



ONVIF™

PTZ Using Media2 Test Specification

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Revision History

Ver.	Date	Description
16.07	June, 2016	First Issue
16.07	July 2016	Comments from Canon have been implemented.
16.07	July 19, 2016	Comments from Canon and Axis have been implemented. Section 4.4 Predefined PTZ spaces with test 4.4.1.1 ABSOLUTE PAN/TILT POSITION SPACE 4.4.2.2 GENERIC ZOOM VELOCITY SPACE added.

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1 Introduction

The goal of the ONVIF test specification set is to make it possible to realize fully interoperable IP physical security implementation from different vendors. The set of ONVIF test specification describes the test cases need to verify the [ONVIF Network Interface Specs] and [ONVIF Conformance] requirements. Also the test cases are to be basic inputs for some Profile specification requirements. It also describes the test framework, test setup, pre-requisites, test policies needed for the execution of the described test cases.

This ONVIF PTZ Using Media2 Test Specification acts as a supplementary document to the [ONVIF Network Interface Specs], illustrating test cases need to be executed and passed. Also this specification acts as an input document to the development of test tool which will be used to test the ONVIF device implementation conformance towards ONVIF standard. This test tool is referred as ONVIF Client hereafter.

1.1 Scope

This ONVIF PTZ Using Media2 Test Specification defines and regulates the conformance testing procedure for the ONVIF conformant devices. Conformance testing is meant to be functional black-box testing. The objective of this specification to provide test cases to test individual requirements of ONVIF devices according to ONVIF PTZ service(s) which is defined in [ONVIF Network Interface Specs].

The principal intended purposes are:

1. To provide self-assessment tool for implementations.
2. To provide comprehensive test suite coverage for [ONVIF Network Interface Specs].

This specification does not address the following

1. Product use cases and non-functional (performance and regression) testing.
2. SOAP Implementation Interoperability test i.e. Web Service Interoperability Basic Profile version 2.0 (WS-I BP 2.0).
3. Network protocol implementation Conformance test for HTTP, HTTPS, RTP and RTSP protocol.
4. Wi-Fi Conformance test

The set of ONVIF Test Specification will not cover the complete set of requirements as defined in [ONVIF Network Interface Specs]; instead it would cover subset of it. The scope of this specification is to derive all the normative requirements of [ONVIF Network Interface Specs] which are related to ONVIF PTZ USING MEDIA2 service and some of the optional requirements.

This ONVIF PTZ USING MEDIA2 Test Specification covers ONVIF PTZ USING MEDIA2 service which is a functional block of [ONVIF Network Interface Specs]. The following section describes the brief overview of and scope of each functional block.

1.1.1 PTZ Control

PTZ Control covers the test cases for the verification of the PTZ service as mentioned in [ONVIF Network Interface Specs].



Refer to Table 1 for PTZ Control Commands Under Test.

Table 1 PTZ Control Commands Under Test

Feature	Messages
PTZ Node	GetNodes GetNode
PTZ Configuration	GetConfigurations GetConfiguration GetConfigurationOptions
Move Operations	AbsoluteMove RelativeMove ContinuousMove Stop GetStatus
Preset operations	SetPreset GetPresets GotoPreset RemovePreset
Home Position operations	GotoHomePosition SetHomePosition
Predefined PTZ spaces	AbsolutePanTiltPositionSpace ContinuousVelocitySpace



2 Terms and Definitions

2.1 Definitions

This section defines terms that are specific to the ONVIF PTZ USING MEDIA2 Service and tests. For a list of applicable general terms and definitions, please see [ONVIF Base Test].

Pan	Horizontal movement or rotation of a camera or device.
Tilt	Vertical movement or rotation of a camera or device.
Zoom	Adjustment of the focal length of a zoom lens, causing the subject, scene to be brought closer or made to recede.
PTZ	The capability of a camera to pan, tilt, and zoom.

2.2 Abbreviations

This section describes abbreviations used in this document.

PTZ	Pan/Tilt/Zoom
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3 Test Overview

This section describes the test setup and prerequisites needed, and the test policies that should be followed for test case execution.

3.1 Test Setup

3.1.1 Network Configuration for DUT

The generic test configuration for the execution of test cases defined in this document is as shown below (Figure 1)

Based on the individual test case requirements, some of the entities in the below setup may not be needed for the execution of those corresponding test cases.

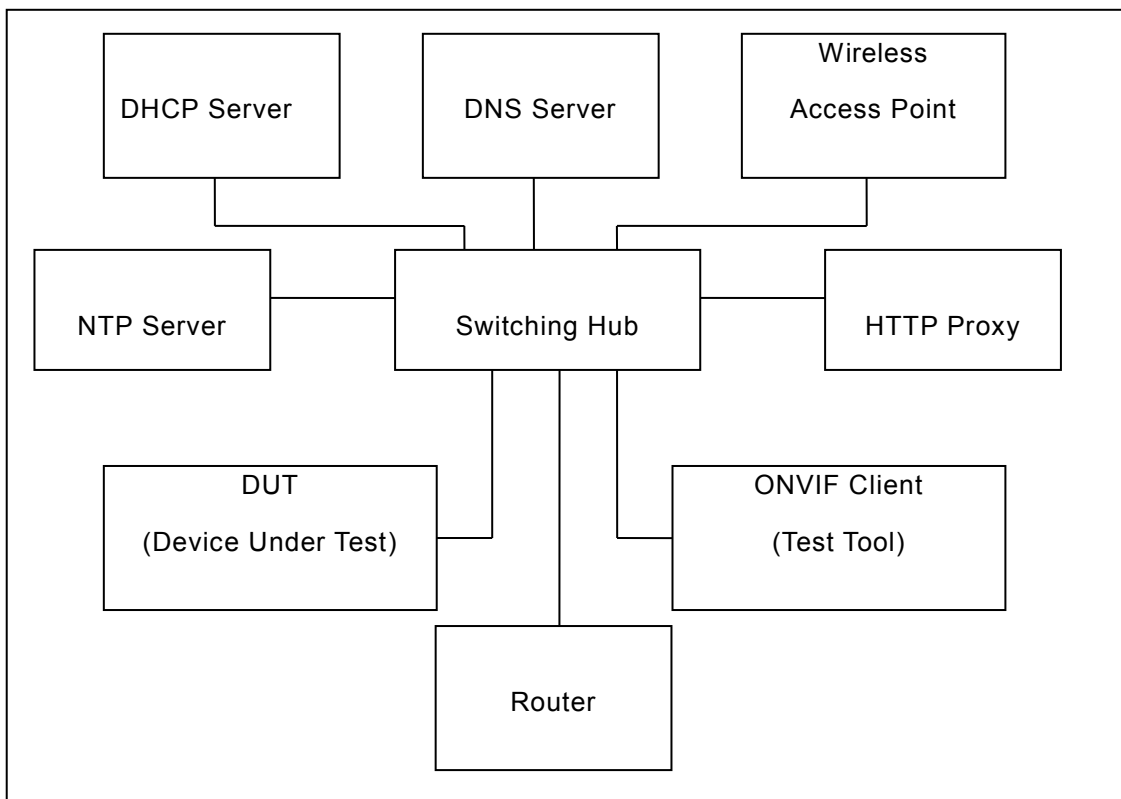


Figure 1: Test Configuration for DUT

DUT: ONVIF device to be tested. Hereafter, this is referred to as DUT (Device Under Test).

ONVIF Client (Test Tool): Tests are executed by this system and it controls the behaviour of the DUT. It handles both expected and unexpected behaviour.

HTTP Proxy: provides facilitation in case of RTP and RTSP tunnelling over HTTP.

Wireless Access Point: provides wireless connectivity to the devices that support wireless connection.

DNS Server: provides DNS related information to the connected devices.

DHCP Server: provides IPv4 Address to the connected devices.



NTP Server: provides time synchronization between ONVIF Client and DUT.

Switching Hub: provides network connectivities among all the test equipments in the test environment. All devices should be connected to the Switching Hub.

Router: provides router advertisements for IPv6 configuration.

3.2 Prerequisites

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

- The DUT shall be configured with an IPv4 address.
- The DUT shall be IP reachable [in the test configuration].
- The DUT shall be able to be discovered by the Test Tool.
- The DUT shall be configured with the time i.e. manual configuration of UTC time and if NTP is supported by DUT then NTP time shall be synchronized with NTP Server.
- The DUT time and Test tool time shall be synchronized with each other either manually or by common NTP server.

3.3 Test Policy

This section describes the test policies specific to the test case execution of each functional block.

The DUT shall adhere to the test policies defined in this section.

3.3.1 PTZ Control

- To start with ONVIF Client shall check device capabilities of PTZ. If the DUT doesn't have PTZ Using Media2 Service capability, this test case will skip.
- The device under test shall support at-least one media profile with PTZ configuration. Moreover, the DUT shall include video source configuration and video encoder configuration in the same media profile to see the video and to confirm movement. A PTZ configuration shall include a PTZ node.
- Poor PTZ performance test is outside the scope of the ONVIF Test Specification.
- In certain test cases, ONVIF Client may register new preset position into PTZ configuration. In such cases, the test procedure will delete that modified configuration at the end of the test procedure.
- If DUT does not support PTZ Configuration commands (ex. GetConfigurations, AbsoluteMove) then it SHALL respond to the request with SOAP 1.2 fault message (ActionNotSupported).

Please refer to Section 4 for PTZ Configuration Test Cases



4 PTZ Control Test Cases

4.1 Move Operation

4.1.1 PTZ ABSOLUTE MOVE USING MEDIA2 PROFILE

Test Label: PTZ Absolute Move Operation Using Media2 Profile

Test Case ID: PTZ-3-2-1

ONVIF Core Specification Coverage: None

Command Under Test: AbsoluteMove

WSDL Reference: ptz.wsdl

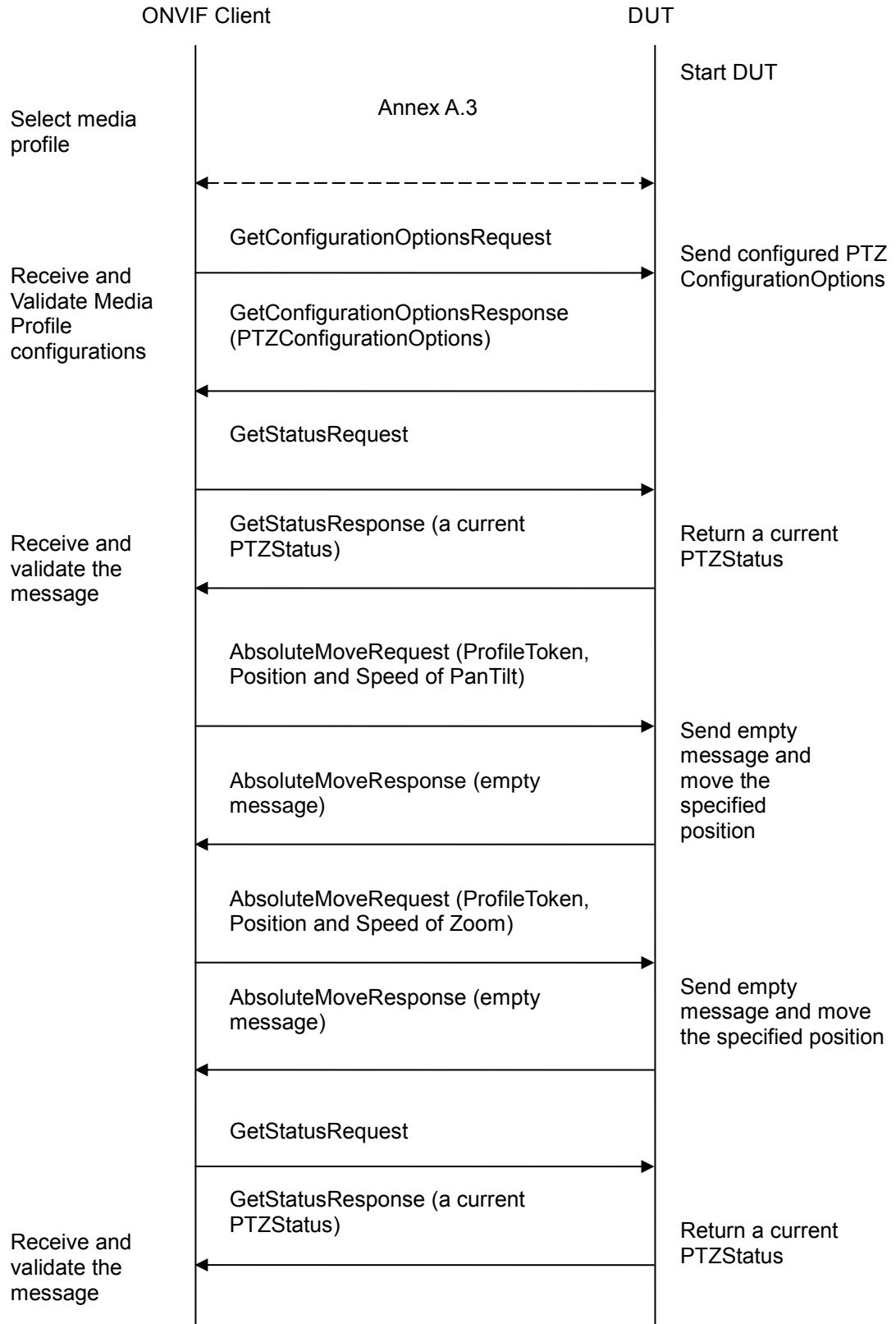
Test Purpose: To verify absolute Pan/Tilt or absolute Zoom movements using the DUT PTZ AbsoluteMove operation

