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# ONVIF Imaging Client Test Specification

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## Introduction

The goal of the ONVIF Test Specification set is to make it possible to realize fully interoperable IP physical security implementations from different vendors. This specification also acts as an input document to the development of a test tool which will be used to test the ONVIF Client implementation conformance towards ONVIF standard. This Client Test Tool analyzes network communications between ONVIF Devices and Clients being tested and determines whether a specific Client is ONVIF conformant (see ONVIF Conformance Process Specification [<http://www.onvif.org/Documents/Specifications.aspx>]).

This particular document defines test cases required for testing Imaging Service features of a Client application e.g. Get Imaging Capabilities, Video Sources List, Get Imaging Settings, Imaging Settings Configuration, Focus Control. It also describes the test framework, test setup, prerequisites, test policies needed for the execution of the described test cases.

## Scope

This ONVIF Imaging Client Test Specification defines and regulates the conformance testing procedure for the ONVIF conformant Clients in the scope of Imaging Service features. Conformance testing is meant to be black-box network traces analysis and verification. The objective of this specification is to provide the test cases to test individual requirements of ONVIF Clients in the scope of Imaging Service features according to ONVIF Imaging Service Specification.

The principal intended purposes are:

- Provide self-assessment tool for implementations.
- Provide comprehensive test suite coverage for Imaging Service features.

This specification **does not** address the following:

- 3rd parties Client use cases
- Non-functional (performance and regression) testing and analysis.

- SOAP Implementation Interoperability test i.e. Web Services Interoperability Basic Profile version 2.0 (WS-I BP2.0).
- Network protocol implementation Conformance test for HTTPS and HTTP protocols.

The following sections cover test cases needed for the verification of relevant features as mentioned in the ONVIF Profile Specifications.

## Get Imaging Capabilities

Get Imaging Capabilities section specifies Client ability to request imaging capabilities from Device.

## Get Imaging Settings

Get Imaging Settings section specifies Client ability to request imaging settings from Device.

## Imaging Settings Configuration

Imaging Settings Configuration section specifies Client ability to change imaging settings on Device.

## Focus Move Capabilities

Focus Move Capabilities section specifies Client ability to retrieve focus move capabilities from Device.

## Focus Control

Focus Control section specifies Client ability to control focus on Device.

## Normative references

ONVIF Conformance Process Specification:

<http://www.onvif.org/Documents/Specifications.aspx>

ONVIF Profile Policy:

<http://www.onvif.org/Documents/Specifications.aspx>

ONVIF Core Specifications:

<http://www.onvif.org/Documents/Specifications.aspx>

ONVIF Core Client Test Specification:

<http://www.onvif.org/Documents/Specifications.aspx>

ONVIF Imaging Specification:

<http://www.onvif.org/Documents/Specifications.aspx>

ISO/IEC Directives, Part 2:

<http://www.iso.org/directives>

ISO 16484-5:2014-09 Annex P:

<https://www.iso.org/obp/ui/#!iso:std:63753:en>

W3C SOAP 1.2, Part 1, Messaging Framework:

<http://www.w3.org/TR/soap12-part1/>

W3C XML Schema Part 1: Structures Second Edition:

<http://www.w3.org/TR/xmlschema-1/>

W3C XML Schema Part 2: Datatypes Second Edition:

"<http://www.w3.org/TR/xmlschema-2/> [<http://www.w3.org/TR/xmlschema-2/>]

Rules for the structure and drafting of International Standards, Annex H: Verbal forms for the expression of provisions.

# Terms and Definitions

## Conventions

The key words "shall", "shall not", "should", "should not", "may", "need not", "can", "cannot" in this specification are to be interpreted as described in [ISO/IEC Directives Part 2].

## Definitions

This section describes terms and definitions used in this document.

Profile      See ONVIF Profile Policy.

|                            |   |
|----------------------------|---|
| ONVIF Device               | Computer appliance or software program that exposes one or multiple ONVIF Web Services.   |
| ONVIF Client               | Computer appliance or software program that uses ONVIF Web Services.  |
| Conversation               | A Conversation is all exchanges between two MAC addresses that contains SOAP request and response.  |
| Network                    | A network is an interconnected group of devices communicating using the Internet protocol.  |
| Network Trace Capture file | Data file created by a network protocol analyzer software (such as Wireshark). Contains network packets data recorded during a live network communications.   |
| SOAP                       | SOAP is a lightweight protocol intended for exchanging structured information in a decentralized, distributed environment. It uses XML technologies to define an extensible messaging framework providing a message construct that can be exchanged over a variety of underlying protocols. |
| Client Test Tool           | ONVIF Client Test Tool that tests ONVIF Client implementation towards the ONVIF Test Specification set.   |
| Imaging Service            | Services for exposure time, gain and white balance parameters among others.   |

|                       |   |
|-----------------------|---|
| Image Stabilization   | Functionality used to avoid blurring of images due to movement of the device or its objects.                    |
| Tone Compensation     | Functionality used to make the image with dark or bright areas to be more visible.                              |
| Defogging             | Functionality used to make the image more detailed in presence of fog.  |
| Valid Device Response | Device has responded to specific request with code HTTP or RTSP 200 OK and SOAP fault message has not appeared. |

## Abbreviations

This section describes abbreviations used in this document.

|       |   |
|-------|---|
| HTTP  | Hyper Text Transport Protocol.                          |
| HTTPS | Hyper Text Transport Protocol over Secure Socket Layer. |
| URI   | Uniform Resource Identifier.                            |
| WSDL  | Web Services Description Language.                      |
| XML   | eXtensible Markup Language.                             |

## Namespaces

Prefix and namespaces used in this test specification are listed in Table 1. These prefixes are not part of the standard and an implementation can use any prefix.

**Table 1. Defined namespaces in this specification**

| Prefix  | Namespace URI                             | Description   |
|---------|---|---|
| soapenv | http://www.w3.org/2003/05/soap-envelope   | Envelope namespace as defined by SOAP 1.2 [SOAP 1.2, Part 1]                  |
| xs      | http://www.w3.org/2001/XMLSchema          | Instance namespace as defined by XS [XMLSchema, Part1] and [XMLSchema,Part 2] |
| xsi     | http://www.w3.org/2001/XMLSchema-instance | XML schema instance namespace   |
| tns1    | http://www.onvif.org/ver10/topics         | The namespace for the ONVIF topic namespace                                   |
| tt      | http://www.onvif.org/ver10/schema         | ONVIF XML schema descriptions   |
| tds     | http://www.onvif.org/ver10/device/wsd     | The namespace for the WSDL device service                                     |
| trt     | http://www.onvif.org/ver10/media/wsd      | The namespace for the WSDL media service                                      |
| timg    | http://www.onvif.org/ver20/imaging/wsd    | The namespace for the WSDL imaging service                                    |

## Test Overview

This section provides information for the test setup procedure and required prerequisites that should be followed during test case execution.

