ONVIF Application Note
for Panasonic Network Camera

Profile S / Profile G

VER. 1.4

Panasonic System Networks Co., Ltd.

Revision History

VER	Date	Item no.	Comment	Revise trigger
0.5	5 Oct.2010	-	Original	-
0.6	25 Nov. 2010		Fix a typo	
0.7	22 Jul. 2011	4.2	Replace user authentication table	CoreSpec 2.0
		5.2.7	Add audio backchannel configurations	
		6.3	Add audio backchannel connection.	
			Fix some typos	
1.0	14 Sep. 2012			CoreSpec 2.1.1
1.1	28 June. 2013			CoreSpec 2.2.1
1.2	25 Sep. 2014	6.1	Remove the chapter for Imaging mode.	CoreSpec2.4.1
1.3	7 July. 2016	4.1.8	Not support ZeroConfiguration	
		6.1	Add profile about WV-SFV781L/WV-SPV781L	
		6.1.3	Remove the chapter	
		6.2.8	Add table of quality	
		6.3	Add OSD configuration specification	
		7.1	Fix session management for the current product.	
		7.5	Add the limit of the streaming for WV-SFV481/WV-SFN480	
		9.3.1	Add the support of DigitalInput event	
		9.3.2	Add the comment for the VMD alarm event	
		10.6	Add the comment for replay session	
1.4	7 February 2017	2.1.1.	"User name/Password" setup now required upon first time access	CoreSpec 16.03
		6.1.1.	Share Profile with ONVIF and native settings	
		6.2.5.2	"GovLength" Parameter of Smart Coding	
		6.2.9.	"Rotate" Parameter	
		6.4.	Camera restarts when changing VideoSourceMode	
		8.1.5.	Wiper, Washer, IR-LED	
		8.1.5.1.	How to switch "Day & Night (IR)" of native Setting with ONVIF	
		9.1.	Add Media2 Events	
		9.3.2.	Change image	
		10	Delete Storage-Feature Section	
			Add Recording Service Section	
		11	Add Search Service section	
		12	Add Replay Service section	
		13	Add Media2 Service section	

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1. **Introduction**

The scope of this document is in accordance with the ONVIF Core Specification Version 2.4.1. This document describes the ONVIF application guide for network camera. It mentions some clues to integrate the Panasonic network camera through ONVIF interface.

This document doesn't give an explanation of ONVIF specification itself and the information using the ONVIF interface. Please refer to Panasonic network camera operating instruction manual as well.

2. **General**

2.1. **Factory default**

When the camera is unpacked and plugged into the net, the IP address obtained using DHCP function and determined by searching for IP addressed in DHCP environment. If there is not DHCP server, factory default IP address is set to fixed address 192.168.0.10 in all cameras. In order to use ONVIF default, a client has to use SetSystemFactoryDefault(Hard) method at the start. This method enables DHCP and link-local address. Or the client can use SetNetworkInterfaces to configure.

2.1.1. "User name/Password" setup now required upon first time access

Please register user name / password from the browser, when accessing for the first time using the firmware released after April 2016(*1).
(The conventional default password "12345" is unavailable for registration.)
ONVIF connection becomes possible after user name password setting.

(*1). Models starting from "BB-S" : Software Ver.4.60 or later
Models starting from "WV-S "or "WV-V"and 4 digit number
Other Models : Software Ver.2.40 or later

3. **Device discovery**

3.1. **Scope**

3.1.1. SetScopes, AddScopes

The maximum number of Scope is 10.

4. **Device service**

4.1. **Network**
4.1.1. SetHostname

If hostname is set through DHCP after setting with this command, it will be overwritten. Hostname will be set by the latest operation of manual setting or DHCP setting.

4.1.2. SetDNS

The network camera can have up to 2 DNS addresses for IPv4 and up to 2 DNS addresses for IPv6, total 4 addresses. If more than 4 addresses are set, they will be ignored.

Regarding DHCPv6 only getting IP address function is available, getting DNS(v6) address is not supported. client need to set the DNS manually.

When the camera is set to DHCP mode and fromDHCP flag of SetDNS is true, manually setting IP address will be ignored.

4.1.3. SetNTP

Only one NTP address is available. If there are more than one address in SetNTP, the excess of that will be ignored.

As there is no definition of NTP port number in ONVIF specification, the following way to set the port number can be available in i-Pro camera.

        IPv4Address = "10.0.0.100:234"
        IPv6Address = "[2001:12:34:56::1]:234"
        DNSName   = "ntp.test.co.jp:234"

4.1.4. SetDynamicDNS

TSIG is not supported.
In ServerUpdate, DHCPv6(RFC4704) is not supported.

4.1.5. SetNetworkInterfaces

When the network setting is changed with this command, camera will reboot automatically.