Pre-Requisite: Media2 Service is supported by DUT, PTZ is supported by DUT. Absolute movement is supported by DUT.

Test Configuration: ONVIF Client and DUT



Test Sequence:





Test Procedure:

1. Start an ONVIF Client.
2. Start the DUT.
3. ONVIF Client configures and selects a media profile as described in Annex A.3.
4. ONVIF Client will invoke `GetConfigurationOptionsRequest` message to retrieve `PTZConfigurationOptions`.
5. Verify that DUT returns `GetConfigurationOptionsResponse` with valid `Spaces` and `PTZTimeout`, and has the function of Absolute movement.
6. ONVIF Client will invoke `GetStatusRequest` message to get a current `PTZStatus`.
7. The DUT returns a current `PTZStatus` in the `GetStatusResponse`.
8. If Absolute move is supported for 'Pan Tilt', ONVIF Client will invoke `AbsoluteMoveRequest` message (**ProfileToken**, **Position:PanTilt** = ["x", "y"], **Speed:PanTilt** = ["x", "y"]). The `Speed:PanTilt` parameter is added if supported `Speed:PanTilt`.
9. If ONVIF Client invoked `AbsoluteMoveRequest` message for `PanTilt`, verify that DUT returns `AbsoluteMoveResponse` message indicating success.
10. If Absolute move is supported for 'Zoom', ONVIF Client will invoke `AbsoluteMoveRequest` message (**ProfileToken**, **Position:Zoom** = ["x"], **Speed:Zoom** = ["x"]). The `Speed:Zoom` parameter is added if supported `Speed:Zoom`.
11. If ONVIF Client invoked `AbsoluteMoveRequest` message for `Zoom`, verify that DUT returns `AbsoluteMoveResponse` message indicating success.
12. ONVIF Client will invoke `GetStatusRequest` message to get a current `PTZStatus`.
13. Verify that the DUT moves to the specified position by `GetStatusResponse` message.

Test Result:

PASS –

The DUT passed all assertions.

FAIL –

The DUT did not send `GetConfigurationOptionsResponse` message.

The DUT did not send a valid `GetConfigurationOptionsResponse` message.

The DUT did not send `GetConfigurationOptionsResponse` message with valid `Spaces` and `PTZTimeout`.

The DUT did not send `GetStatusResponse` message.

The DUT did not send a valid `GetStatusResponse` message.

The DUT did not send `AbsoluteMoveResponse` message.

The DUT did not send `GetStatusResponse` message with the specified position after moved by ONVIF Client.



Note: If DUT does not return a current position by `GetStatusResponse`, the specified position after being moved by ONVIF Client is not checked by ONVIF Client.

PTZ accuracy is out of scope for this Test Specification. Therefore, the position reported by the DUT in the `GetStatusResponse` does not have to be exactly the same as the position requested by the ONVIF Client in the `AbsoluteMoveRequest`.

If profile selected for test contains `PanTiltLimits` or `ZoomLimits` in the `PTZConfiguration` then these limitations will be taken into account for x, y values of `PanTilt` or `Zoom` in `AbsoluteMoveRequest` message.

4.1.2 PTZ CONTINUOUS MOVE USING MEDIA2 PROFILE

Test Label: PTZ Continuous Move Operation Using Media2 Profile

Test Case ID: PTZ-3-2-2

ONVIF Core Specification Coverage: None

Command Under Test: `ContinuousMove`, `GetStatus`

WSDL Reference: `ptz.wsdl`

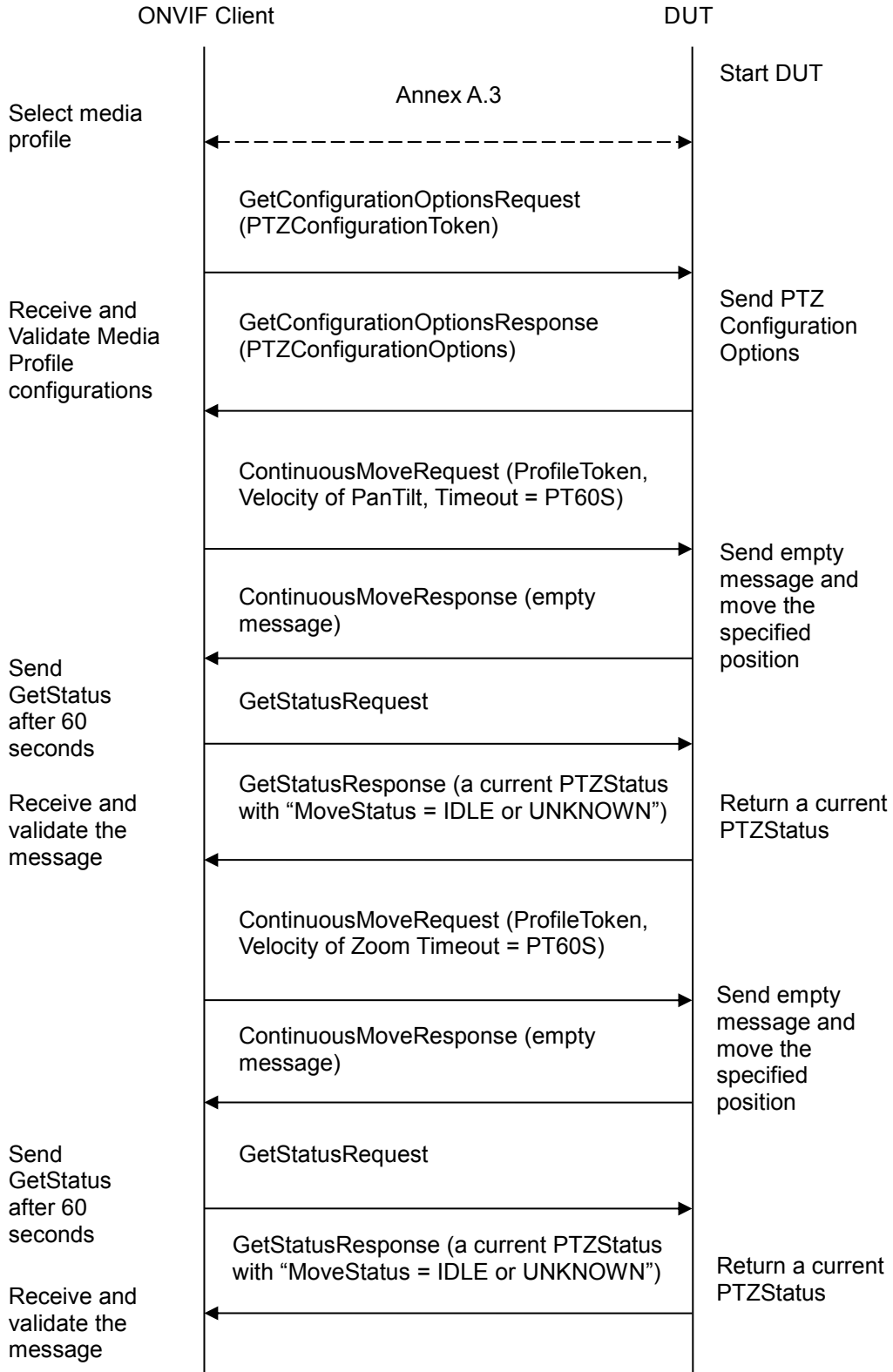
Test Purpose: To verify continuous Pan/Tilt or continuous Zoom movements using the DUT PTZ `ContinuousMove` operation with timeout parameter.

Pre-Requisite: Media2 Service is supported by DUT, PTZ is supported by DUT. Continuous movement is supported by DUT.

Test Configuration: ONVIF Client and DUT



Test Sequence:





Test Procedure:

1. Start an ONVIF Client.
2. Start the DUT.
3. ONVIF Client configures and selects a media profile as described in Annex A.3.
4. ONVIF Client will invoke GetConfigurationOptionsRequest message to retrieve PTZConfigurationOptions.
5. Verify that DUT returns GetConfigurationOptionsResponse with valid Spaces and PTZTimeout.
6. If PanTilt of Continuous movement is supported (there is a parameter of ContinuousPanTiltVelocitySpace in PTZConfigurationOptions), ONVIF Client will invoke ContinuousMoveRequest message (ProfileToken, Velocity:PanTilt = ["x", "y"], Timeout = PT60S).
7. If ONVIF Client invoked ContinuousMoveRequest message for PanTilt, verify that DUT returns ContinuousMoveResponse message indicating success.
8. If ONVIF Client invoked ContinuousMoveRequest message for PanTilt, ONVIF Client will invoke GetStatusRequest message to get a current PTZStatus after 60 second.
9. If ONVIF Client invoked ContinuousMoveRequest message for PanTilt, verify that the DUT returns GetStatusResponse with "MoveStatus = IDLE or UNKNOWN".
10. If Zoom of Continuous movement is supported (there is a parameter of ContinuousZoomVelocitySpace in PTZConfigurationOptions), ONVIF Client will invoke ContinuousMoveRequest message (ProfileToken, Velocity:Zoom = ["x"], Timeout = PT60S).
11. If ONVIF Client invoked ContinuousMoveRequest message for Zoom, verify that DUT returns ContinuousMoveResponse message indicating success.
12. If ONVIF Client invoked ContinuousMoveRequest message for Zoom, ONVIF Client will invoke GetStatusRequest message to get a current PTZStatus after 60 second.
13. If ONVIF Client invoked ContinuousMoveRequest message for PanTilt, verify that the DUT returns GetStatusResponse with "MoveStatus = IDLE or UNKNOWN".

Test Result:

PASS –

DUT passes all assertions.

FAIL –

The DUT did not send GetConfigurationOptionsResponse message.

The DUT did not send a valid GetConfigurationOptionsResponse message.

The DUT did not send GetConfigurationOptionsResponse message with valid Spaces and PTZTimeout.

The DUT did not send GetStatusResponse message.

The DUT did not send a valid GetStatusResponse message.

The DUT did not send ContinuousMoveResponse message.



The DUT did not send GetStatusResponse message with “MoveStatus = MOVING or UNKNOWN” after executing Test Procedure 9 and 15.

The DUT did not send GetStatusResponse message with “MoveStatus = IDLE or UNKNOWN” after executing Test Procedure 11 and 17.