An ONVIF client with Imaging features support can provide image settings configuration and focus control.

An ONVIF Profile is described by a fixed set of functionalities through a number of services that are provided by the ONVIF standard. A number of services and functionalities are mandatory for each type of ONVIF Profile. An ONVIF Device and ONVIF Client may support any combination of Profiles and other optional services and functionalities.

## Test Setup

Collect Network Traces files required by the test cases.

Collect Feature List XML files for Devices detected in the Network Trace files.

Client shall support all mandatory and conditional features listed in the Device Feature List XML file supplied for the Profiles supported by the Client.

For ONVIF compatibility, the ONVIF Client shall follow the requirements of the conformance process. For details please see the latest ONVIF Conformance Process Specification.

## Prerequisites

The pre-requisites for executing the test cases described in this Test Specification include:

The Device shall be configured with an IPv4 address.

The Device shall be able to be discovered by the Client.

## Get Imaging Capabilities Test Cases

**Validated Feature:** `get_imaging_capabilities`

**Profile A Requirement:** None

**Profile C Requirement:** None

**Profile G Requirement:** None

**Profile Q Requirement:** None

**Profile S Requirement:** None

## Expected Scenarios Under Test:

1. Client connects to Device to retrieve a imaging capabilities.
2. Client is considered as supporting Get Imaging Capabilities if the following conditions are met:
  - Client is able to retrieve a imaging capabilities using **GetCapabilities** operation OR **GetServiceCapabilities** operation (Imaging Service) OR supports `get_services_capabilities.get_services` feature.
3. Client is considered as NOT supporting Get Imaging Capabilities if ANY of the following is TRUE:

- No valid responses for **GetCapabilities** request if detected AND Device supports GetCapabilities feature OR
- No valid responses for **GetServiceCapabilities** request (Imaging Service) if detected AND Device supports GetServices feature
- No valid responses for **GetCapabilities** request AND no valid responses for **GetServiceCapabilities** request (Imaging Service) AND get\_services\_capabilities.get\_services feature is not supported by Client.

## GET CAPABILITIES

**Test Label:** Get Imaging Capabilities - Get Capabilities

**Test Case ID:** GETIMAGINGCAPABILITIES-1

**Profile A Reference:** None

**Profile C Reference:** None

**Profile G Reference:** None

**Profile Q Reference:** None

**Profile S Reference:** None

**Feature Under Test:** Get Capabilities

**Test Purpose:** To verify that imaging capabilities provided by Device is received by Client using the **GetCapabilities** operation.

**Pre-Requisite:**

- The Network Trace Capture files contains at least one Conversation between Client and Device with **GetCapabilities** operation with **tds:Category** element equal to "All" OR "Imaging" OR without any **tds:Category** element present.
- Device supports Imaging Service.

**Test Procedure (expected to be reflected in network trace file):**

1. Client invokes **GetCapabilities** request message with **tds:Category** element equal to "All" OR "Imaging" OR without any **tds:Category** element to retrieve imaging capabilities from the Device.
2. Device responses with code HTTP 200 OK and **GetCapabilitiesResponse** message.

**Test Result:**

**PASS -**

- Client **GetCapabilities** request messages are valid according to XML Schemas listed in Namespaces AND
- Client **GetCapabilities** request in Test Procedure fulfills the following requirements:
  - [S1] **soapenv:Body** element has child element **tds:GetCapabilities** AND

- [S2] IF it contains any **tds:Category** element THEN it contains **tds:Category** element equal to "All" OR "Imaging" AND
- Device response on the **GetCapabilities** request fulfills the following requirements:
  - [S3] It has HTTP 200 response code AND
  - [S4] **soapenv:Body** element has child element **tds:GetCapabilitiesResponse**.

**FAIL -**

- The Client failed PASS criteria.

**Validated Feature List:** get\_imaging\_capabilities.get\_capabilities

## GET SERVICE CAPABILITIES

**Test Label:** Get Imaging Capabilities - Get Service Capabilities

**Test Case ID:** GETIMAGINGCAPABILITIES-2

**Profile A Reference:** None

**Profile C Reference:** None

**Profile G Reference:** None

**Profile Q Reference:** None

**Profile S Reference:** None

**Feature Under Test:** Get Services

**Test Purpose:** To verify that imaging capabilities provided by Device is received by Client using the **GetServiceCapabilities** operation.

**Pre-Requisite:**

- The Network Trace Capture files contains at least one Conversation between Client and Device with **GetServiceCapabilities** operation for Imaging Service present.
- Device supports Imaging Service.

**Test Procedure (expected to be reflected in network trace file):**

1. Client invokes **GetServiceCapabilities** request message to retrieve imaging capabilities from the Device.
2. Device responses with code HTTP 200 OK and **GetServiceCapabilitiesResponse** message.

**Test Result:**

**PASS -**

- Client **GetServiceCapabilities** request messages are valid according to XML Schemas listed in Namespaces AND
- Client **GetServiceCapabilities** request in Test Procedure fulfills the following requirements:
  - [S1] **soapenv:Body** element has child element **timg:GetServiceCapabilities** AND



- Device response on the **GetServiceCapabilities** request fulfills the following requirements:
  - [S2] It has HTTP 200 response code AND
  - [S3] **soapenv:Body** element has child element **timg:GetServiceCapabilitiesResponse**.

**FAIL -**

- The Client failed PASS criteria.

**Validated Feature List:** get\_imaging\_capabilities.get\_service\_capabilities

## Get Imaging Settings Test Cases

**Validated Feature:** get\_imaging\_settings

**Profile A Requirement:** None

**Profile C Requirement:** None

**Profile G Requirement:** None

**Profile Q Requirement:** None

**Profile S Requirement:** None

## Expected Scenarios Under Test:

1. Client connects to Device to retrieve a current imaging settings.
2. Client is considered as supporting Get Imaging Settings if the following conditions are met:
  - Client is able to retrieve a current imaging settings using **GetImagingSettings** operation.
3. Client is considered as NOT supporting Get Imaging Settings if ANY of the following is TRUE:
  - No valid responses for **GetImagingSettings** request.

## GET IMAGING SETTINGS

**Test Label:** Get Imaging Settings - Get Imaging Settings

**Test Case ID:** GETIMAGINGSETTINGS-1

**Profile A Reference:** None

**Profile C Reference:** None

**Profile G Reference:** None

**Profile Q Reference:** None

**Profile S Reference:** None

**Feature Under Test:** Get Imaging Settings

**Test Purpose:** To verify that imaging settings for Device is received by Client using the **GetImagingSettings** operation.

**Pre-Requisite:**

- The Network Trace Capture files contains at least one Conversation between Client and Device with **GetImagingSettings** operation present.
- Device supports Imaging Service.

