIF device implementation. The following features are defined as supported:

• GetDeviceInformation (Device Management Service)

• GetSystemDateAndTime (Device Management Service)

• SetSystemDateAndTime (Device Management Service)

• SetSystemFactoryDefault (Device Management Service)
11. Check User Handling feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

- GetUsers (Device Management Service)
- CreateUsers (Device Management Service)
- DeleteUsers (Device Management Service)
- SetUser (Device Management Service)

12. Check Event Handling feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

- Notify (Event Service)
- Subscribe (Event Service)
- Renew (Event Service)
- Unsubscribe (Event Service)
- SetSynchronizationPoint (Event Service)
- CreatePullPointSubscription (Event Service)
- PullMessage (Event Service)
- GetEventProperties (Event Service)
- TopicFilter (Event Service)

13. Check Persistent notification storage feature category of ONVIF profile support. If Event Service\Persistent notification storage is regarded as supported by DUT, then it is determined that Persistent notification storage feature category feature category is supported by DUT. The following features are defined as supported:

- Seek (Event)

14. Check IP Filtering of ONVIF profile support. If Device Service\Network\IP Filter is regarded as supported by DUT, then it is determined that IP Filtering feature category is supported by DUT. The following features are defined as supported:

- GetIPAddressFilter (Device)
• SetIPAddressFilter (Device)

• AddIPAddressFilter (Device)

• RemoveIPAddressFilter (Device)
8 Profile T Conformance

8.1 Feature category classification for ONVIF Profile T

In order for ONVIF Device Test Tool to conduct conformance testing toward [ONVIF Profile T], it would need to identify whether DUT implements the expected feature set.

This section classifies supported features as multiple categories that are related to [ONVIF Profile T] conformance. Those category classifications will be used to do some preliminary checking prior to the test case execution and they will be used to determine whether DUT can be considered [ONVIF Profile T] conformant device.

The following discovery scope is defined as the scope that signals that DUT is [ONVIF Profile T] product.

**Table 8.1. Profile T Discovery Scope**

| onvif://www.onvif.org/Profile/T |

The following table shows the classified feature categories based on commands and/or functional blocks that are referenced by DUT.

**Table 8.2. Profile T Features Categories**

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## ONVIF Message Content Filter Dialect (Event)

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- Ready-to-use Media Profile for PTZ control per PTZ node
  - MoveStatus capability (PTZ)
  - StatusPosition capability (PTZ)
  - GetStatus (PTZ)
  - AbsoluteMove (PTZ)
  - http://www.onvif.org/ver10/tptz/PanTiltSpaces/SphericalPositionSpaceDegrees (PTZ)
  - http://www.onvif.org/ver10/tptz/PanTiltSpaces/PositionGenericSpace (PTZ)
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- Ready-to-use Media Profile for PTZ control per PTZ node
  - MoveStatus capability (PTZ)
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G.711 Decoding (Media 2)

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GetAudioOutputConfigurations (Media 2)

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### 8.2 Profile T support check

Preliminary checking for feature discovery will be performed prior to the test execution. For the details of the preliminary feature discovery, refer to [ONVIF Feature Discovery].

According to the result of test case execution, final determination of [ONVIF Profile T] support toward DUT is performed based on the following procedure.
Procedure:

1. Check that scope list contains the scope given in Table 8.1. If there is no such scope in the scope list of the DUT, then it is determined that [ONVIF Profile T] is not supported.

2. Check Discovery Types support. If `Discovery\Types\dns:Device` is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed.

3. Check User Authentication feature category:
   a. Check that HTTP Digest Authentication is supported by the DUT. If `Security\Digest` is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that HTTP Digest Authentication feature is supported by DUT.
   b. Check Digest Authentication for RTSP feature category of ONVIF profile support. This feature is mandatory for any of ONVIF device implementation. The following features are defined as supported:
      - RTSP Digest Authentication

4. Check Capabilities feature category:
   a. Check that GetServices command is supported by the DUT. If `Device Service \Capabilities\GetServices` is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that Capabilities category is supported with the following features included:
      - GetServices (Device Management Service)
      - GetServiceCapabilities (Device Management Service)
      - GetServiceCapabilities (Event Service)
   b. Check that Imaging Service is supported by the DUT. If `Imaging Service` is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following feature is supported:
      - GetServiceCapabilities (Imaging Service)
   c. Check that DeviceIO Service is supported by the DUT. If `DeviceIO Service` is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following feature is supported:
• GetServiceCapabilities (DeviceIO Service)

d. Check that PTZ Service is supported by the DUT. If **PTZ Service** is supported by the DUT, then it is determined that the following feature is supported:

• GetServiceCapabilities (PTZ Service)

e. Check that Analytics Service is supported by the DUT. If **Analytics Service** is supported by the DUT, then it is determined that the following feature is supported:

• GetServiceCapabilities (Analytics Service)

f. The following features are defined as supported, because this is a mandatory feature for any of ONVIF device implementation:

• GetWsdlUrl (Device)

5. Check Discovery feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

• WS-Discovery

• GetDiscoveryMode (Device Management Service)

• SetDiscoveryMode (Device Management Service)

• GetScopes (Device Management Service)

• SetScopes (Device Management Service)

• AddScopes (Device Management Service)

• RemoveScopes (Device Management Service)

6. Check Network Configuration feature category of ONVIF profile support. This is mandatory a feature for any of ONVIF device implementation. The following features are defined as supported:

• GetHostname (Device Management Service)

• SetHostname (Device Management Service)

• GetDNS (Device Management Service)

• SetDNS (Device Management Service)

• GetNetworkInterfaces (Device Management Service)
• SetNetworkInterfaces (Device Management Service)
• GetNetworkProtocols (Device Management Service)
• SetNetworkProtocols (Device Management Service)
• GetNetworkDefaultGateway (Device Management Service)
• SetNetworkDefaultGateway (Device Management Service)

7. Check System feature category of ONVIF profile support. This feature is mandatory for any of ONVIF device implementation. The following features are defined as supported:

• GetDeviceInformation (Device Management Service)
• GetSystemDateAndTime (Device Management Service)
• SetSystemDateAndTime (Device Management Service)
• SetSystemFactoryDefault (Device Management Service)
• Reboot (Device Management Service)

8. Check User Handling feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

• GetUsers (Device Management Service)
• CreateUser (Device Management Service)
• DeleteUsers (Device Management Service)
• SetUser (Device Management Service)

9. Check Event Handling feature category of ONVIF profile support. This is a mandatory feature for any of ONVIF device implementation. The following features are defined as supported:

• SetSynchronizationPoint (Event Service)
• CreatePullPointSubscription (Event Service)
• PullMessage (Event Service)
• Unsubscribe (Event Service)
• GetEventProperties (Event Service)
• TopicFilter (Event Service)
10. Check that at least two PullPoint subscriptions are supported by the DUT. If Event Service/Event/MaxPullPoint is not supported by the DUT or it has value less than two, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that Event Handling feature category is supported with the following feature included:

- At least two PullPoint subscriptions

11. Check that ONVIF Message Content Filter Dialect is supported by the DUT. If Event Service/Message Content Filter/ONVIF Message Content Filter Dialect is regarded as unsupported by the DUT, then it is determined that [ONVIF Profile T] is not supported by the DUT and certification will be failed. Otherwise, it is determined that ONVIF Message Content Filter Dialect is supported by the DUT.

12. Check Media2 Service related features:

a. Check that Media2 Service is supported by the DUT. If Media2 Service is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following feature is supported:

   i. Capabilities feature category:

      • GetServiceCapabilities (Media 2 Service)

   ii. Media Profile Management feature category:

      • CreateProfile (Media 2)

      • DeleteProfile (Media 2)

      • GetVideoSourceConfigurations (Media 2)

      • GetVideoEncoderInstances (Media 2)

      • tns1:Media/ProfileChanged (Event)

   iii. Check Video Streaming feature category:

      • Ready-to-use Media Profile for streaming H.264 or H.265 video per video source (Media 2)

      • GetProfiles (Media 2)

      • If Media2 Service!Real-time Streaming is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification
will be failed. Otherwise, it is determined that the following features is supported by DUT:

- GetStreamUri (Media 2)
- Video Streaming using RTSP

- If Media2 Service\Video\H.264 is regarded as supported by DUT, it is determined that H.264 Encoding feature category is supported by DUT.

- If Media2 Service\Video\H.265 is regarded as supported by DUT, it is determined that H.265 Encoding feature category is supported by DUT.