Note: If DUT does not return a current MoveStatus by GetStatusResponse, the MoveStatus is not checked by ONVIF Client.

4.1.3 PTZ CONTINUOUS MOVE & STOP USING MEDIA2 PROFILE

Test Label: PTZ Continuous Move and Stop Operation Using Media2 Profile

Test Case ID: PTZ-3-2-3

ONVIF Core Specification Coverage: None

Command Under Test: ContinuousMove, Stop, GetStatus

WSDL Reference: ptz.wsdl

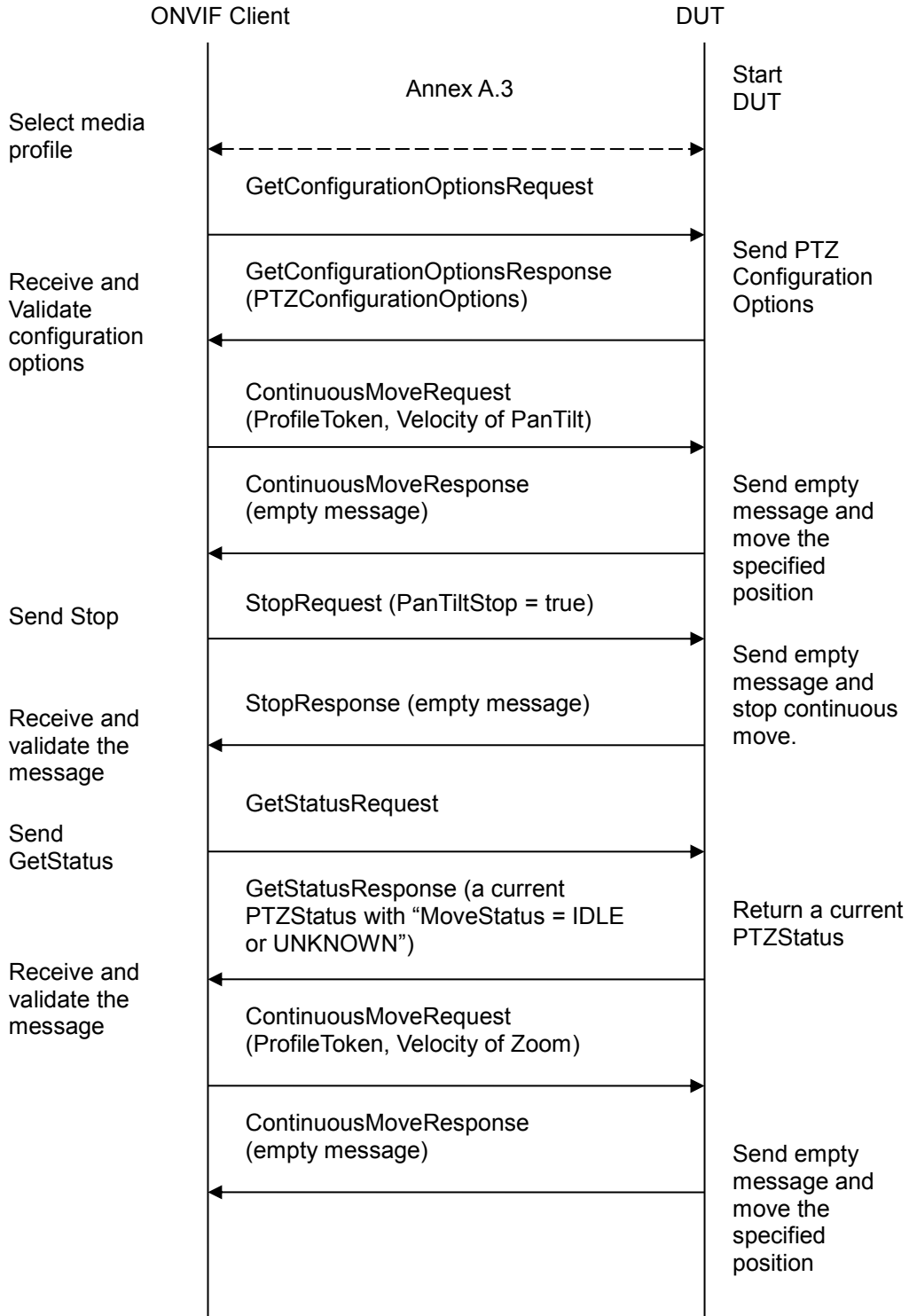
Test Purpose: To verify continuous Pan/Tilt or continuous Zoom movements using the DUT PTZ ContinuousMove operation without timeout parameter and to stop all ongoing pan, tilt and zoom movements.

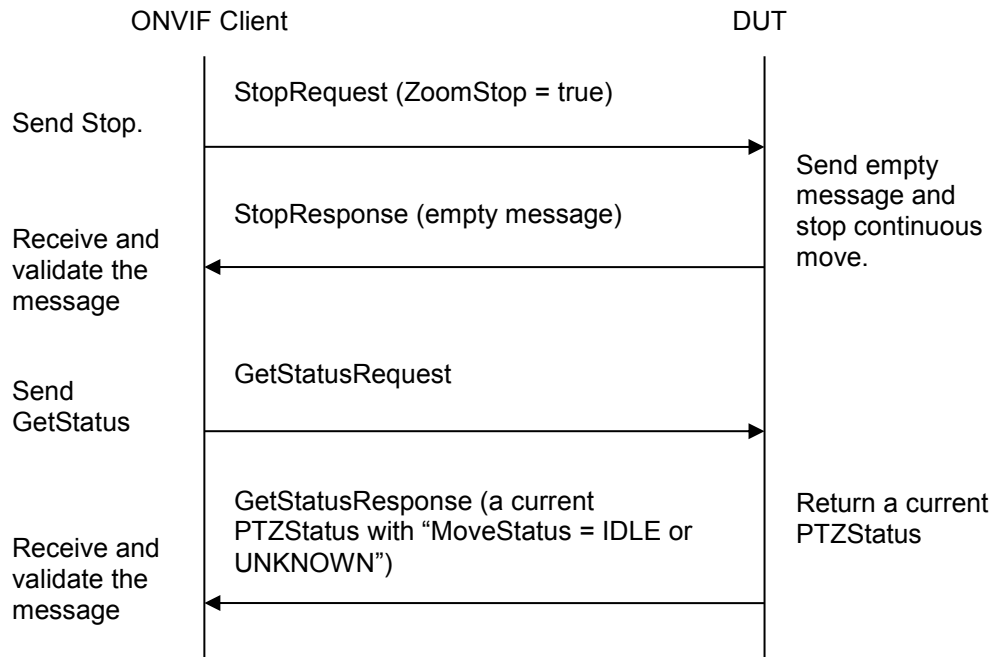
Pre-Requisite: Media2 Service is supported by DUT, PTZ is supported by DUT. Continuous movement is supported by DUT.

Test Configuration: ONVIF Client and DUT



Test Sequence:





Test Procedure:

1. Start an ONVIF Client.
2. Start the DUT.
3. ONVIF Client configures and selects a media profile as described in Annex A.3.
4. ONVIF Client will invoke GetConfigurationOptionsRequest message to retrieve PTZConfigurationOptions.
5. Verify that DUT returns GetConfigurationOptionsResponse with valid Spaces and PTZTimeout.
6. If PanTilt of Continuous movement is supported (there is a parameter of ContinuousPanTiltVelocitySpace in PTZConfigurationOptions), ONVIF Client will invoke ContinuousMoveRequest message (**ProfileToken, Velocity:PanTilt = ["x", "y"]**).
7. If ONVIF Client invoked ContinuousMoveRequest message for PanTilt, verify that DUT returns ContinuousMoveResponse message indicating success.
8. If ONVIF Client invoked ContinuousMoveRequest message for PanTilt, ONVIF Client will invoke StopRequest message to stop continuous move.
9. If ONVIF Client invoked ContinuousMoveRequest message for PanTilt, verify that the DUT returns StopResponse message indicating success.
10. If ONVIF Client invoked ContinuousMoveRequest message for PanTilt, ONVIF Client will invoke GetStatusRequest message to get a current PTZStatus.
11. If ONVIF Client invoked ContinuousMoveRequest message for PanTilt, verify that the DUT returns GetStatusResponse with "MoveStatus = IDLE or UNKNOWN".
12. If Zoom of Continuous movement is supported (there is a parameter of ContinuousZoomVelocitySpace in PTZConfigurationOptions), ONVIF Client will invoke ContinuousMoveRequest message (**ProfileToken, Velocity:Zoom = ["x"]**).



13. If ONVIF Client invoked ContinuousMoveRequest message for Zoom, verify that DUT returns ContinuousMoveResponse message indicating success.
14. If ONVIF Client invoked ContinuousMoveRequest message for Zoom, ONVIF Client will invoke StopRequest message to stop continuous move.
15. If ONVIF Client invoked ContinuousMoveRequest message for Zoom, verify that the DUT returns StopResponse message indicating success.
16. If ONVIF Client invoked ContinuousMoveRequest message for Zoom, ONVIF Client will invoke GetStatusRequest message to get a current PTZStatus.
17. If ONVIF Client invoked ContinuousMoveRequest message for PanTilt, verify that the DUT returns GetStatusResponse with "MoveStatus = IDLE or UNKNOWN".

Test Result:

PASS –

DUT passes all assertions.

FAIL –

The DUT did not send GetConfigurationOptionsResponse message.

The DUT did not send a valid GetConfigurationOptionsResponse message.

The DUT did not send GetConfigurationOptionsResponse message with valid Spaces and PTZTimeout.

The DUT did not send GetStatusResponse message.

The DUT did not send a valid GetStatusResponse message.

The DUT did not send ContinuousMoveResponse message.

The DUT did not send StopResponse message.

The DUT did not send GetStatusResponse message with "MoveStatus = MOVING or UNKNOWN" after executing Test Procedure 9 and 17.

The DUT did not send GetStatusResponse message with "MoveStatus = IDLE or UNKNOWN" after executing Test Procedure 13 and 21.

Note: If DUT does not return a current MoveStatus by GetStatusResponse, the MoveStatus is not checked by ONVIF Client.