**Test Procedure (expected to be reflected in network trace file):**

1. Client invokes **GetImagingSettings** request message to retrieve imaging settings for specified video source from the Device.
2. Device responses with code HTTP 200 OK and **GetImagingSettingsResponse** message.

**Test Result:**

**PASS -**

- Client **GetImagingSettings** request messages are valid according to XML Schemas listed in Namespaces AND
- Client **GetImagingSettings** request in Test Procedure fulfills the following requirements:
  - [S1] **soapenv:Body** element has child element **timg:GetImagingSettings** AND
- Device response on the **GetImagingSettings** request fulfills the following requirements:
  - [S2] It has HTTP 200 response code AND
  - [S3] **soapenv:Body** element has child element **timg:GetImagingSettingsResponse**.

**FAIL -**

- The Client failed PASS criteria.

**Validated Feature List:** get\_imaging\_settings.get\_imaging\_settings

## Imaging Settings Configuration Test Cases

**Validated Feature:** set\_imaging\_settings

**Profile A Requirement:** None

**Profile C Requirement:** None

**Profile G Requirement:** None

**Profile Q Requirement:** None

**Profile S Requirement:** None

## Expected Scenarios Under Test:

1. Client connects to Device to change imaging settings.
2. Client is considered as supporting Imaging Settings Configuration if the following conditions are met:
  - Client is able to retrieve a imaging options using **GetOptions** operation AND
  - Client is able to change a imaging settings using **SetImagingSettings** operation.

3. Client is considered as NOT supporting Imaging Settings Configuration if ANY of the following is TRUE:
- No valid responses for **GetOptions** request OR
  - No valid responses for **SetImagingSettings** request OR
  - **SetImagingSettings** request contains settings which does not correspond to **GetOptionsResponse** message for the same video source token.

## GET OPTIONS

**Test Label:** Get Imaging Settings - Get Options

**Test Case ID:** SETIMAGINGSETTINGS-1

**Profile A Reference:** None

**Profile C Reference:** None

**Profile G Reference:** None

**Profile Q Reference:** None

**Profile S Reference:** None

**Feature Under Test:** Get Options

**Test Purpose:** To verify that imaging options for Device is received by Client using the **GetOptions** operation.

**Pre-Requisite:**

- The Network Trace Capture files contains at least one Conversation between Client and Device with **GetOptions** operation present.
- Device supports Imaging Service.

**Test Procedure (expected to be reflected in network trace file):**

1. Client invokes **GetOptions** request message to retrieve imaging options for specified video source from the Device.
2. Device responses with code HTTP 200 OK and **GetOptionsResponse** message.

**Test Result:**

**PASS -**

- Client **GetOptions** request messages are valid according to XML Schemas listed in Namespaces AND
- Client **GetOptions** request in Test Procedure fulfills the following requirements:
  - [S1] **soapenv:Body** element has child element **timg:GetOptions** AND
- Device response on the **GetOptions** request fulfills the following requirements:
  - [S2] It has HTTP 200 response code AND
  - [S3] **soapenv:Body** element has child element **timg:GetOptionsResponse**.

**FAIL -**

- The Client failed PASS criteria.

**Validated Feature List:** get\_imaging\_settings.get\_options

## SET IMAGING SETTINGS

**Test Label:** Set Imaging Settings - Set Imaging Settings

**Test Case ID:** SETIMAGINGSETTINGS-2

**Profile A Reference:** None

**Profile C Reference:** None

**Profile G Reference:** None

**Profile Q Reference:** None

**Profile S Reference:** None

**Feature Under Test:** Set Imaging Settings

**Test Purpose:** To verify that Client is able to change imaging settings on Device using the **SetImagingSettings** operation.

**Pre-Requisite:**

- The Network Trace Capture files contains at least one Conversation between Client and Device with **SetImagingSettings** operation present.
- Device supports Imaging Service.

**Test Procedure (expected to be reflected in network trace file):**

1. Client invokes **GetOptions** request message to retrieve imaging options for specified video source from the Device.
2. Device responses with code HTTP 200 OK and **GetOptionsResponse** message.
3. Client invokes **SetImagingSettings** request message to change imaging settings for specified video source which are correspond to the resieved options on the Device.
4. Device responses with code HTTP 200 OK and **SetImagingSettingsResponse** message.

**Test Result:**

**PASS -**

- Client **SetImagingSettings** request messages are valid according to XML Schemas listed in Namespaces AND
- Client **SetImagingSettings** request in Test Procedure fulfills the following requirements:
  - [S1] **soapenv:Body** element has child element **timg:SetImagingSettings** AND
- Device response on the **SetImagingSettings** request fulfills the following requirements:
  - [S2] It has HTTP 200 response code AND

- [S3] **soapenv:Body** element has child element **timg:SetImagingSettingsResponse** AND
- There is a Client **GetOptions** request in Test Procedure fulfills the following requirements:
  - [S4] It invoked for the same Device as for the Client **SetImagingSettings** request AND
  - [S5] It invoked before the Client **SetImagingSettings** request AND
  - [S6] **timg:VideoSourceToken** element value is equal to **timg:VideoSourceToken** element from the **SetImagingSettings** request AND
- Device response on the **GetOptions** request fulfills the following requirements:
  - [S7] It has HTTP 200 response code AND
- Settings from the **SetImagingSettings** request corresponds options recieved in the **GetOptionsResponse** message:
  - [S8] IF the **SetImagingSettings** request contains **tt:BacklightCompensation** element THEN:
    - The **GetOptionsResponse** message contains **tt:BacklightCompensation** element AND
    - The **GetOptionsResponse** message contains **tt:BacklightCompensation/tt:Mode** element value equal to **tt:BacklightCompensation/tt:Mode** element value from the **SetImagingSettings** request AND
  - [S9] IF the **SetImagingSettings** request contains **tt:BacklightCompensation/tt:Level** element THEN:
    - The **GetOptionsResponse** message contains **tt:BacklightCompensation/tt:Level** element AND
    - **tt:BacklightCompensation/tt:Level** element value from the **SetImagingSettings** request is less or equal to **tt:BacklightCompensation/tt:Level/tt:Max** from the the **GetOptionsResponse** message AND
    - **tt:BacklightCompensation/tt:Level** element value from the **SetImagingSettings** request is greater or equal to **tt:BacklightCompensation/tt:Level/tt:Min** from the the **GetOptionsResponse** message AND
  - [S10] IF the **SetImagingSettings** request contains **tt:Brightness** element THEN:
    - The **GetOptionsResponse** message contains **tt:Brightness** element AND
    - **tt:Brightness** element value from the **SetImagingSettings** request is less or equal to **tt:Brightness/tt:Max** from the the **GetOptionsResponse** message AND
    - **tt:Brightness** element value from the **SetImagingSettings** request is greater or equal to **tt:Brightness/tt:Min** from the the **GetOptionsResponse** message AND
  - [S11] IF the **SetImagingSettings** request contains **tt:ColorSaturation** element THEN:
    - The **GetOptionsResponse** message contains **tt:ColorSaturation** element AND
    - **tt:ColorSaturation** element value from the **SetImagingSettings** request is less or equal to **tt:ColorSaturation/tt:Max** from the the **GetOptionsResponse** message AND
    - **tt:ColorSaturation** element value from the **SetImagingSettings** request is greater or equal to **tt:ColorSaturation/tt:Min** from the the **GetOptionsResponse** message AND
  - [S12] IF the **SetImagingSettings** request contains **tt:Contrast** element THEN:
    - The **GetOptionsResponse** message contains **tt:Contrast** element AND
    - **tt:Contrast** element value from the **SetImagingSettings** request is less or equal to **tt:Contrast/tt:Max** from the the **GetOptionsResponse** message AND
    - **tt:Contrast** element value from the **SetImagingSettings** request is greater or equal to **tt:Contrast/tt:Min** from the the **GetOptionsResponse** message AND
  - [S13] IF the **SetImagingSettings** request contains **tt:Exposure** element THEN:
    - The **GetOptionsResponse** message contains **tt:Exposure** element AND
    - The **GetOptionsResponse** message contains **tt:Exposure/tt:Mode** element value equal to **tt:Exposure/tt:Mode** element value from the **SetImagingSettings** request AND
  - [S14] IF the **SetImagingSettings** request contains **tt:Exposure/tt:Priority** element THEN:
    - The **GetOptionsResponse** message contains **tt:Exposure/tt:Priority** element AND
    - The **GetOptionsResponse** message contains **tt:Exposure/tt:Priority** element value equal to **tt:Exposure/tt:Priority** element value from the **SetImagingSettings** request AND
  - [S15] IF the **SetImagingSettings** request contains **tt:Exposure/tt:MinExposureTime** element THEN:

- The **GetOptionsResponse** message contains **tt:Exposure/tt:MinExposureTime** element AND
- **tt:Exposure/tt:MinExposureTime** element value from the **SetImagingSettings** request is less or equal to **tt:Exposure/tt:MinExposureTime/tt:Max** from the the **GetOptionsResponse** message AND
- **tt:Exposure/tt:MinExposureTime** element value from the **SetImagingSettings** request is greater or equal to **tt:Exposure/tt:MinExposureTime/tt:Min** from the the **GetOptionsResponse** message AND
- [S16] IF the **SetImagingSettings** request contains **tt:Exposure/tt:MaxExposureTime** element THEN:
  - The **GetOptionsResponse** message contains **tt:Exposure/tt:MaxExposureTime** element AND
  - **tt:Exposure/tt:MaxExposureTime** element value from the **SetImagingSettings** request is less or equal to **tt:Exposure/tt:MaxExposureTime/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:Exposure/tt:MaxExposureTime** element value from the **SetImagingSettings** request is greater or equal to **tt:Exposure/tt:MaxExposureTime/tt:Min** from the the **GetOptionsResponse** message AND
- [S17] IF the **SetImagingSettings** request contains **tt:Exposure/tt:MinGain** element THEN:
  - The **GetOptionsResponse** message contains **tt:Exposure/tt:MinGain** element AND
  - **tt:Exposure/tt:MinGain** element value from the **SetImagingSettings** request is less or equal to **tt:Exposure/tt:MinGain/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:Exposure/tt:MinGain** element value from the **SetImagingSettings** request is greater or equal to **tt:Exposure/tt:MinGain/tt:Min** from the the **GetOptionsResponse** message AND
- [S18] IF the **SetImagingSettings** request contains **tt:Exposure/tt:MaxGain** element THEN:
  - The **GetOptionsResponse** message contains **tt:Exposure/tt:MaxGain** element AND
  - **tt:Exposure/tt:MaxGain** element value from the **SetImagingSettings** request is less or equal to **tt:Exposure/tt:MaxGain/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:Exposure/tt:MaxGain** element value from the **SetImagingSettings** request is greater or equal to **tt:Exposure/tt:MaxGain/tt:Min** from the the **GetOptionsResponse** message AND
- [S19] IF the **SetImagingSettings** request contains **tt:Exposure/tt:MinIris** element THEN:
  - The **GetOptionsResponse** message contains **tt:Exposure/tt:MinIris** element AND
  - **tt:Exposure/tt:MinIris** element value from the **SetImagingSettings** request is less or equal to **tt:Exposure/tt:MinIris/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:Exposure/tt:MinIris** element value from the **SetImagingSettings** request is greater or equal to **tt:Exposure/tt:MinIris/tt:Min** from the the **GetOptionsResponse** message AND
- [S20] IF the **SetImagingSettings** request contains **tt:Exposure/tt:MaxIris** element THEN:
  - The **GetOptionsResponse** message contains **tt:Exposure/tt:MaxIris** element AND
  - **tt:Exposure/tt:MaxIris** element value from the **SetImagingSettings** request is less or equal to **tt:Exposure/tt:MaxIris/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:Exposure/tt:MaxIris** element value from the **SetImagingSettings** request is greater or equal to **tt:Exposure/tt:MaxIris/tt:Min** from the the **GetOptionsResponse** message AND
- [S21] IF the **SetImagingSettings** request contains **tt:Exposure/tt:ExposureTime** element THEN:
  - The **GetOptionsResponse** message contains **tt:Exposure/tt:ExposureTime** element AND
  - **tt:Exposure/tt:ExposureTime** element value from the **SetImagingSettings** request is less or equal to **tt:Exposure/tt:ExposureTime/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:Exposure/tt:ExposureTime** element value from the **SetImagingSettings** request is greater or equal to **tt:Exposure/tt:ExposureTime/tt:Min** from the the **GetOptionsResponse** message AND
- [S22] IF the **SetImagingSettings** request contains **tt:Exposure/tt:Gain** element THEN:
  - The **GetOptionsResponse** message contains **tt:Exposure/tt:Gain** element AND
  - **tt:Exposure/tt:Gain** element value from the **SetImagingSettings** request is less or equal to **tt:Exposure/tt:Gain/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:Exposure/tt:Gain** element value from the **SetImagingSettings** request is greater or equal to **tt:Exposure/tt:Gain/tt:Min** from the the **GetOptionsResponse** message AND
- [S23] IF the **SetImagingSettings** request contains **tt:Exposure/tt:Iris** element THEN:
  - The **GetOptionsResponse** message contains **tt:Exposure/tt:Iris** element AND