4.1.5.1. MTU

MTU value cannot be changed. client receive an error if the value other than 1500 is set.

4.1.5.2. IPv4

IPv4 address cannot be disabled. If client set
        IPv4 - Enabled = false
Camera will return an error.

The number of IPv4 address set manually is one. If further address is set, it will be ignored.

4.1.5.3. IPv6

IPv6 address cannot be disabled. If client set
   IPv6 - Enabled = false
Camera will ignore the setting and return with no error (Previous values are remained).

The number of IPv6 address set manually is one. If further address is set, it will be ignored.
The prefix of IPv6 address set manually should be "64", camera will return an error for the other prefix.

AcceptRouterAdvert parameter cannot be changed to "false".

Configurable values for DHCP parameter are "Stateful" or "Off", if "Stateless" or "Auto" is set to the parameter, the camera will send an error. As described in 4.1.2, this camera only supports getting IP address function, if client specify "Stateful", client will fail to get DNS address from DHCP.

4.1.6. SetNetworkProtocols

Either HTTP or HTTPS must be set to
   Enabled = true
If both of them are set to "false", the camera will return error.

For both HTTP and HTTPS it cannot be set to
   Enabled = true
In this case camera will return error.

4.1.7. SetNetworkDefaultGateway

Only one default gateway address is available. If there are more than one address in this method, it will be ignored.
IPv6 address is not supported. If it is specified, camera will return error.

When a camera is in DHCP(v4) mode set by SetNetworkInterface, this camera cannot set IPv4 address manually with SetNetworkDefaultGateway. If it's specified the camera will return an error.

4.1.8. SetZeroConfiguration

 ZeroConfiguration which is the return value of GetCapabilities () or GetServiceCapabilities () indicates correspondence to SetZeroConfiguration() and GetZeroConfiguration().
 ZeroConfigulation is disabled in later firmware since Dec. 2013.
 Please refer to "Support Command Reference Chart" for details.

4.2. **Security**

4.2.1. Username token

The camera authenticates the user ID set for the camera via a browser.
The user level set in the camera via a browser applies to ONVIF user level, and vice versa.
Existing user levels and ONVIF user levels match as follow.

Native setting	User-level via a ONVIF
Admin :	Administrator
Control :	Operator
Live :	User

The following is the user authentication table for each level of commands. From the browser user can set user authentication to ON/OFF, command authentication is changed according to the setting.

	User auth. = On				User auth. = Off			
	Adminis trator	Opera tor	User	No-auth	Adminis trator	Opera tor	User	No-auth
Administrator command	Yes	No	No	No	Yes	No	No	No
Operator command	Yes	Yes	No	No	Yes	Yes	Yes	Yes
User command	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Anonymous	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please refer to the "Support Command Reference Chart" for the access level of each commands.

4.2.2. TLS

If the CRT key is not generated, TLS is disabled. In order to generate a self-signed certificate or a CA certificate, CRT key need to be generated in advance. User can generate the CRT key only from browser or through CGI because it takes some time.
Camera can have one self-signed certificate and one CA certificate and TLS uses either one. If both the self-signed certificate and CA certificate are valid, CA certificate will be used.
Client authentication is not supported.
To enable HTTPS, please set it from browser or with "SetNetworkProtocols".

4.3. **Input/Output**

"RelayOutputs" is set to "disabled" by default, as a client can confirm this setting through "GetCapabilities" command. In order to set the RelayOutput enabled, please set Alarm-[Terminal alarm 3] to AUX output. After the setting ,the value of "IO - RelayOutputs " will be changed to 1.
Similarly, "InputConnectors" have to be set by the browser.

4.3.1. SetRelayOutputSettings

i-Pro camera allows the parameter value as follows.
        Properties – Mode = Bistable
        Properties – IdleState = open
When other settings are specified, the camera will return an error.

5. Imaging service

5.1. WD and BLC

Super Dynamic function(WD) and BLC are run exclusively. A camera with Super Dynamic function can be set WideDynamicRange but not BacklightCompensation. A camera without Super Dynamic function can be set BacklightCompensation but not WideDynamicRange.

6. **Media service**

6.1. **Profile**

6.1.1. Share Profile with ONVIF and native settings

I-Pro cameras have the following two kinds of handling of Profile.

1). For the following models, settings via ONVIFAPI and settings via the browser are linked

- WV-SFV781L, WV-SPV781
- Model starting from "WV-S " and 4 digit number

Values set with ONVIF-API are reflected in setting values viewed via browser.

Values set via the browser are reflected in ONVIF setting values.

For details on relationships, see the next chapter.