4.2 Preset operations

4.2.1 PTZ SET AND GET PRESET USING MEDIA2 PROFILE

Test Label: PTZ Set and Get Preset Using Media2 Profile

Test Case ID: PTZ-3-2-4

ONVIF Core Specification Coverage: None

Command Under Test: SetPreset, GetPresets

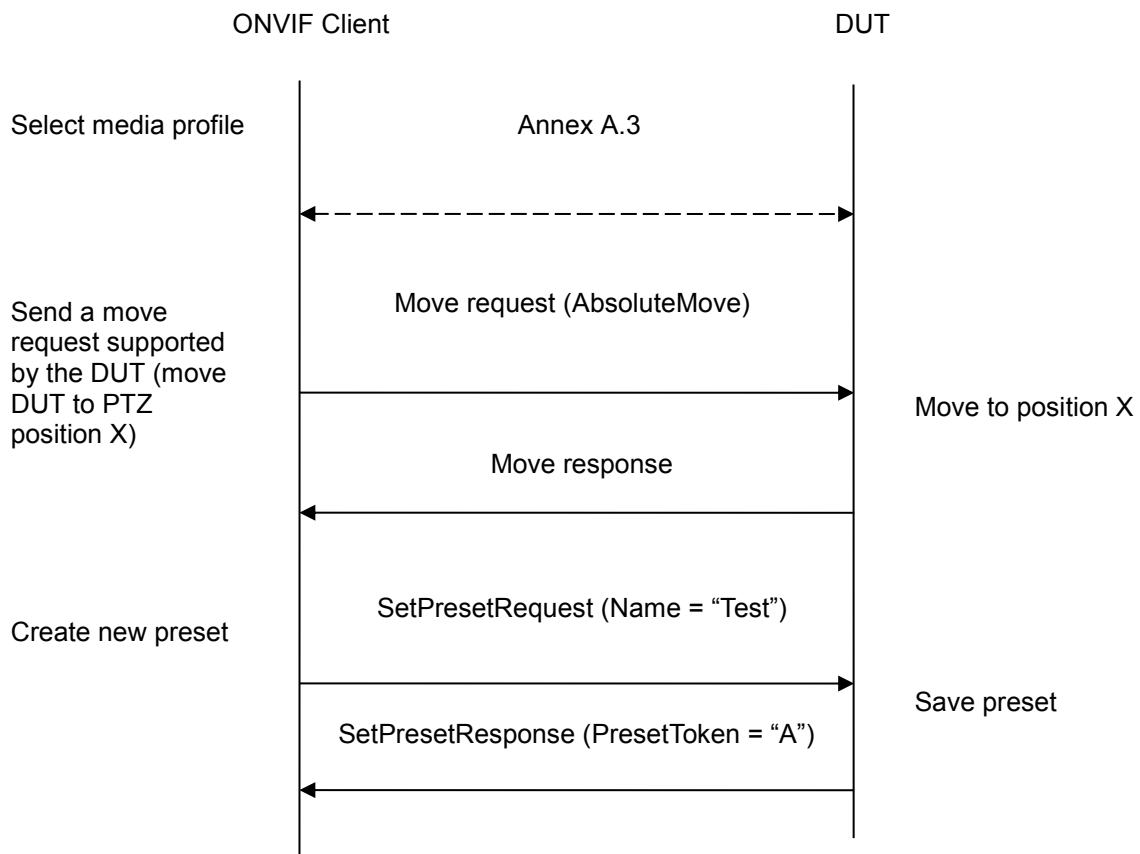
WSDL Reference: ptz.wsdl

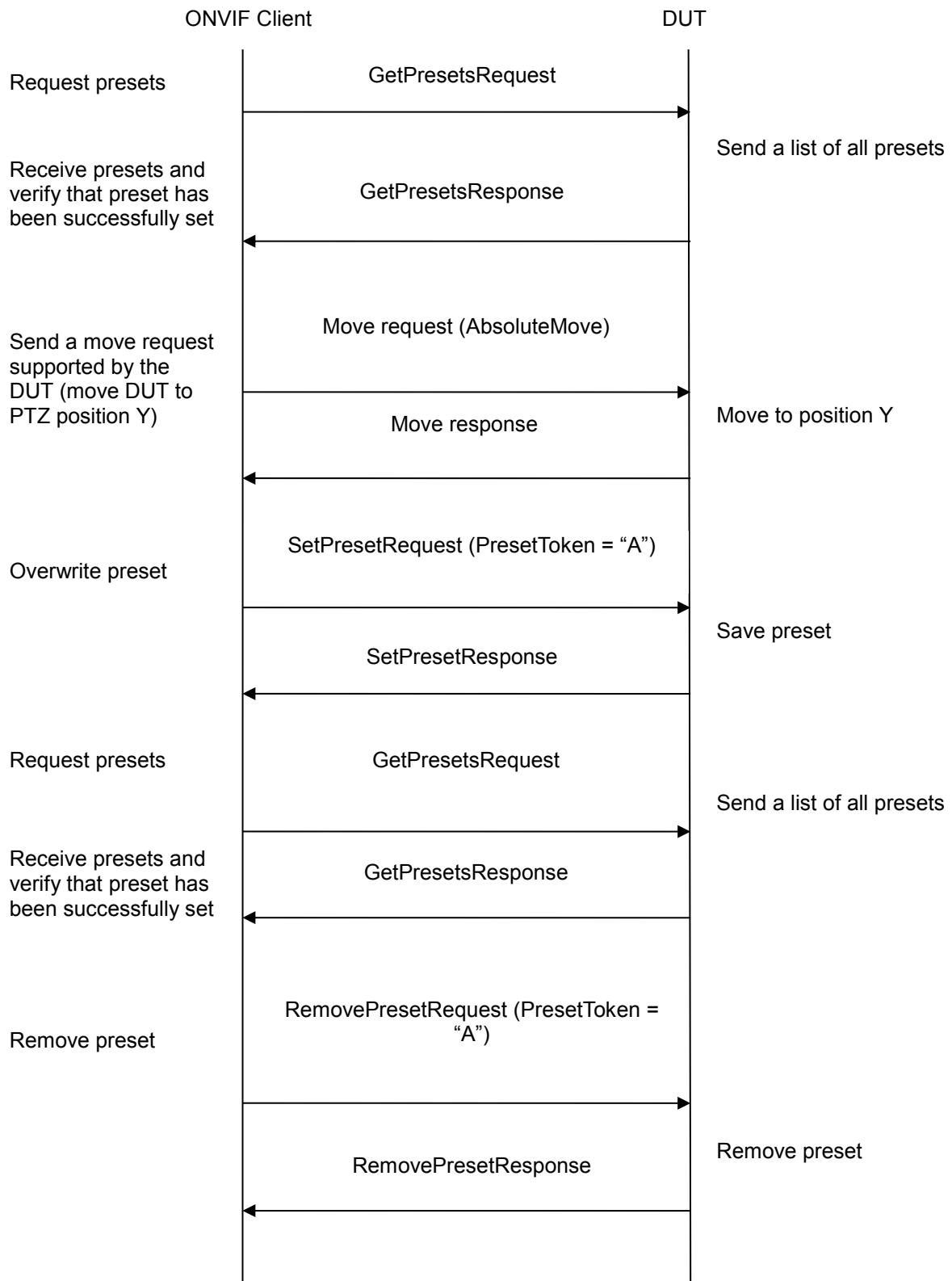
Test Purpose: To verify that the DUT supports the setting of presets using the SetPreset operation and the retrieval of presets using the GetPresets operation.

Pre-Requisite: Media2 Service is supported by DUT, PTZ is supported by DUT

Test Configuration: ONVIF Client and DUT

Test Sequence:







Test Procedure:

1. ONVIF Client configures and selects a media profile as described in Annex A.3.
2. Position the DUT so that it is at PTZPosition X using a move request supported by the DUT (AbsoluteMove).
3. Create a new preset using SetPresetRequest (Name = "Test").
4. Verify that the DUT sends a SetPresetResponse and a PresetToken for the preset. The PresetToken will need to be used in the following test steps. The PresetToken can have any valid value but it will be referred to as "PresetToken = "A" in this test case.
5. ONVIF Client sends a GetPresetsRequest.
6. The DUT sends a list of presets in the GetPresetsResponse.
7. Verify that the GetPresetsResponse has a preset with PresetToken = "A" and with Name = "Test".
8. If the DUT supports absolute Pan/Tilt movement, the ONVIF Client checks that GetPresetsResponse contains PTZPosition.PanTilt field with values that are equal to X.
9. If the DUT supports absolute Zoom movement, the ONVIF Client checks that GetPresetsResponse contains PTZPosition.Zoom field with values that are equal to X.
10. If the DUT does not support absolute Pan/Tilt movement and GetPresetsResponse contains PTZPosition.PanTilt field, the ONVIF Client checks that values of PanTilt that are equal to X.
11. If the DUT does not support absolute Zoom movement and GetPresetsResponse contains PTZPosition.Zoom field, the ONVIF Client checks that values of PanTilt that are equal to X.
12. Position the DUT so that is at PTZPosition Y using a move request supported by the DUT (AbsoluteMove).
13. Overwrite the preset using SetPresetRequest (PresetToken = "A").
14. ONVIF Client sends a GetPresetsRequest.
15. The DUT sends a list of presets in the GetPresetsResponse.
16. Verify that there is a preset with PresetToken = "A" and with Name = "Test".
17. If the DUT supports absolute Pan/Tilt movement, the ONVIF Client checks that GetPresetsResponse contains PTZPosition.PanTilt field with values that correspond to Y.
18. If the DUT supports absolute Zoom movement, the ONVIF Client checks that GetPresetsResponse contains PTZPosition.Zoom field with values that correspond to Y.
19. If the DUT does not support absolute Pan/Tilt movement and GetPresetsResponse contains PTZPosition.PanTilt field, the ONVIF Client checks that values of PanTilt that correspond to X.
20. If the DUT does not support absolute Zoom movement and GetPresetsResponse contains PTZPosition.Zoom field, the ONVIF Client checks that values of PanTilt that correspond to Y.
21. ONVIF Client sends a RemovePresetRequest (PresetToken = "A") to the DUT and the DUT removes the preset.

Test Result:



PASS –

The DUT passed all assertions.

FAIL –

The DUT's move operation failed.

The DUT did not send SetPresetResponse message.

The DUT did not include a PresetToken in the SetPresetResponse message.

The DUT did not send GetPresetsResponse message.

The DUT did not include the correct PTZPosition in the GetPresetsResponse message.

The DUT did not include the correct name (Name = "Test") in the GetPresetsResponse message.

Note: There are no specific requirements on what the exact values for PTZPositions X and Y should be used in this test, other than they shall be different positions.

If profile selected for test contains PanTiltLimits or ZoomLimits in the PTZConfiguration then these limitations will be taken into account for x, y values of PanTilt in AbsoluteMoveRequest message.

PTZ accuracy is out of scope for this Test Specification. Therefore, the position reported by the DUT in the GetPresetResponse does not have to be exactly the same as the position of the preset created with the SetPresetRequest.

Note: See Annex A.2 for Name and Token Parameters Length limitations.

4.2.2 PTZ GOTO PRESET USING MEDIA2 PROFILE

Test Label: PTZ GotoPreset Using Media2 Profile

Test Case ID: PTZ-3-2-5

ONVIF Core Specification Coverage: None

Command Under Test: GotoPreset

WSDL Reference: ptz.wsdl

Test Purpose: To verify that it is possible to go to presets using the GotoPreset operation.

Pre-Requisite: Media2 Service is supported by DUT, PTZ is supported by DUT

Test Configuration: ONVIF Client and DUT

Test Sequence:





Test Procedure:

1. ONVIF Client configures and selects a media profile as described in Annex A.3.
2. Position the DUT so that it is at PTZPosition X using a move request supported by the DUT (AbsoluteMove).
3. Create a new preset using SetPresetRequest (Name = 'Test').
4. Verify that the DUT sends a SetPresetResponse and a PresetToken for the preset. The PresetToken will need to be used in the following test steps. The PresetToken can have any valid value but it will be referred to as "PresetToken = "A" in this test case.
5. Move the DUT so that it is not at PTZPosition X (e.g. using AbsoluteMove Y).
6. ONVIF Client sends GotoPresetRequest (PresetToken = "A").
7. The DUT goes to the preset PTZ position and sends a GotoPresetResponse.
8. Verify that the DUT is at PTZPosition X. GetStatus (Position) can be used if it is supported; else this will have to be done manually.
9. ONVIF Client sends a RemovePresetRequest (PresetToken = "A") to the DUT and the DUT removes the preset.

Test Result:

PASS –

The DUT passed all assertions.

FAIL –

The DUT's move operation failed.

The DUT did not send SetPresetResponse message with a PresetToken.

The DUT did not go to the correct position after GotoPresetRequest was sent.

The DUT did not send GotoPresetResponse.

Note: There is no specific requirement on what the exact value for PTZPosition X should be used in this test case.

If profile selected for test contains PanTiltLimits or ZoomLimits in the PTZConfiguration, then these limitations will be taken into account for x, y values of PanTilt in AbsoluteMoveRequest message.

PTZ accuracy is out of scope for this Test Specification. Therefore the position reported by the DUT in the GetStatusResponse does not have to be exactly the same as the position of the preset created with the SetPresetRequest.

Note: See Annex A.2 for Name and Token Parameters Length limitations.