- **tt:Exposure/tt:Iris** element value from the **SetImagingSettings** request is less or equal to **tt:Exposure/tt:Iris/tt:Max** from the the **GetOptionsResponse** message AND
- **tt:Exposure/tt:Iris** element value from the **SetImagingSettings** request is greater or equal to **tt:Exposure/tt:Iris/tt:Min** from the the **GetOptionsResponse** message AND
- [S24] IF the **SetImagingSettings** request contains **tt:Focus** element THEN:
  - The **GetOptionsResponse** message contains **tt:Focus** element AND
  - The **GetOptionsResponse** message contains **tt:Focus/tt:AutoFocusModes** element value equal to **tt:Focus/tt:AutoFocusMode** element value from the **SetImagingSettings** request AND
- [S25] IF the **SetImagingSettings** request contains **tt:Focus/tt:DefaultSpeed** element THEN:
  - The **GetOptionsResponse** message contains **tt:Focus/tt:DefaultSpeed** element AND
  - **tt:Focus/tt:DefaultSpeed** element value from the **SetImagingSettings** request is less or equal to **tt:Focus/tt:DefaultSpeed/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:Focus/tt:DefaultSpeed** element value from the **SetImagingSettings** request is greater or equal to **tt:Focus/tt:DefaultSpeed/tt:Min** from the the **GetOptionsResponse** message AND
- [S26] IF the **SetImagingSettings** request contains **tt:Focus/tt:NearLimit** element THEN:
  - The **GetOptionsResponse** message contains **tt:Focus/tt:NearLimit** element AND
  - **tt:Focus/tt:NearLimit** element value from the **SetImagingSettings** request is less or equal to **tt:Focus/tt:NearLimit/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:Focus/tt:NearLimit** element value from the **SetImagingSettings** request is greater or equal to **tt:Focus/tt:NearLimit/tt:Min** from the the **GetOptionsResponse** message AND
- [S27] IF the **SetImagingSettings** request contains **tt:Focus/tt:FarLimit** element THEN:
  - The **GetOptionsResponse** message contains **tt:Focus/tt:FarLimit** element AND
  - **tt:Focus/tt:FarLimit** element value from the **SetImagingSettings** request is less or equal to **tt:Focus/tt:FarLimit/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:Focus/tt:FarLimit** element value from the **SetImagingSettings** request is greater or equal to **tt:Focus/tt:FarLimit/tt:Min** from the the **GetOptionsResponse** message AND
- [S28] IF the **SetImagingSettings** request contains **tt:IrCutFilter** element THEN:
  - The **GetOptionsResponse** message contains **tt:IrCutFilterModes** element AND
  - The **GetOptionsResponse** message contains **tt:IrCutFilterModes** element value equal to **tt:IrCutFilter** element value from the **SetImagingSettings** request AND
- [S29] IF the **SetImagingSettings** request contains **tt:Sharpness** element THEN:
  - The **GetOptionsResponse** message contains **tt:Sharpness** element AND
  - **tt:Sharpness** element value from the **SetImagingSettings** request is less or equal to **tt:Sharpness/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:Sharpness** element value from the **SetImagingSettings** request is greater or equal to **tt:Sharpness/tt:Min** from the the **GetOptionsResponse** message AND
- [S30] IF the **SetImagingSettings** request contains **tt:WideDynamicRange** element THEN:
  - The **GetOptionsResponse** message contains **tt:WideDynamicRange** element AND
  - The **GetOptionsResponse** message contains **tt:WideDynamicRange/tt:Mode** element value equal to **tt:WideDynamicRange/tt:Mode** element value from the **SetImagingSettings** request AND
- [S31] IF the **SetImagingSettings** request contains **tt:WideDynamicRange/tt:Level** element THEN:
  - The **GetOptionsResponse** message contains **tt:WideDynamicRange/tt:Level** element AND
  - **tt:WideDynamicRange/tt:Level** element value from the **SetImagingSettings** request is less or equal to **tt:WideDynamicRange/tt:Level/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:WideDynamicRange/tt:Level** element value from the **SetImagingSettings** request is greater or equal to **tt:WideDynamicRange/tt:Level/tt:Min** from the the **GetOptionsResponse** message AND
- [S32] IF the **SetImagingSettings** request contains **tt:WhiteBalance** element THEN:
  - The **GetOptionsResponse** message contains **tt:WhiteBalance** element AND
  - The **GetOptionsResponse** message contains **tt:WhiteBalance/tt:Mode** element value equal to **tt:WhiteBalance/tt:Mode** element value from the **SetImagingSettings** request AND
- [S33] IF the **SetImagingSettings** request contains **tt:WhiteBalance/tt:CrGain** element THEN:

- The **GetOptionsResponse** message contains **tt:WhiteBalance/tt:YrGain** element AND
- **tt:WhiteBalance/tt:CrGain** element value from the **SetImagingSettings** request is less or equal to **tt:WhiteBalance/tt:YrGain/tt:Max** from the the **GetOptionsResponse** message AND
- **tt:WhiteBalance/tt:CrGain** element value from the **SetImagingSettings** request is greater or equal to **tt:WhiteBalance/tt:YrGain/tt:Min** from the the **GetOptionsResponse** message AND
- [S34] IF the **SetImagingSettings** request contains **tt:WhiteBalance/tt:CbGain** element THEN:
  - The **GetOptionsResponse** message contains **tt:WhiteBalance/tt:YbGain** element AND
  - **tt:WhiteBalance/tt:CbGain** element value from the **SetImagingSettings** request is less or equal to **tt:WhiteBalance/tt:YbGain/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:WhiteBalance/tt:CbGain** element value from the **SetImagingSettings** request is greater or equal to **tt:WhiteBalance/tt:YbGain/tt:Min** from the the **GetOptionsResponse** message AND
- [S35] IF the **SetImagingSettings** request contains **tt:Extension/tt:ImageStabilization** element THEN:
  - The **GetOptionsResponse** message contains **tt:Extension/tt:ImageStabilization** element AND
  - The **GetOptionsResponse** message contains **tt:Extension/tt:ImageStabilization/tt:Mode** element value equal to **tt:Extension/tt:ImageStabilization/tt:Mode** element value from the **SetImagingSettings** request AND
- [S36] IF the **SetImagingSettings** request contains **tt:Extension/tt:ImageStabilization/tt:Level** element THEN:
  - The **GetOptionsResponse** message contains **tt:Extension/tt:ImageStabilization/tt:Level** element AND
  - **tt:Extension/tt:ImageStabilization/tt:Level** element value from the **SetImagingSettings** request is less or equal to **tt:Extension/tt:ImageStabilization/tt:Level/tt:Max** from the the **GetOptionsResponse** message AND
  - **tt:Extension/tt:ImageStabilization/tt:Level** element value from the **SetImagingSettings** request is greater or equal to **tt:Extension/tt:ImageStabilization/tt:Level/tt:Min** from the the **GetOptionsResponse** message AND
- [S37] IF the **SetImagingSettings** request contains **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment** element THEN:
  - The **GetOptionsResponse** message contains **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment** element AND
  - The **GetOptionsResponse** message contains **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment/tt:BoundaryType** element value equal to each **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment/tt:BoundaryType** element value from the **SetImagingSettings** request AND
- [S38] IF the **SetImagingSettings** request contains **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment/tt:BoundaryOffset** element THEN:
  - The **GetOptionsResponse** message contains **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment/tt:BoundaryOffset** element with value equal to true AND
  - **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment/tt:BoundaryOffset** element value from the **SetImagingSettings** request is less or equal to +1.0 AND
  - **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment/tt:BoundaryOffset** element value from the **SetImagingSettings** request is greater or equal to -1.0 AND
- [S39] IF the **SetImagingSettings** request contains **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment/tt:ResponseTime** element THEN:
  - The **GetOptionsResponse** message contains **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment/tt:ResponseTimeRange** element AND
  - **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment/tt:ResponseTime** element value from the **SetImagingSettings** request is less or equal to **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment/tt:ResponseTimeRange** from the the **GetOptionsResponse** message AND
  - **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment/tt:ResponseTime** element value from the **SetImagingSettings** request is greater or equal to **tt:Extension/tt:Extension/tt:IrCutFilterAutoAdjustment/tt:ResponseTimeRange** from the the **GetOptionsResponse** message AND