- If Media2 Service\Video\H.264 and Media2 Service\Video\H.265 are regarded as not supported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed.

- If Media2 Service\Real-time Streaming\RTP/UDP is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed.

- If Media2 Service\Real-time Streaming\RTP/RTSP/HTTP feature is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. It is mandatory functionality if Real-time Streaming supported.

- If Media2 Service\Real-time Streaming\RTP/RTSP/HTTPS feature is regarded as supported by DUT, it is determined that Streaming over RTP/RTSP/HTTPS feature category is supported by DUT.

- If Media2 Service\Real-time Streaming\RTP-Multicast/UDP feature is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that RTP-Multicast/UDP feature is supported by DUT.

- If Media2 Service\RTSP Web Socket is regarded as supported by DUT, it is determined that Streaming over RTP/RTSP/TCP/WebSocket feature category is supported by DUT.

- SetSynchronizationPoint (Media 2)

iv. Check Configuration of Video Profile feature category:

- GetProfiles (Media 2)
• GetVideoSources (DeviceIO)
• GetVideoSourceConfigurations (Media 2)
• AddConfiguration (Media 2)
• GetVideoEncoderConfigurations (Media 2)
• RemoveConfiguration (Media 2)
• tns1:Media/ProfileChanged

v. Check Video Source Configuration feature category:

• GetVideoSourceConfigurations (Media 2)
• GetVideoSourceConfigurationOptions (Media 2)
• SetVideoSourceConfiguration (Media 2)
• tns1:Media/ConfigurationChanged

vi. Check Video Encoder Configuration feature category:

• GetVideoEncoderConfigurations (Media 2)
• GetVideoEncoderConfigurationOptions (Media 2)
• SetVideoEncoderConfiguration (Media 2)
• tns1:Media/ConfigurationChanged

vii. Check Metadata Streaming feature category:

• If Media2 Service\Metadata is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed.

• GetProfiles (Media 2)

• If Media2 Service\Real-time Streaming is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following features is supported by DUT:

• GetStreamUri (Media 2)

• Metadata Streaming using RTSP
• If **Media2 Service\Real-time Streaming\RTP/UDP** is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed.

• If **Media2 Service\Real-time Streaming\RTP/RTSP/HTTP** feature is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. It is mandatory functionality if Real-time Streaming supported.

• If **Media2 Service\Real-time Streaming\RTP/RTSP/HTTPS** feature is regarded as supported by DUT, it is determined that Streaming over RTP/RTSP/HTTPS feature category is supported by DUT.

• If **Media2 Service\Real-time Streaming\RTP-Multicast/UDP** feature is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that RTP-Multicast/UDP feature is supported by DUT.

• If **Media2 Service\RTSP Web Socket** is regarded as supported by DUT, it is determined that Streaming over RTP/RTSP/TCP/WebSocket feature category is supported by DUT.

  • **SetSynchronizationPoint (Media 2)**

viii. Check Configuration of Metadata Profile feature category:

  • **GetProfiles (Media 2)**
  
  • **GetMetadataConfigurations (Media 2)**
  
  • **AddConfiguration (Media 2)**
  
  • **RemoveConfiguration (Media 2)**
  
  • **tns1:Media/ProfileChanged**

ix. Check Metadata Configuration feature category:

  • **GetMetadataConfigurations (Media 2)**
  
  • **GetMetadataConfigurationOptions (Media 2)**
  
  • **SetMetadataConfiguration (Media 2)**
  
  • **tns1:Media/ConfigurationChanged**
x. Check Configuration of On-Screen Display (OSD) feature category:

a. If Media2 Service\OSD is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that OSD related features are supported by DUT. Those features are:

- CreateOSD (Media2)
- DeleteOSD (Media2)
- GetVideoSourceConfigurations (Media2)
- GetOSDs (Media2)
- GetOSDOptions (Media2)
- SetOSD (Media2)

b. If Media2 Service\OSD\Text is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed.

c. If Media2 Service\OSD\Image is regarded supported by DUT, then it is determined that OSD Image feature is supported by DUT.

xi. Check JPEG Snapshot feature category:

a. If Media2 Service\Snapshot URI is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following features is supported by DUT:

- GetSnapshotUri (Media 2)

xii. Check Video Source Mode feature category:

a. If Media2 Service\Video Source Mode is regarded as supported by DUT, then it is determined that the following features are supported by DUT:

- GetVideoSources (DeviceIO)
- GetVideoSourceModes (Media2)
- SetVideoSourceMode (Media2)
xiii. Check Audio Output Configuration feature category:

   a. If Media2 Service\Audio Output is regarded as supported by DUT, then it is determined that the following features are supported by DUT:

      • GetAudioOutputConfigurations (Media2)
      • GetAudioOutputConfigurationOptions (Media2)
      • SetAudioOutputConfiguration (Media2)
      • tns1:Media/ConfigurationChanged

xiv. Check Audio Streaming feature category:

   a. If Media2 Service\Audio is regarded as supported by DUT, then it is determined that the following features are supported by DUT:

      • GetProfiles (Media 2)
      • Audio Streaming using RTSP
      • If Media2 Service\Real-time Streaming is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following features is supported by DUT:
        • GetStreamUri (Media 2)
      • If Media2 Service\Audio\G.711 is regarded as supported by DUT, it is determined that G.711 Encoding feature category is supported by DUT.
      • If Media2 Service\Audio\AAC is regarded as supported by DUT, it is determined that AAC Encoding feature category is supported by DUT.
      • If Media2 Service\Audio\G.711 and Media2 Service\Audio\AAC are regarded as not supported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed.
      • If Media2 Service\Real-time Streaming\RTP/UDP is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed.
      • If Media2 Service\Real-time Streaming\RTP/RTSP/HTTP feature is regarded as unsupported by DUT, then it is determined that [ONVIF
Profile T] is not supported by DUT and certification will be failed. It is mandatory functionality if Real-time Streaming supported.

- If **Media2 Service\Real-time Streaming\RTP/RTSP/HTTPS** feature is regarded as supported by DUT, it is determined that Streaming over RTP/RTSP/HTTPS feature category is supported by DUT.

- If **Media2 Service\Real-time Streaming\RTP-Multicast/UDP** feature is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that RTP-Multicast/UDP feature is supported by DUT.

- If **Media2 Service\RTSP Web Socket** is regarded as supported by DUT, it is determined that Streaming over RTP/RTSP/TCP/WebSocket feature category is supported by DUT.

xv. Check Configuration of Audio Profile feature category:

a. If **Media2 Service\Audio** is regarded as supported by DUT, then it is determined that the following features are supported by DUT:

- GetProfiles (Media2)
- GetAudioSources (DeviceIO)
- GetAudioSourceConfigurations (Media2)
- AddConfiguration (Media2)
- GetAudioEncoderConfigurations (Media2)
- RemoveConfiguration (Media2)
- tns1:Media/ProfileChanged

xvi. Check Audio Encoder Configuration feature category:

a. If **Media2 Service\Audio** is regarded as supported by DUT, then it is determined that the following features are supported by DUT:

- GetAudioEncoderConfigurations (Media2)
- GetAudioEncoderConfigurationOptions (Media2)
- SetAudioEncoderConfiguration (Media2)
xvii. Check Audio Output Streaming feature category:

a. If **Media2 Service\Audio Output** is regarded as supported by DUT, then it is determined that the following features are supported by DUT:

- GetProfiles (Media 2)
- If **Media2 Service\Real-time Streaming** is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following features is supported by DUT:
  - GetStreamUri (Media 2)
  - Audio Output Streaming using RTSP
- If **Media2 Service\Audio outputs\G.711** is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the G.711 decoding feature category is supported by DUT.
- If **Media2 Service\Audio outputs\AAC** is regarded as supported by DUT, it is determined that AAC decoding feature category is supported by DUT.
- If **Media2 Service\Real-time Streaming\RTP/UDP** is not supported by the DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed.
- If **Media2 Service\Real-time Streaming\RTP/RTSP/HTTP** feature is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. It is mandatory functionality if Real-time Streaming supported.
- If **Media2 Service\Real-time Streaming\RTP/RTSP/HTTPS** feature is regarded as supported by DUT, it is determined that Streaming over RTP/RTSP/HTTPS feature category is supported by DUT.
- If **Media2 Service\RTSP Web Socket** is regarded as supported by DUT, it is determined that Streaming over RTP/RTSP/TCP/WebSocket feature category is supported by DUT.
Check Configuration of Audio Output Profile feature category:

a. If Media2 Service\Audio outputs is regarded as supported by DUT, then it is determined that the following features are supported by DUT:

- GetProfiles (Media2)
- GetAudioOutputs (DeviceIO)
- GetAudioOutputConfigurations (Media2)
- AddConfiguration (Media2)
- GetAudioDecoderConfigurations (Media2)
- RemoveConfiguration (Media2)
- tns1:Media/ProfileChanged

13. Check Imaging Settings feature category:

- GetVideoSources (DeviceIO)
- GetImagingSettings (Imaging)
- GetOptions (Imaging)
- SetImagingSettings (Imaging)

14. Check Tampering feature category:

a. If Imaging Service\Tampering Events\Image Too Blurry is regarded as supported by DUT, it is determined that Image Too Blurry feature category is supported by DUT.

b. If Imaging Service\Tampering Events\Image Too Dark is regarded as supported by DUT, it is determined that Image Too Dark feature category is supported by DUT.

c. If Imaging Service\Tampering Events\Image Too Bright is regarded as supported by DUT, it is determined that Image Too Bright feature category is supported by DUT.

d. If Imaging Service\Tampering Events\Global Scene Change is regarded as supported by DUT, it is determined that Global Scene Change feature category is supported by DUT.

e. If Imaging Service\Tampering Events\Image Too Blurry and Imaging Service\Tampering Events\Image Too Dark and Imaging Service\Tampering Events\Image Too Bright and Imaging Service\Tampering Events\Global Scene Change are
regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed.

15. Check Motion Alarm Events feature category:

- If **Imagins Service\Motion Alarm** is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following feature is supported by DUT:
  
  - tns1:VideoSource/MotionAlarm

16. Check Absolute PTZ Move feature.

a. If **PTZ Service** and **PTZ Service\Absolute Move** are regarded as supported by DUT, then it is determined that the following features are supported by DUT:

  - Ready-to-use Media Profile for PTZ control per PTZ node.

  - If **PTZ Service\Move Status** is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined Move Status feature is supported by DUT.

  - If **PTZ Service\Status Position** is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined Status Position feature is supported by DUT.

  - GetStatus (PTZ)

  - AbsoluteMove (PTZ)

17. Check Continuous PTZ Move feature.

a. If **PTZ Service** and **PTZ Service\Continuous Move** are regarded as supported by DUT, then it is determined that the following features are supported by DUT:

  - Ready-to-use Media Profile for PTZ control per PTZ node.

  - If **PTZ Service\Move Status** is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined Move Status feature is supported by DUT.

  - GetStatus (PTZ)

  - ContinuousMove (PTZ)

  - Stop (PTZ)
18. Check Configuration of PTZ Profile feature category:

a. If **PTZ Service** is supported by DUT, then it is determined that the following features are supported by DUT:

   • GetProfiles (Media 2)

   • If **PTZ Service\Get Compatible Configurations** is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following feature is supported by DUT:

     • GetCompatibleConfigurations (PTZ)

     • AddConfiguration (Media 2)

     • RemoveConfiguration (Media 2)

     • tns1:Media/ProfileChanged

19. Check PTZ Configuration feature category:

a. If **PTZ Service** is regarded as supported by DUT, then it is determined that the following features are supported by DUT:

   • GetNodes (PTZ)

   • GetNode (PTZ)

   • GetConfigurationOptions (PTZ)

   • SetConfiguration (PTZ)

   • tns1:Media/ConfigurationChanged

20. Check PTZ Presets feature category:

a. If **PTZ Service\Presets** is regarded as supported by DUT, then it is determined that the following features are supported by DUT:

   • GetPresets (PTZ)

   • GotoPreset (PTZ)

   • SetPreset (PTZ)

   • RemovePreset (PTZ)
21. Check PTZ Home Position feature category:
   a. If **PTZ Service\Home Position** is regarded as supported by DUT, then it is determined that the following features are supported by DUT:
      - SetHomePosition (PTZ)
      - GotoHomePosition (PTZ)