4.2.3 PTZ REMOVE PRESET USING MEDIA2 PROFILE

Test Label: PTZ RemovePreset Using Media2 Profile

Test Case ID: PTZ-4-2-3



ONVIF Core Specification Coverage: None

Command Under Test: RemovePreset

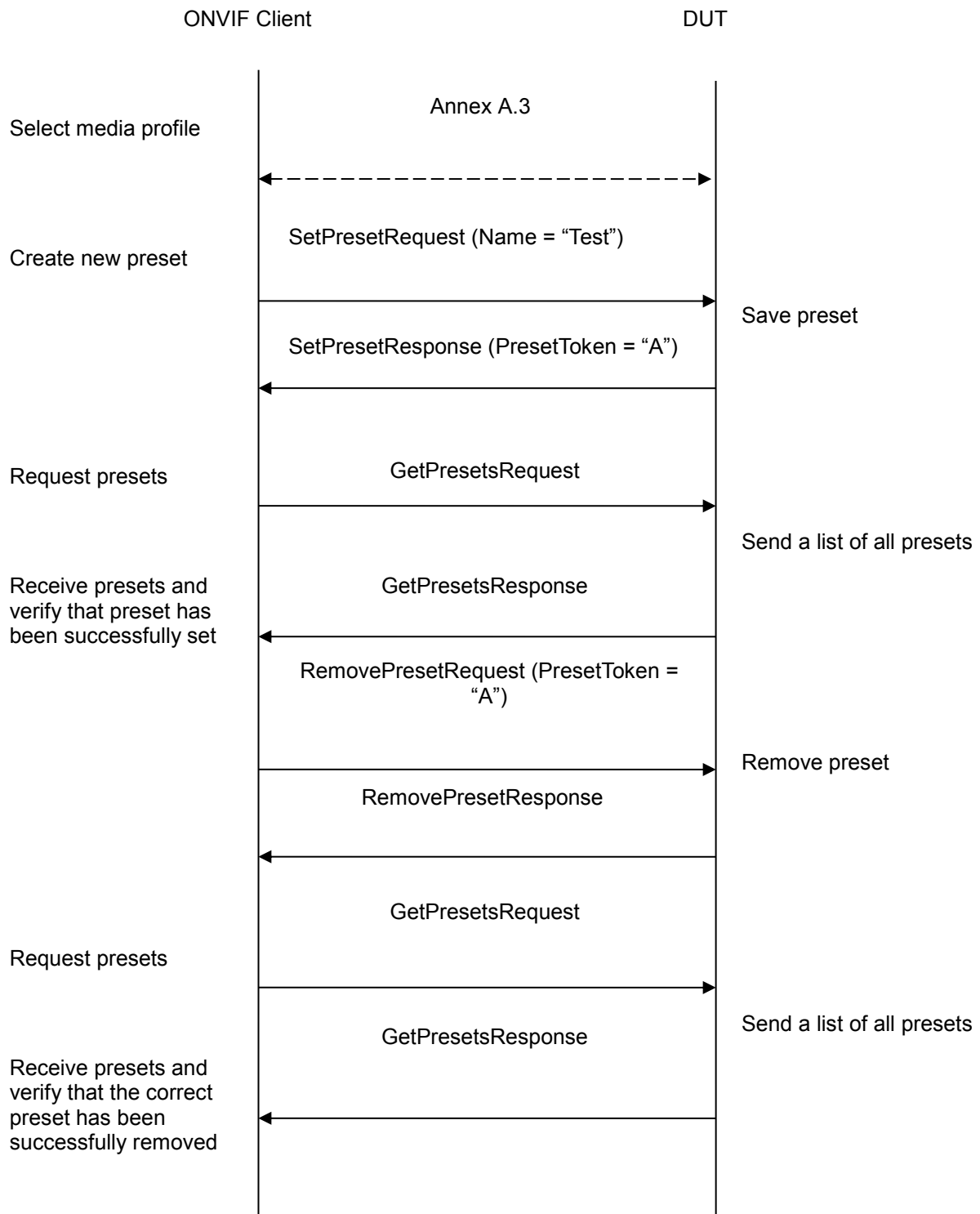
WSDL Reference: ptz.wsdl

Test Purpose: To verify that it is possible to remove presets using the RemovePreset operation.

Pre-Requisite: Media2 Service is supported by DUT, PTZ is supported by DUT.

Test Configuration: ONVIF Client and DUT

Test Sequence:



Test Procedure:

1. ONVIF Client configures and selects a media profile as described in Annex A.3.
2. ONVIF Client creates a new preset using SetPresetRequest (Name = "Test")



3. DUT saves the preset and sends a SetPresetResponse. Verify that the DUT sent a SetPresetResponse and a PresetToken for the preset. The PresetToken will need to be used in the following test steps. The PresetToken can have any valid value but it will be referred to as "PresetToken = "A" in this test case.
4. ONVIF Client sends a GetPresetsRequest.
5. DUT sends a list of presets in the GetPresetsResponse.
6. Verify that there is a preset with PresetToken = "A" and Name = "Test".
7. ONVIF Client sends RemovePresetRequest (PresetToken = "A")
8. DUT removes preset and sends a RemovePresetResponse
9. ONVIF Client sends a GetPresetsRequest.
10. DUT sends a list of presets in the GetPresetsResponse.
11. Verify that there is no preset with PresetToken = "A" and Name = "Test".

Test Result:

PASS –

DUT passes all assertions.

FAIL –

DUT did not send SetPresetResponse message with a PresetToken.

DUT did not send GetPresetsResponse message.

DUT did not remove a preset after RemovePresetRequest was sent.

DUT did not send RemovePresetResponse.

Note: See Annex A.2 for Name and Token Parameters Length limitations.



4.3 Home Position operations

4.3.1 PTZ HOME POSITION OPERATIONS (CONFIGURABLE) USING MEDIA2 PROFILE

Test Label: PTZ Configurable Home Position Using Media2 Profile

Test Case ID: PTZ-5-2-1

ONVIF Core Specification Coverage: None

Command Under Test: SetHomePosition, GotoHomePosition

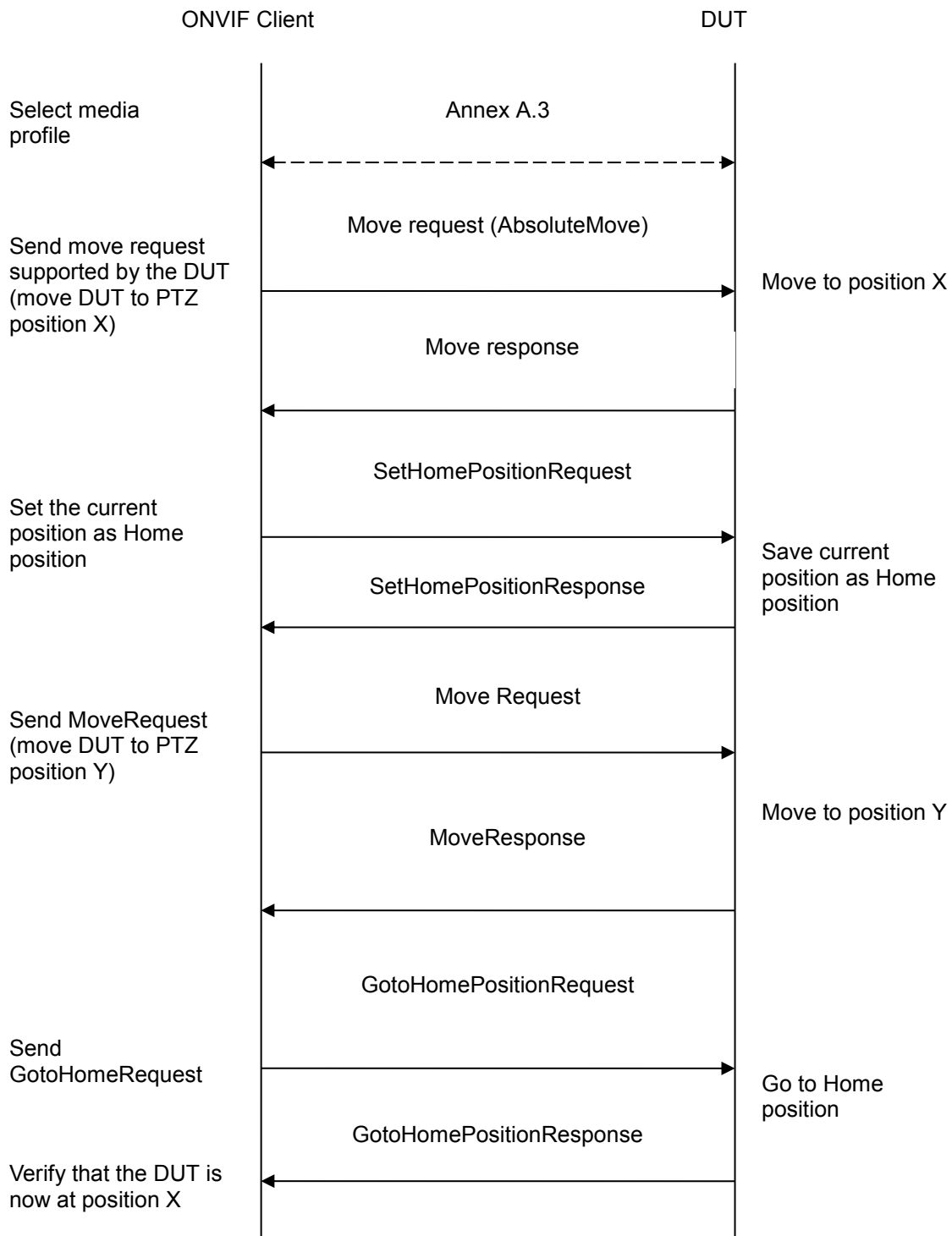
WSDL Reference: ptz.wsdl

Test Purpose: To verify that the SetHomePosition and GotoHomePosition operations are correctly implemented.

Pre-Requisite: Media2 Service is supported by DUT, PTZ is supported by DUT.

Test Configuration: ONVIF Client and DUT

Test Sequence:



Test Procedure:

1. ONVIF Client configures and selects a media profile as described in Annex A.3.
2. Position the DUT so that it is at PTZPosition X using a move request supported by the DUT (AbsoluteMove).



3. ONVIF Client sends a SetHomePositionRequest.
4. DUT sets the Home position to the current position and sends a SetHomePositionResponse.
5. Move DUT so that it is not at PTZPosition X (e.g. using AbsoluteMove Y)
6. ONVIF Client sends a GotoHomePositionRequest.
7. DUT goes to the Home PTZ position and sends a GotoHomePositionResponse.
8. Verify that the DUT is at PTZPosition X (GetStatus/Position can be used if it is supported, else this will have to be done manually)

Test Result:

PASS –

The DUT passed all assertions.

FAIL –

The DUT's move operation failed.

The DUT did not send SetHomePositionResponse message.

The DUT did not save the new position as Home position.

The DUT did not send GotoHomePositionResponse message.

The DUT did not go to Home position.

Note: PTZ accuracy is out of scope for this Test Specification. Therefore, the position reported by the DUT in the GetStatusResponse does not have to be exactly the same as the position of the Home position.

If profile selected for test contains PanTiltLimits or ZoomLimits in the PTZConfiguration then these limitations will be taken into account for x, y values of PanTilt in AbsoluteMoveRequest message.