- tt:IrCutFilterAutoAdjustment/tt:ResponseTimeRange** from the the **GetOptionsResponse** message AND
- [S40] IF the **SetImagingSettings** request contains **tt:Extension/tt:Extension/tt:Extension/tt:ToneCompensation** element THEN:
    - The **GetOptionsResponse** message contains **tt:Extension/tt:Extension/tt:Extension/tt:ToneCompensationOptions** element AND
    - The **GetOptionsResponse** message contains **tt:Extension/tt:Extension/tt:Extension/tt:ToneCompensationOptions/tt:Mode** element value equal to **tt:Extension/tt:Extension/tt:Extension/tt:Extension/tt:ToneCompensation/tt:Mode** element value from the **SetImagingSettings** request AND
  - [S41] IF the **SetImagingSettings** request contains **tt:Extension/tt:Extension/tt:Extension/tt:ToneCompensation/tt:Level** element THEN:
    - The **GetOptionsResponse** message contains **>tt:Extension/tt:Extension/tt:Extension/tt:ToneCompensationOptions/tt:Level** element with value equal to true AND
    - **tt:Extension/tt:Extension/tt:Extension/tt:ToneCompensation/tt:Level** element value from the **SetImagingSettings** request is less or equal to +1.0 AND
    - **tt:Extension/tt:Extension/tt:Extension/tt:ToneCompensation/tt:Level** element value from the **SetImagingSettings** request is greater or equal to 0.0 AND
  - [S42] IF the **SetImagingSettings** request contains **tt:Extension/tt:Extension/tt:Extension/tt:Defogging** element THEN:
    - The **GetOptionsResponse** message contains **tt:Extension/tt:Extension/tt:Extension/tt:DefoggingOptions** element AND
    - The **GetOptionsResponse** message contains **tt:Extension/tt:Extension/tt:Extension/tt:DefoggingOptions/tt:Mode** element value equal to **tt:Extension/tt:Extension/tt:Extension/tt:Defogging/tt:Mode** element value from the **SetImagingSettings** request AND
  - [S43] IF the **SetImagingSettings** request contains **tt:Extension/tt:Extension/tt:Extension/tt:Defogging/tt:Level** element THEN:
    - The **GetOptionsResponse** message contains **>tt:Extension/tt:Extension/tt:Extension/tt:DefoggingOptions/tt:Level** element with value equal to true AND
    - **tt:Extension/tt:Extension/tt:Extension/tt:Defogging/tt:Level** element value from the **SetImagingSettings** request is less or equal to +1.0 AND
    - **tt:Extension/tt:Extension/tt:Extension/tt:Defogging/tt:Level** element value from the **SetImagingSettings** request is greater or equal to 0.0 AND
  - [S44] IF the **SetImagingSettings** request contains **tt:Extension/tt:Extension/tt:Extension/tt:NoiseReduction** element THEN:
    - The **GetOptionsResponse** message contains **tt:Extension/tt:Extension/tt:Extension/tt:NoiseReductionOptions** element AND
  - [S45] IF the **SetImagingSettings** request contains **tt:Extension/tt:Extension/tt:Extension/tt:NoiseReduction/tt:Level** element THEN:
    - The **GetOptionsResponse** message contains **>tt:Extension/tt:Extension/tt:Extension/tt:NoiseReductionOptions/tt:Level** element with value equal to true AND
    - **tt:Extension/tt:Extension/tt:Extension/tt:NoiseReduction/tt:Level** element value from the **SetImagingSettings** request is less or equal to +1.0 AND
    - **tt:Extension/tt:Extension/tt:Extension/tt:NoiseReduction/tt:Level** element value from the **SetImagingSettings** request is greater or equal to 0.0.

**FAIL -**

- The Client failed PASS criteria.

**Validated Feature List:** get\_imaging\_settings.get\_imaging\_settings

# Focus Move Capabilities Test Cases

**Validated Feature:** get\_move\_options

**Profile A Requirement:** None

**Profile C Requirement:** None

**Profile G Requirement:** None

**Profile Q Requirement:** None

**Profile S Requirement:** None

## Expected Scenarios Under Test:

1. Client connects to Device to get focus move capabilities.
2. Client is considered as supporting Focus Move Capabilities if the following conditions are met:
  - Client is able to retrieve a focus move options using **GetMoveOptions** operation AND
3. Client is considered as NOT supporting Focus Move Capabilities if ANY of the following is TRUE:
  - No valid responses for **GetMoveOptions** request OR

## GET FOCUS MOVE OPTIONS

**Test Label:** Get Move Options

**Test Case ID:** GETMOVEOPTIONS-1

**Profile A Reference:** None

**Profile C Reference:** None

**Profile G Reference:** None

**Profile Q Reference:** None

**Profile S Reference:** None

**Feature Under Test:** Get Move Options

**Test Purpose:** To verify that Client is able retrieve focus move capabilities from Device using the **GetMoveOptions** operation.

**Pre-Requisite:**

- The Network Trace Capture files contains at least one Conversation between Client and Device with **GetMoveOptions** operation present.
- Device supports Imaging Service.

**Test Procedure (expected to be reflected in network trace file):**

1. Client invokes **GetMoveOptions** request message to retrieve focus move options for specified video source from the Device.
2. Device responses with code HTTP 200 OK and **GetMoveOptionsResponse** message.

**Test Result:**

**PASS -**

- Client **GetMoveOptions** request messages are valid according to XML Schemas listed in Namespaces AND
- Client **GetMoveOptions** request in Test Procedure fulfills the following requirements:
  - [S1] **soapenv:Body** element has child element **timg:GetMoveOptions** AND
- Device response on the **GetMoveOptions** request fulfills the following requirements:
  - [S2] It has HTTP 200 response code AND
  - [S3] **soapenv:Body** element has child element **timg:GetMoveOptionsResponse**.