22. Check Configuration of Analytics Profile feature category:
   a. If **Media2 Service\Analytics** is regarded as supported by DUT, then it is determined that the following features are supported by DUT:
      - GetProfiles (Media 2)
      - GetAnalyticsConfigurations (Media 2)
      - AddConfiguration (Media 2)
      - RemoveConfiguration (Media 2)
      - tns1:Media/ProfileChanged

23. Check Motion Region Detector Configuration feature category:
   a. If **Analytics Service\Rule Engine\Motion Region Detector Rule** is regarded as supported by DUT, then it is determined that the following features are supported by DUT:
      - GetSupportedRules (Analytics)
      - GetRules (Analytics)
   
      - If **Analytics Service\Rule Engine\Rule Options** is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following feature is supported by DUT:
      - GetRuleOptions (Analytics)
      - CreateRules (Analytics)
      - ModifyRules (Analytics)
      - DeleteRules (Analytics)
      - tns1:RuleEngine/MotionRegionDetector/Motion
24. Check NTP feature category:

a. If Device Service\Network\NTP is regarded as supported by DUT, then it is determined that the following features are supported by DUT:
   
   • GetNTP (Device)
   • SetNTP (Device)

25. Check Focus Control feature category:

a. If Imaging Service is regarded as supported by DUT, then it is determined that the following features are supported by DUT:

   • GetVideoSources (DeviceIO)
   • GetMoveOptions (Imaging)
   • Move (Imaging)
   • Stop (Imaging)
   • GetStatus (Imaging)

26. Check Relay Outputs feature category:

a. If DeviceIO Service\Relay outputs is regarded as supported by DUT, then it is determined that the following features are supported by DUT:

   • GetRelayOutputs (DeviceIO)
   • If DeviceIO Service\Relay outputs\Relay Output Options is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following feature is supported by DUT:

      • GetRelayOutputOptions (DeviceIO)
      • SetRelayOutputSettings (DeviceIO)
      • SetRelayOutputState (DeviceIO)
      • tns1:Device/Trigger/Relay

27. Check Digital Inputs feature category:

a. If DeviceIO Service\Digital Inputs is regarded as supported by DUT, then it is determined that the following features are supported by DUT:
• GetDigitalInputs (DeviceIO)

• If DeviceIO Service\Digital Inputs\Digital Input Options is regarded as unsupported by DUT, then it is determined that [ONVIF Profile T] is not supported by DUT and certification will be failed. Otherwise, it is determined that the following feature is supported by DUT:
  • GetDigitalInputConfigurationOptions (DeviceIO)
  • SetDigitalInputConfigurations (DeviceIO)
  • tns1:Device/Trigger/DigitalInput

28. Check Auxiliary Commands feature category:

  a. If Device Service\Auxiliary Commands is regarded as supported by DUT, then it is determined that the following features are supported by DUT:
     • SendAuxiliaryCommand (Device)
     • If Device Service\Auxiliary Commands\tt:Wiper|On is regarded as supported by DUT, then it is determined that the tt:Wiper|On features category is supported by DUT.
     • If Device Service\Auxiliary Commands\tt:Wiper|Off is regarded as supported by DUT, then it is determined that the tt:Wiper|Off features category is supported by DUT.
     • If Device Service\Auxiliary Commands\tt:Washer|On is regarded as supported by DUT, then it is determined that the tt:Washer|On features category is supported by DUT.
     • If Device Service\Auxiliary Commands\tt:Washer|Off is regarded as supported by DUT, then it is determined that the tt:Washer|Off features category is supported by DUT.
     • If Device Service\Auxiliary Commands\tt:WashingProcedure|On is regarded as supported by DUT, then it is determined that the tt:WashingProcedure|On features category is supported by DUT.
     • If Device Service\Auxiliary Commands\tt:WashingProcedure|Off is regarded as supported by DUT, then it is determined that the tt:WashingProcedure|Off features category is supported by DUT.
• If Device Service\Auxiliary Commands\tt:IRLamp|On is regarded as supported by DUT, then it is determined that the tt:IRLamp|On features category is supported by DUT.

• If Device Service\Auxiliary Commands\tt:IRLamp|Off is regarded as supported by DUT, then it is determined that the tt:IRLamp|Off features category is supported by DUT.

• If Device Service\Auxiliary Commands\tt:IRLamp|Auto is regarded as supported by DUT, then it is determined that the tt:IRLamp|Auto features category is supported by DUT.