4.3.2 PTZ HOME POSITION OPERATIONS (FIXED) USING MEDIA2 PROFILE

Test Label: PTZ Fixed Home Position Using Media2 Profile

Test Case ID: PTZ-5-2-2

ONVIF Core Specification Coverage: None

Command Under Test: SetHomePosition, GotoHomePosition

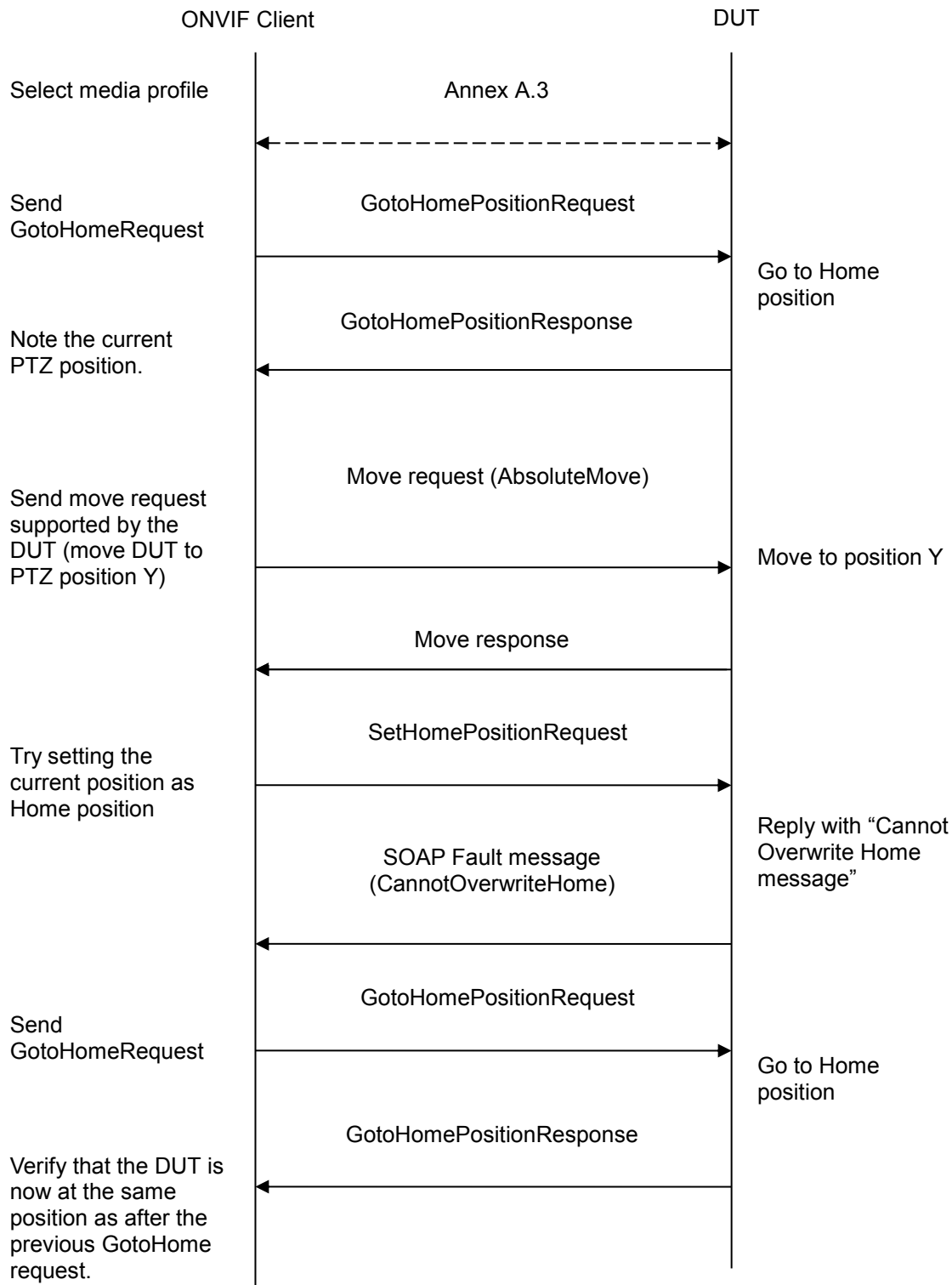
WSDL Reference: ptz.wsdl

Test Purpose: To verify that the SetHomePosition and GotoHomePosition operations are correctly implemented.

Pre-Requisite: Media2 Service is supported by DUT, PTZ is supported by DUT. This test case applies to PTZ nodes that support fixed Home position.

Test Configuration: ONVIF Client and DUT

Test Sequence:



Test Procedure:

1. ONVIF Client configures and selects a media profile as described in Annex A.3.



2. ONVIF Client sends a GotoHomePositionRequest.
3. The DUT goes to the Home position and sends a GotoHomePositionResponse.
4. Note at which PTZPosition the DUT is (GetStatus/Position can be used if it is supported, else this will have to be done manually). This position will be referred to as “PTZPosition A” below.
5. Position the DUT so that is at PTZPosition Y using a move request supported by the DUT (e.g. AbsoluteMove).
6. ONVIF Client sends a SetHomePositionRequest.
7. DUT responds with “Cannot Overwrite Home” message.
8. ONVIF Client sends a GotoHomePositionRequest.
9. DUT goes to the Home PTZ position and sends a GotoHomePositionResponse.
10. Verify that the DUT is back at PTZPosition A (GetStatus/Position can be used if it is supported, else this will have to be done manually)

Test Result:

PASS –

The DUT passed all assertions.

FAIL –

The DUT did not send SOAP Fault message (CannotOverwriteHome).

The DUT’s move operation failed.

The DUT did not save the new position (“PTZPosition Y”) as Home position.

The DUT did not send GotoHomePositionResponse message.

The DUT did not go to original Home position (“PTZPosition A”).

Note: PTZ accuracy is out of scope for this Test Specification. Therefore, the position reported by the DUT in the GetStatusResponse does not have to be exactly the same as the position of the Home position.

If profile selected for test contains PanTiltLimits or ZoomLimits in the PTZConfiguration then these limitations will be taken into account for x, y values of PanTilt in AbsoluteMoveRequest message.

4.3.3 PTZ – HOME POSITION OPERATIONS (USAGE OF FIXEDHOMEPOSITION FLAG) USING MEDIA2 PROFILE

Test Label: PTZ Configurable Home Position with FixedHomePosition flag in PTZ Nodes Using Media2 Profile

Test Case ID: PTZ-5-2-3

ONVIF Core Specification Coverage: None

Command Under Test: SetHomePosition

WSDL Reference: ptz.wsdl

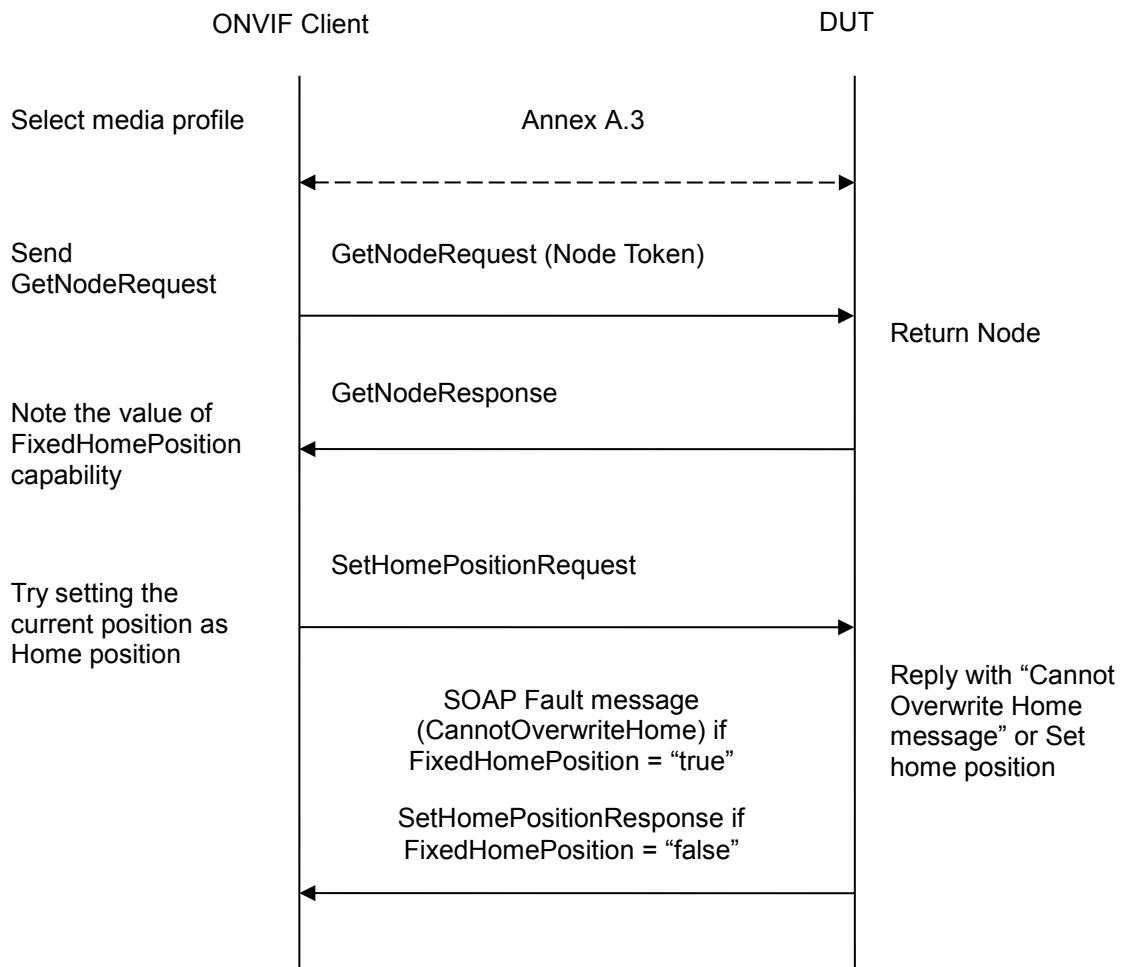


Test Purpose: To verify that the SetHomePosition and GotoHomePosition operations are correctly implemented.

Pre-Requisite: Media2 Service is supported by DUT, PTZ is supported by DUT. This test case applies to PTZ nodes that support Configurable Home position.

Test Configuration: ONVIF Client and DUT

Test Sequence:



Test Procedure:

1. Start an ONVIF Client.
2. Start the DUT.
3. ONVIF Client configures and selects a media profile as described in Annex A.3.
4. ONVIF Client invokes GetNodeRequest message (Node Token) to get PTZ node capabilities.
5. Verify the GetNodeResponse message from the DUT. If GetNodeResponse message does not contains FixedHomePosition attribute skip other steps and go to the next test.



6. ONVIF Client invokes SetHomePositionRequest message (Profile Token) to get PTZ node capabilities.
7. Verify the SetHomePositionResponse message or SOAP 1.2 fault message (Action/CannotOverwriteHome or ActionNotSupported) from the DUT. Verify that SetHomePositionResponse message was relieved if FixedHomePosition = "false". Verify that SOAP 1.2 fault message (Action/CannotOverwriteHome or ActionNotSupported) was relieved if FixedHomePosition = "true".

Test Result:

PASS –

DUT passes all assertions.

FAIL –

DUT did not send SetHomePositionResponse message if FixedHomePosition = "false".

DUT did not send a valid SOAP 1.2 fault message if FixedHomePosition = "true".