**FAIL -**

- The Client failed PASS criteria.

**Validated Feature List:** get\_move\_options.get\_move\_options

## Focus Control Test Cases

**Validated Feature:** focus\_control

**Profile A Requirement:** None

**Profile C Requirement:** None

**Profile G Requirement:** None

**Profile Q Requirement:** None

**Profile S Requirement:** None

## Expected Scenarios Under Test:

1. Client connects to Device to control focus.
2. Client is considered as supporting Focus Control if the following conditions are met:
  - Client supports get\_move\_options feature AND
  - Client is able to invoke Absolute OR Relative OR Continuous focus move using **Move** operation AND
  - If Client is able to invoke Continuous focus move Client is able to invoke stop focus move using **Stop** operation.
3. Client is considered as NOT supporting Focus Control if ANY of the following is TRUE:
  - Client does not support get\_move\_options feature OR

- No valid responses for **Move** request OR
- **Move** request contains settings which does not correspond to **GetMoveOptions** message for the same video source token OR
- No valid responses for **Stop** request if **Stop** request is supported by the Client OR
- **Stop** request is not supported, in the case Continuous focus move is supported by the Client.

## ABSOLUTE FOCUS MOVE

**Test Label:** Focus Control - Absolute Focus Move

**Test Case ID:** FOCUSCONTROL-1

**Profile A Reference:** None

**Profile C Reference:** None

**Profile G Reference:** None

**Profile Q Reference:** None

**Profile S Reference:** None

**Feature Under Test:** Absolute Focus Move

**Test Purpose:** To verify that Client is able retrieve absolute focus move on Device using the **Move** operation.

**Pre-Requisite:**

- The Network Trace Capture files contains at least one Conversation between Client and Device with **Move** operation with **tt:Absolute** element present.
- Device supports Imaging Service.

**Test Procedure (expected to be reflected in network trace file):**

1. Client invokes **GetMoveOptions** request message to retrieve focus move options for specified video source from the Device.
2. Device responses with code HTTP 200 OK and **GetMoveOptionsResponse** message.
3. If **GetMoveOptionsResponse** message contains **tt:Absolute** element Client invokes **Move** request message for specified video source with **tt:Absolute** element with parameters which are correspond to the retrieved focus move options to start absolute focus movement on the Device.
4. Device responses with code HTTP 200 OK and **MoveResponse** message.

**Test Result:**

**PASS -**

- Client **Move** request messages are valid according to XML Schemas listed in Namespaces AND
- Client **Move** request in Test Procedure fulfills the following requirements:

- [S1] **soapenv:Body** element has child element **timg:Move** AND
- [S2] It contains **timg:Focus/tt:Absolute** element AND
- Device response on the **Move** request fulfills the following requirements:
  - [S3] It has HTTP 200 response code AND
  - [S4] **soapenv:Body** element has child element **timg:MoveResponse** AND
- There is a Client **GetMoveOptions** request in Test Procedure fulfills the following requirements:
  - [S5] It invoked for the same Device as for the Client **Move** request AND
  - [S6] It invoked before the Client **Move** request AND
  - [S7] **timg:VideoSourceToken** element value is equal to **timg:VideoSourceToken** element from the **Move** request AND
- Device response on the **GetMoveOptions** request fulfills the following requirements:
  - [S8] It has HTTP 200 response code AND
  - [S9] **soapenv:Body** element has child element **timg:GetMoveOptionsResponse** AND
  - [S10] It contains **timg:MoveOptions/tt:Absolute** element AND
- Settings from the **Move** request corresponds options recieved in the **GetMoveOptionsResponse** message:
  - [S11] **timg:Focus/tt:Absolute/tt:Position** element value from the **Move** request is less or equal to **timg:MoveOptions/tt:Absolute/tt:Position/tt:Max** from the the **GetMoveOptionsResponse** message AND
  - [S12] **timg:Focus/tt:Absolute/tt:Position** element value from the **Move** request is greater or equal to **timg:MoveOptions/tt:Absolute/tt:Position/tt:Min** from the the **GetMoveOptionsResponse** message AND
  - [S13] IF the **Move** request contains **timg:Focus/tt:Absolute/tt:Speed** element THEN:
    - The **GetMoveOptionsResponse** message contains **timg:MoveOptions/tt:Absolute/tt:Speed** element AND
    - **timg:Focus/tt:Absolute/tt:Speed** element value from the **Move** request is less or equal to **timg:MoveOptions/tt:Absolute/tt:Speed/tt:Max** from the the **GetMoveOptionsResponse** message AND
    - **timg:Focus/tt:Absolute/tt:Speed** element value from the **Move** request is greater or equal to **timg:MoveOptions/tt:Absolute/tt:Speed/tt:Min** from the the **GetMoveOptionsResponse** message.

**FAIL -**

- The Client failed PASS criteria.

**Validated Feature List:** focus\_control.absolute\_focus\_move

## RELATIVE FOCUS MOVE

**Test Label:** Focus Control - Relative Focus Move

**Test Case ID:** FOCUSCONTROL-2

**Profile A Reference:** None

**Profile C Reference:** None

**Profile G Reference:** None

**Profile Q Reference:** None

**Profile S Reference:** None

**Feature Under Test:** Relative Focus Move

**Test Purpose:** To verify that Client is able retrieve relative focus move on Device using the **Move** operation.

**Pre-Requisite:**

- The Network Trace Capture files contains at least one Conversation between Client and Device with **Move** operation with **tt:Relative** element present.
- Device supports Imaging Service.

**Test Procedure (expected to be reflected in network trace file):**

1. Client invokes **GetMoveOptions** request message to retrieve focus move options for specified video source from the Device.
2. Device responses with code HTTP 200 OK and **GetMoveOptionsResponse** message.
3. If **GetMoveOptionsResponse** message contains **tt:Relative** element Client invokes **Move** request message for specified video source with **tt:Relative** element with parameters which are correspond to the recieved focus move options to start relative focus movement on the Device.
4. Device responses with code HTTP 200 OK and **MoveResponse** message.