6.1.1.1 Relationship between 'Setup/Image' of native setting and VideoencoderConfiguration.token of ONVIF.

6.1.1.2 Relationship between 'Setup / Image' of native setting and ONVIF setting items.

2). For the following models, settings via ONVIFAPI and settings via the browser are NOT linked

Other than the models listed above

The value set with ONVIF-API is not reflected in the setting value displayed in the browser. .
Values set via the browser are not reflected in ONVIF setting values

6.1.1.1. Relationship between 'Setup/Image' of native setting and VideoencoderConfiguration.token of ONVIF.

The model sharing the setting with ONVIF and Native is defined in "6.1.1 Share Profile with ONVIF and native settings".

Comparison of properties on ONVIF and settings via browser

Native setting Setup > image	Other models ONVIF VideoencoderConfiguration.token	SPV781/SFV781 ONVIF VideoencoderConfiguration.token
Stream (1)	H26x_1_video	h264_1_video
Stream (2)	H26x_2_video	h264_2_video
Stream (3)	H26x_3_video	-
Stream (4)	H26x_4_video	-
JPEG(1)	jpeg_1_video	jpeg_1_video
JPEG(2)	jpeg_2_video	jpeg_2_video
JPEG(3)	jpeg_3_video	-

6.1.1.2. Relationship between 'Setup / Image' of native setting and ONVIF setting items.

The model sharing the setting with ONVIF and Native is defined in "6.1.1 Share Profile with ONVIF and native settings".

As shown in the table below, the camera's existing settings and the ONVIF settings are linked

Native Setting JPEG (n)*	ONVIF setting	Description
Image capture size	Resolution	VideoEncoderConfiguration.Resolution
Image quality	Quality	VideoEncoderConfiguration. Quality See capture 6.2.8"Quality" Parameter

*Setup > Image > JPEG (n)

Native setting stream (n)*	ONVIF setting	Description
Stream transmission	-	If "Stream transmission" is set to "OFF" with Native setting, video is not delivered even with the ONVIF profile linked with NativeSetting's Stream. At this time, the value of the ONVIF profile is NOT changed.
Stream encoding format	Encoding	VideoEncoderConfiguration.Encoding Media1 service cannot control H265.
Internet mode (over HTTP)	-	
Image capture size	Resolution	VideoEncoderConfiguration:: Resolution
Transmission priority	(Media2) ConstantBitRate	Settings can be changed only from Media 2 See 13.2.2.3"ConstantBitRate" Parameter)
Frame rate	FrameRateLimit	VideoEncoderConfiguration.RateControl. FrameRateLimit See capture 6.2.8"Quality" Parameter
Max bit rate (per client)	BitrateLimit	VideoEncoderConfiguration:.RateControl. BitrateLimit
Image quality	Quality	VideoEncoderConfiguration. Quality See capture 6.2.8"Quality" Parameter
Smart Coding		See 6.2.5.2"GovLength" Parameter of Smart Coding
Refresh interval	GovLength	See 6.2.5"GovLength" Parameter
Transmission type	-	Unicast and multicast settings are independent for ONVIF configuration and native configuration.

* Setup > Image > stream (n)

6.1.2. About models compatible with MPEG-4

6.1.2.1. MPEG-4 / H.264 streaming

User can choose MPEG-4 or H.264 stream exclusively.
The maximum number of MPEG-4/H.264 encoding is two or four (*1) which means a client can use up to two or four types of media profiles at a time. For example, when a client get some streaming with the following two media "profiles",
- 1_def_profile4(H264_320x240)
- 1_def_profile5(H264_640x480)

the client cannot play additional streaming with the other H.264 media profile such as the following
- 1_def_profile6(H264_1280x960)

As for JPEG, the maximum number of encoding is three and a client can set two kinds of image qualities for each resolutions. If several JPEG media profiles have the same resolution, the first two profiles can be used for the resolution. In this case, a client can execute "GetStreamUri" successfully. But the camera may return "503 Service Unavailable" to RTSP request.

(*1) See the number of streams in the "Support Command Reference Chart".

6.1.2.2. MPEG-4 and H.264 codec changing

As mentioned earlier, MPEG-4 and H.264 stream are transmitted exclusively. User can see both media types of profiles but it works the way that first come, first served.

6.2. **Configuration**

6.2.1. Note for configuration changes

When a client change configuration during live streaming, the connection will be disconnected.
When a bit rate of G.726 is changed, all connections will be disconnected.

6.2.2. "RateControl" Parameters

6.2.2.1. "BitrateLimit" Parameter

Depending on "VideoEncoder Configuration", the ranges of the bit rate that the client can set are different.

JPEG:
  Max = 0, Min = 0;

H264/MPEG4:
  This camera manages the following bit rate values. When a user sets a bit rate value besides these values, the camera adopts it the nearest value from the valid bit rate. For example, when a user sets 4000kbps, the camera will choose 3072kbps.
  A set of available bit rate depends on the model. The range of the available bit rate can be vary according to its resolution. Please refer to the operating instruction manual for detail.