4.4 Predefined PTZ spaces

4.4.1 Absolute Position Spaces

4.4.1.1 ABSOLUTE PAN/TILT POSITION SPACE

Test Label: PTZ Absolute Position Spaces Absolute Pan/Tilt

Test Case ID: PTZ-7-1-4

ONVIF Core Specification Coverage: Absolute Pan/Tilt Position Space

Command Under Test: None

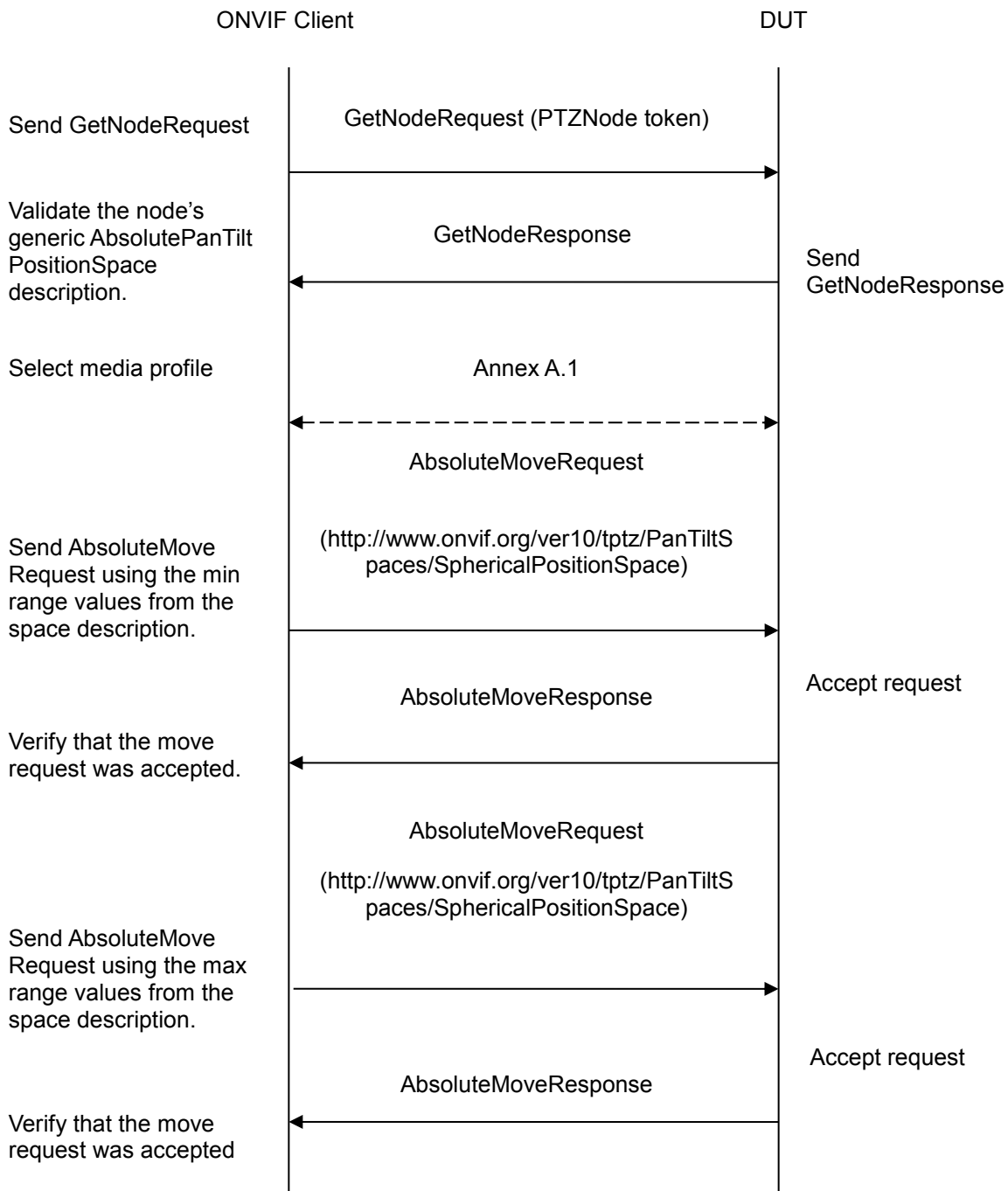
WSDL Reference: ptz.wsdl

Test Purpose: To verify that the node supports the Absolute Pan/Tilt Position Space for AbsolutePanTilt.

Pre-Requisite: PTZ is supported by the DUT. In addition, ONVIF Client gets the PTZ service entry point by GetCapabilities or GetServices command. AbsoluteMove is supported by the DUT

Test Configuration: ONVIF Client and DUT

Test Sequence:



Test Procedure:

1. ONVIF Client will invoke GetNodesRequest message to retrieve a complete list of PTZNodes.
2. Verify the GetNodesResponse message from the DUT.



3. Select the first PTZNode that supports Absolute Pan/Tilt movement. If there is no such PTZNodes skip other steps and go to the next test.
4. Verify that the node's Absolute Position Space description is correctly formed and the allowed range is specified. Verify that there is Absolute Position Space description for Absolute PanTilt.
5. ONVIF Client configures and selects a media profile as described in Annex A.1 for PTZ Configuration that refers to the selected PTZNode.
6. ONVIF Client sends a valid AbsoluteMoveRequest using the min XRange/YRange values from the space description and with Absolute Pan/Tilt Position Space.
7. Verify that the AbsoluteMoveRequest is accepted.
8. ONVIF Client sends a valid AbsoluteMoveRequest using the max XRange/YRange values from the space description and with Absolute Pan/Tilt Position Space.
9. Verify that the AbsoluteMoveRequest is accepted.
10. Repeat test procedure for all PTZNodes available that supports Absolute Pan/Tilt movement in the DUT.

Test Result:

PASS –

The DUT passed all assertions.

FAIL –

The DUT does not have Absolute Pan/Tilt Position Space description for AbsolutePanTilt.

The allowed range is not specified

A valid AbsoluteMove operation does not succeed

Note: This test case shall be repeated for all PTZNodes with Absolute Pan/Tilt move support that are available in the DUT.

Note: Absolute Pan/Tilt Move is regarded as supported for PTZNode, if PTZNode contains at least one AbsolutePanTiltPositionSpace tag.

Note: If profile selected for test contains PanTiltLimits or ZoomLimits in the PTZConfiguration then these limitations will be taken into account for x, y values of PanTilt or Zoom in AbsoluteMoveRequest message.

4.4.2 Continuous Velocity Spaces

4.4.2.1 CONTINUOUS PAN/TILT VELOCITY SPACE

Test Label: PTZ – Continuous Velocity Spaces – Continuous Pan/Tilt

Test Case ID: PTZ-7-3-4

ONVIF Core Specification Coverage: Continuous Pan/Tilt Velocity Space



Command Under Test: None

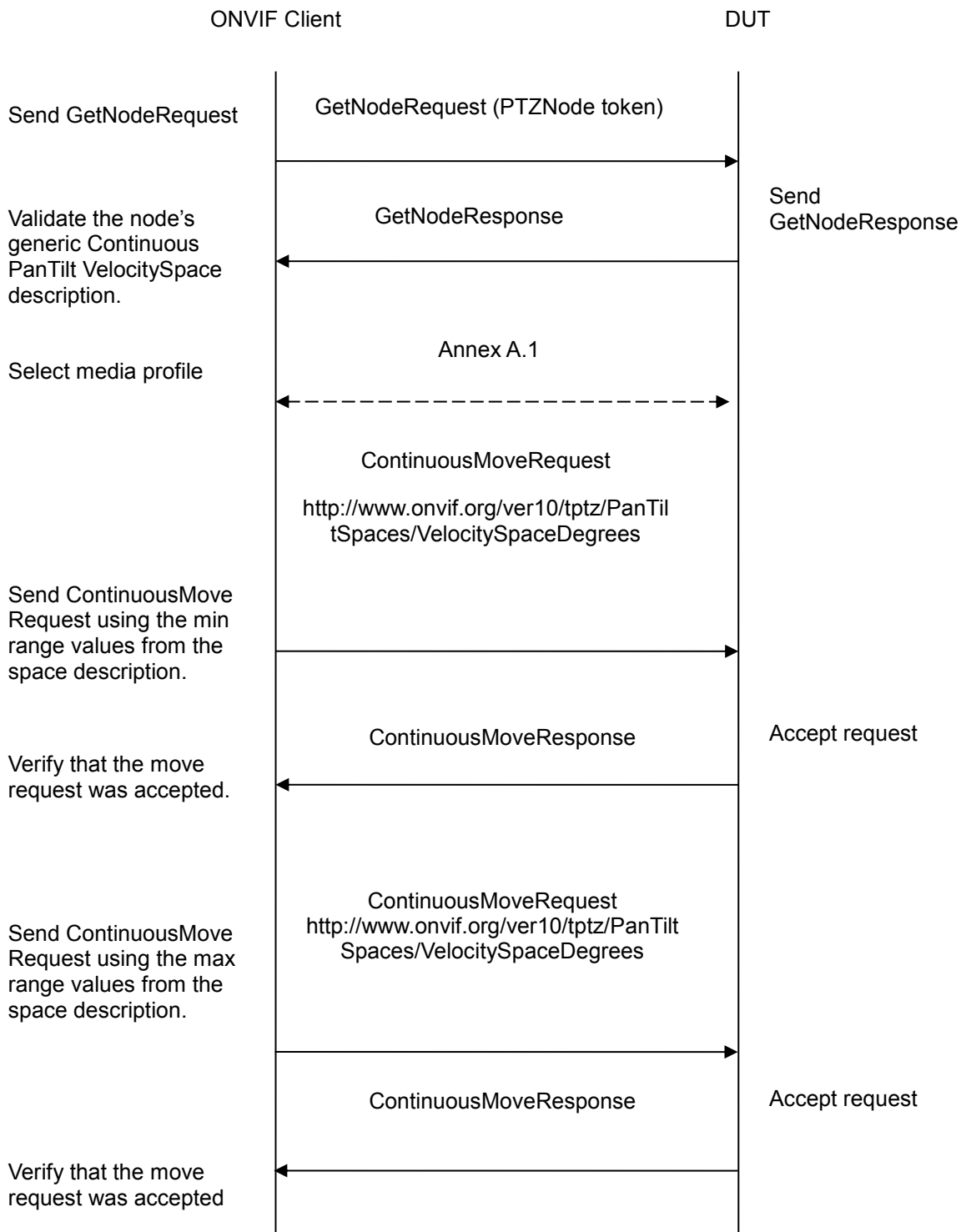
WSDL Reference: ptz.wsdl

Test Purpose: To verify that the node supports the Continuous Pan/Tilt Velocity Space for Continuous Pan/Tilt.

Pre-Requirement: PTZ is supported by DUT. In addition, ONVIF Client gets the PTZ service entry point by GetCapabilities or GetServices command. ContinuousMove is supported by the DUT.

Test Configuration: ONVIF Client and DUT

Test Sequence:



Test Procedure:

1. ONVIF Client will invoke GetNodesRequest message to retrieve a complete list of PTZNodes.



2. Verify the GetNodesResponse message from the DUT.
3. Select the first PTZNode that supports Continuous Pan/Tilt movement. If there is no such PTZNodes, skip other steps and go to the next test.
4. Verify that the node's Continuous Velocity Space description is correctly formed and that the allowed range is specified. Verify that there is Continuous Pan/Tilt Velocity Space description for ContinuousPanTilt.
5. ONVIF Client configures and selects a media profile as described in Annex A.1 for PTZ Configuration that refers to selected PTZNode.
6. ONVIF Client sends a valid ContinuousMoveRequest using the min XRange/YRange values from the space description and with Continuous Pan/Tilt Velocity Space.
7. Verify that the ContinuousMoveRequest is accepted.
8. ONVIF Client sends a valid ContinuousMoveRequest using the max XRange/YRange values from the space description and with Continuous Pan/Tilt Velocity Space.
9. Verify that the ContinuousMoveRequest is accepted.
10. Repeat test procedure for all PTZNodes available that supports Continuous Pan/Tilt movement in the DUT.

Test Result:

PASS –

DUT passes all assertions.

FAIL –

The DUT does not have a Continuous Pan/Tilt Velocity Space description for Continuous Pan/Tilt.

The allowed range is not specified

A valid ContinuousMove operation does not succeed

Note: This test case shall be repeated for all PTZNodes with Continuous Pan/Tilt move support that are available in the DUT.

Note: Continuous Pan/Tilt Move is regarded as supported for PTZNode, if PTZNode contains at least one ContinuousPanTiltVelocitySpace tag.