**Test Result:**

**PASS -**

- Client **Move** request messages are valid according to XML Schemas listed in Namespaces AND
- Client **Move** request in Test Procedure fulfills the following requirements:
  - [S1] **soapenv:Body** element has child element **timg:Move** AND
  - [S2] It contains **timg:Focus/tt:Relative** element AND
- Device response on the **Move** request fulfills the following requirements:
  - [S3] It has HTTP 200 response code AND
  - [S4] **soapenv:Body** element has child element **timg:MoveResponse** AND
- There is a Client **GetMoveOptions** request in Test Procedure fulfills the following requirements:
  - [S5] It invoked for the same Device as for the Client **Move** request AND
  - [S6] It invoked before the Client **Move** request AND
  - [S7] **timg:VideoSourceToken** element value is equal to **timg:VideoSourceToken** element from the **Move** request AND
- Device response on the **GetMoveOptions** request fulfills the following requirements:
  - [S8] It has HTTP 200 response code AND
  - [S9] **soapenv:Body** element has child element **timg:GetMoveOptionsResponse** AND
  - [S10] It contains **timg:MoveOptions\tt:Relative** element AND
- Settings from the **Move** request corresponds options recieved in the **GetMoveOptionsResponse** message:
  - [S11] **timg:Focus/tt:Relative/tt:Distance** element value from the **Move** request is less or equal to **timg:MoveOptions/tt:Relative/tt:Distance/tt:Max** from the the **GetMoveOptionsResponse** message AND

- [S12] **timg:Focus/tt:Relative/tt:Distance** element value from the **Move** request is greater or equal to **timg:MoveOptions/tt:Relative/tt:Distance/tt:Min** from the the **GetMoveOptionsResponse** message AND
- [S13] IF the **Move** request contains **timg:Focus/tt:Relative/tt:Speed** element THEN:
  - The **GetMoveOptionsResponse** message contains **timg:MoveOptions/tt:Relative/tt:Speed** element AND
  - **timg:Focus/tt:Relative/tt:Speed** element value from the **Move** request is less or equal to **timg:MoveOptions/tt:Relative/tt:Speed/tt:Max** from the the **GetMoveOptionsResponse** message AND
  - **timg:Focus/tt:Relative/tt:Speed** element value from the **Move** request is greater or equal to **timg:MoveOptions/tt:Relative/tt:Speed/tt:Min** from the the **GetMoveOptionsResponse** message.

**FAIL -**

- The Client failed PASS criteria.

**Validated Feature List:** focus\_control.relative\_focus\_move

## CONTINUOUS FOCUS MOVE

**Test Label:** Focus Control - Continuous Focus Move

**Test Case ID:** FOCUSCONTROL-3

**Profile A Reference:** None

**Profile C Reference:** None

**Profile G Reference:** None

**Profile Q Reference:** None

**Profile S Reference:** None

**Feature Under Test:** Continuous Focus Move

**Test Purpose:** To verify that Client is able retrieve continuous focus move on Device using the **Move** operation.

**Pre-Requisite:**

- The Network Trace Capture files contains at least one Conversation between Client and Device with **Move** operation with **tt:Continuous** element present.
- Device supports Imaging Service.

**Test Procedure (expected to be reflected in network trace file):**

1. Client invokes **GetMoveOptions** request message to retrieve focus move options for specified video source from the Device.
2. Device responses with code HTTP 200 OK and **GetMoveOptionsResponse** message.
3. If **GetMoveOptionsResponse** message contains **tt:Continuous** element Client invokes **Move** request message for specified video source with **tt:Relative** element with parameters which are correspond to the resieved focus move options to start continuous focus movement on the Device.

4. Device responses with code HTTP 200 OK and **MoveResponse** message.

**Test Result:**

**PASS -**

- Client **Move** request messages are valid according to XML Schemas listed in Namespaces AND
- Client **Move** request in Test Procedure fulfills the following requirements:
  - [S1] **soapenv:Body** element has child element **timg:Move** AND
  - [S2] It contains **timg:Focus/tt:Continuous** element AND
- Device response on the **Move** request fulfills the following requirements:
  - [S3] It has HTTP 200 response code AND
  - [S4] **soapenv:Body** element has child element **timg:MoveResponse** AND
- There is a Client **GetMoveOptions** request in Test Procedure fulfills the following requirements:
  - [S5] It invoked for the same Device as for the Client **Move** request AND
  - [S6] It invoked before the Client **Move** request AND
  - [S7] **timg:VideoSourceToken** element value is equal to **timg:VideoSourceToken** element from the **Move** request AND
- Device response on the **GetMoveOptions** request fulfills the following requirements:
  - [S8] It has HTTP 200 response code AND
  - [S9] **soapenv:Body** element has child element **timg:GetMoveOptionsResponse** AND
  - [S10] It contains **timg:MoveOptions/tt:Continuous** element AND
- Settings from the **Move** request corresponds options recieved in the **GetMoveOptionsResponse** message:
  - [S11] **timg:Focus/tt:Continuous/tt:Speed** element value from the **Move** request is less or equal to **timg:MoveOptions/tt:Continuous/tt:Speed/tt:Max** from the the **GetMoveOptionsResponse** message AND
  - [S12] **timg:Focus/tt:Continuous/tt:Speed** element value from the **Move** request is greater or equal to **timg:MoveOptions/tt:Continuous/tt:Speed/tt:Min** from the the **GetMoveOptionsResponse** message.

**FAIL -**

- The Client failed PASS criteria.

**Validated Feature List:** focus\_control.continuous\_focus\_move

## STOP

**Test Label:** Focus Control - Stop

**Test Case ID:** FOCUSCONTROL-4

**Profile A Reference:** None

**Profile C Reference:** None

**Profile G Reference:** None

**Profile Q Reference:** None

**Profile S Reference:** None



**Feature Under Test:** Stop

**Test Purpose:** To verify that Client is able retrieve focus move options from Device using the **Stop** operation.

**Pre-Requisite:**

- The Network Trace Capture files contains at least one Conversation between Client and Device with **Stop** operation present.
- Device supports Imaging Service.

**Test Procedure (expected to be reflected in network trace file):**

1. Client invokes **Stop** request message to stop focus move for specified video source for the Device.
2. Device responses with code HTTP 200 OK and **StopResponse** message.

**Test Result:**

**PASS -**

- Client **Stop** request messages are valid according to XML Schemas listed in Namespaces AND
- Client **Stop** request in Test Procedure fulfills the following requirements:
  - [S1] **soapenv:Body** element has child element **timg:Stop** AND
- Device response on the **Stop** request fulfills the following requirements:
  - [S2] It has HTTP 200 response code AND
  - [S3] **soapenv:Body** element has child element **timg:StopResponse**.

**FAIL -**

- The Client failed PASS criteria.

**Validated Feature List:** focus\_control.stop

## A. Revision History

**December 21, 2016 Version 16.01**

- Focus Control Test Cases was splitted on two parts (Focus Move Capabilities Test Cases and Focus Control Test Cases) to handle Device capabilities issue.

**December 18, 2016 Version 16.01**

- Get Imaging Capabilities Test Cases feature definition was updated

**October 20, 2016 Version 15.10**

- Initial version:

General parts added

Get Imaging Capabilities Test Cases added

Video Sources List Test Cases added

Get Imaging Settings Test Cases added

Imaging Settings Configuration Test Cases added

Focus Control Test Cases added