4.4.2.2 GENERIC ZOOM VELOCITY SPACE

Test Label: PTZ – Continuous Velocity Spaces – Generic Zoom

Test Case ID: PTZ-7-3-5

ONVIF Core Specification Coverage: Generic Zoom Velocity Space

Command Under Test: None



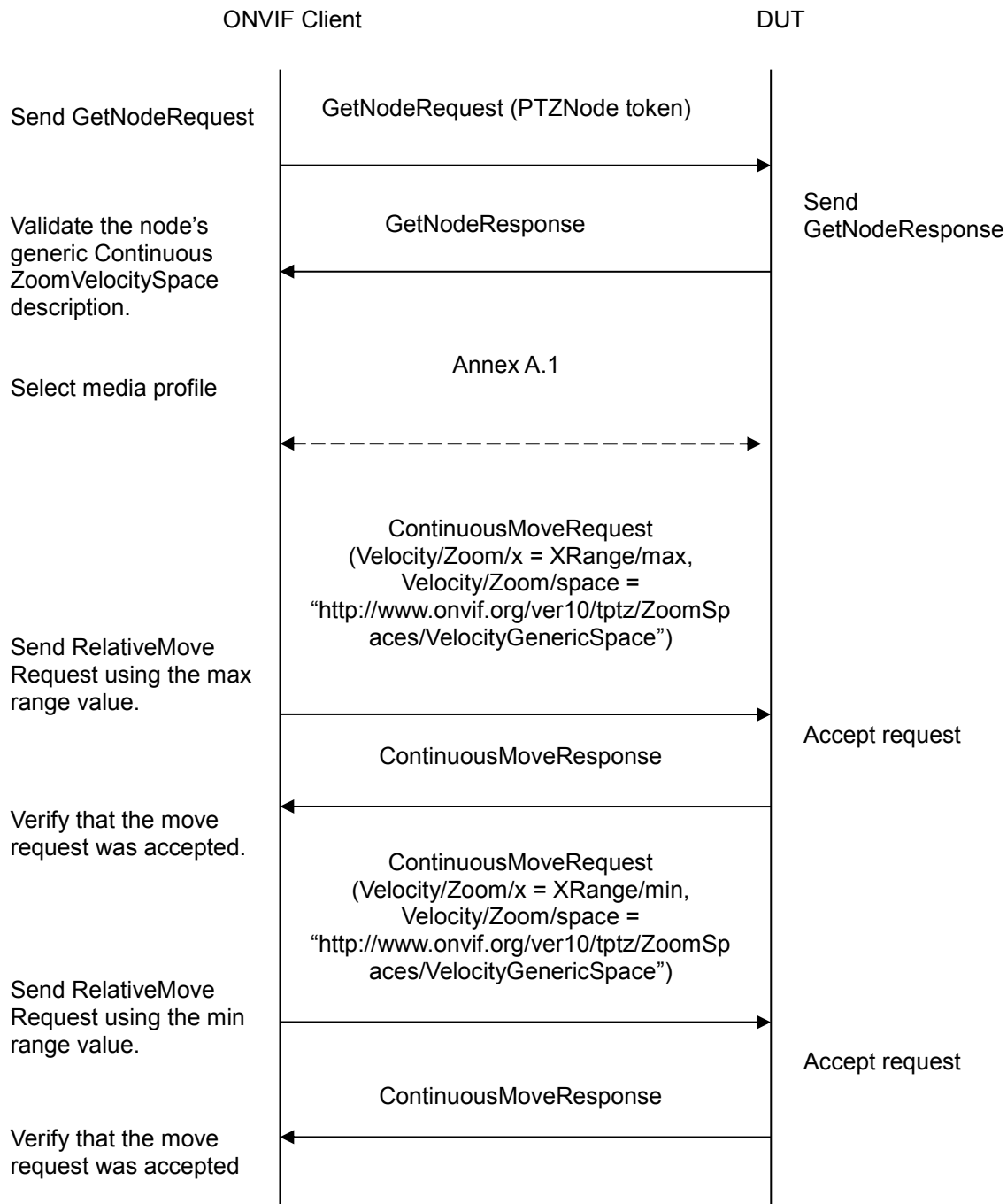
WSDL Reference: ptz.wsdl

Test Purpose: To verify that the node supports the Generic Zoom Velocity Space for Continuous Zoom.

Pre-Requirement: PTZ is supported by DUT. In addition, ONVIF Client gets the PTZ service entry point by GetCapabilities or GetServices command.

Test Configuration: ONVIF Client and DUT

Test Sequence:



Test Procedure:

1. ONVIF Client will invoke GetNodesRequest message to retrieve a complete list of PTZNodes.
2. Verify the GetNodesResponse message from the DUT.
3. Select the first PTZNode that supports Continuous Zoom movement. If there is no such PTZNodes, skip other steps and go to the next test.



4. Verify that the node's Continuous Velocity Space description is correctly formed and that the allowed range is specified. Verify that there is Generic Zoom Velocity Space description for ContinuousZoom.
5. ONVIF Client configures and selects a media profile as described in Annex A.1 for PTZ Configuration that refers to selected PTZNode.
6. ONVIF Client sends a valid ContinuousMoveRequest using the max XRange values from the space description and with Generic Zoom Velocity Space.
7. Verify that the ContinuousMoveRequest is accepted.
8. ONVIF Client sends a valid ContinuousMoveRequest using the min XRange values from the space description and with Generic Zoom Velocity Space.
9. Verify that the ContinuousMoveRequest is accepted.
10. Repeat test procedure for all PTZNodes available that supports Continuous Zoom movement in the DUT.

Test Result:

PASS –

DUT passes all assertions.

FAIL –

The DUT does not have a Generic Zoom Velocity Space description for ContinuousZoom .

The allowed range is not specified

A valid ContinuousMove operation does not succeed

Note: This test case shall be repeated for all PTZNodes with Continuous Zoom move support that are available in the DUT.

Note: Continuous Zoom Move is regarded as supported for PTZNode, if PTZNode contains at least one ContinuousZoomVelocitySpace tag.

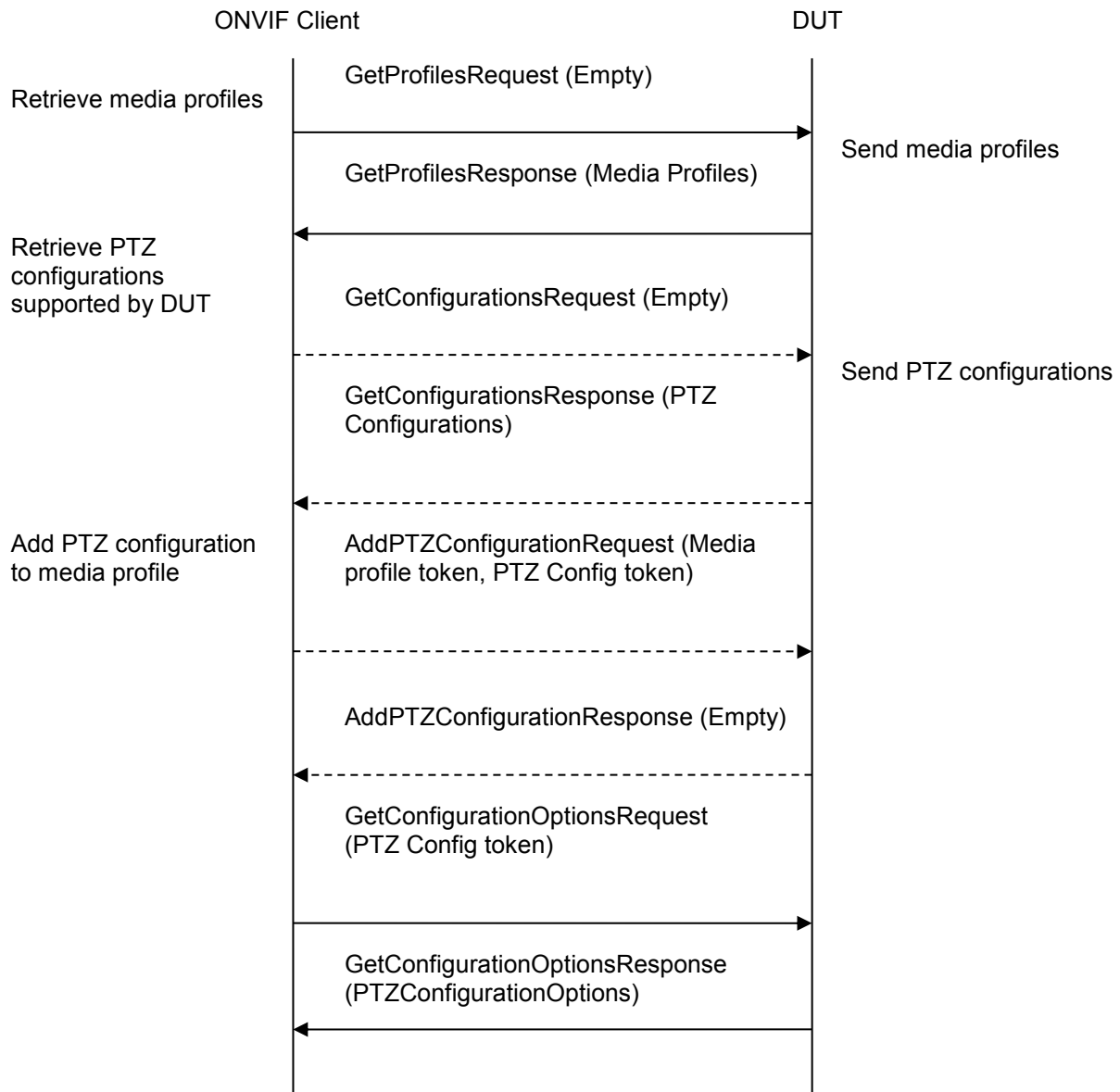
Annex A

This section describes the meaning of the following definitions. These definitions are used in the test case description.

A.1 Media Profile Configuration for PTZ Control

For the execution of PTZ control test cases, ONVIF Client has to select and configure the media profile as follows.

1. Retrieve media profiles by invoking GetProfiles command. Check whether a media profile contains PTZ configuration or not.
2. If no media profile contains PTZ configuration, retrieve PTZ configurations by invoking GetConfigurations command.
3. Add PTZ configuration to media profile by invoking AddPTZConfiguration command.
4. Get PTZ configuration options for the added PTZ Configuration by invoking GetConfigurationOptions



A.2 Name and Token Parameters

There are the following limitations on maximum length of Name and Token parameters that shall be used during tests by ONVIF Device Test Tool to prevent faults from DUT:

1. Name shall be less than or equal to 64 characters (only readable characters are accepted).
2. Token shall be less than or equal to 64 characters (only readable characters are accepted).
3. UTF-8 character set shall be used for Name and Token.

Note: these limitations will not be used, if ONVIF Device Test Tool reuses values that were received from the DUT.



A.3 Media2 Service - Media Profile Configuration for PTZ Control

For the execution of PTZ control test cases, ONVIF Client has to select and configure the media profile as follows.

1. ONVIF Client invokes GetProfilesRequest with Type="PTZ" as input parameter in Media2 Service address.
2. The DUT sends GetProfilesResponse with list of profiles.
3. ONVIF Client selects a profile with PTZ Configuration is not empty in GetProfilesResponse and returns this profile to the test.
4. If there is no profile with PTZ Configuration in GetProfilesResponse then ONVIF Client selects first profile in GetProfilesResponse, saves this profile in **Profile1** variable and runs the following steps:
 - 4.1. ONVIF Client invokes GetConfigurationsRequest in PTZ Service address.
 - 4.2. The DUT sends GetConfigurationsResponse with the list of PTZ Configurations.
 - 4.3. ONVIF Client selects first PTZ Configuration in the GetConfigurationsResponse, saves this configuration in **PTZConfiguration1** variable and runs the following steps:
 - 4.3.1. ONVIF Client invokes AddConfigurationRequest with ProfileToken = **Profile1** token, Configuration Type = "PTZ" and Configuration Token = **PTZConfiguration1** token in Media2 Service address.
 - 4.3.2. The DUT sends AddConfigurationResponse.
 - 4.3.3. ONVIF Client invokes GetConfigurationOptions with ConfigurationToken = **PTZConfiguration1** token.
 - 4.3.4. The DUT sends GetConfigurationOptionsResponse.
 - 4.3.5. ONVIF Client stops the annex and return **Profile1** variable to the test.