Note: The camera chooses the smaller value than the bit rate that a user set.

6.2.2.2. "FramerateLimit" Parameter

Frame rate values supported by the camera can be obtained from GetVideoEncoderConfigurationOptions. When a client sets a frame rate value, the camera chooses the nearest value from the specified frame rate.
For example, when a client set 19fps, the camera chooses 15fps.

Note:The camera chooses the smaller value than the frame rate that the client set.

6.2.3. "Multicast" Parameter

The initial value of the multicast address is shown below.

  Type = IPv4
  IPv4Address = 0.0.0.0
  Port = 0
  TTL = 0

These initial settings above mean that multicast setting is invalid.
This initial settings are recommended when a client does not use multicast. Because the camera will allocate the band width beforehand for multicast when a client enabled multicast setting (The camera's specification).

6.2.4. "SessionTimeout" Parameter

"SessionTimeout" parameter is fixed in the camera, and the change is not supported. A client have to use "PT120S" or "PT2M" to set. Receiving other values, the camera will return without an error and it will be ignored.

6.2.5. "GovLength" Parameter
6.2.5.1. "GovLength" Parameter of H.264 or MPEG4

This camera manages the following values of "GovLength".

0.2, 0.33, 0.5, 1, 2, 3, 4, 5(sec)

When a client set a value besides these values, the camera chooses the nearest value from the "GovLength" values.

6.2.5.2. "GovLength" Parameter of Smart Coding

For cameras that support "Smart Coding", when "Smart Coding" is set to "On" from the browser, the browser setting takes precedence.
-   The value of GovLength is automatically rewritten, and it is reflected in the stream delivered by ONVIF.
-   If you attempt to overwrite the GovLength value with the ONVIF command, an error will be returned.

6.2.6. Metadata Configuration

A client can skip "EventSubscription" parameter. In this case, this camera handles it as being requested all of the notification events.
"PTZStatus" and "Analytics" parameters are not supported. If these parameters are requested, the camera will return an error. MessageContent filter of the Event parameter is also not supported.

6.2.7. Audio Back Channel Configuration

Bi-directional audio is supported on the basis of Back Channel Connection added to ONVIF Core Specification Ver.2.0.

Available audio codec depends on the setting of the browser. the following table shows the audio codec that will be informed by AudioDecoderConfigurationOptions. Initial setting of the codec is G.711.

Native setting		ONVIF
Audio setting	Codec setting	AudioDecoderConfiguraionOptions Audio codec
OFF (initial)	NA.	G711 - 64kbps
Option other than OFF	G711	G711 - 64kbps
	G726 - 16kbps	G726 - 16kbps
	G726 - 32kbps	G726 - 32kbps
	AAC-LC - 64kbps(*1)	G.726 - 32kbps

(*) when AAC-LC is supported.

The camera accepts no tag or www.onvif.org/ver20/HalfDuplex/Auto for SendPrimacy the parameter of AudioOutputConfiguration. In the case of www.onvif.org/ver20/HalfDuplex/Auto the setting of the browser goes on to bidirectional, then the setting of the audio codec is set to G.726.

6.2.8. "Quality" Parameter

The value 0 means "Low" in quality in ONVIF while "Super Fine" in browser. The relationship between these numbers is as shown in the table below.

"Quality" (ONVIF)	"Image quality" (Browser menu)	
0	9 (Low)	
1	8	
2	7	
3	6	
4	5 (Normal)	default setting
5	4	
6	3	
7	2	
8	1 (Fine)	
9	0 (Super Fine)	

Please refer to chapter 13.2.8"Quality" Parameter for a comparison table for models compatible with Media 2.

6.2.9. "Rotate" Parameter

Native	(ONVIF)　VideoSourceConfiguration.Extension.Rotate	
aspect ratio	models before Core Spec Ver. 16.03	Models on and after Core Spec Ver.16.03
4:3	Cannot control rotation	Only vertical rotation (Degree=0/180)
16:9	Cannot control rotation	Can rotate (Degree=0/90/180/270)

6.3. OSD
6.3.1. Maximum number of OSD

Our camera has maximum two OSDs. These number can be gotten with GetOSDConfigulationOptions.

MaximumNumberOfOSDs	number
Total	2
PlainText	1
DateAndTime	1

6.3.2. Position

Available OSD display position is following four types defined in ONVIF standard.
"UpperLeft"
"UpperRight"
"LowerLeft"
"LowerRight"

Free position is not supported with use of Custom.

6.4. VideoSourceMode

Of the models that can switch FramerateLimit to 30 fps or 25 fps by using SetVideoSourceMode (), the previous models corresponding to 16.03 are automatically rebooted.

7. Streaming

7.1. Session Management

The camera supports up to 12 or 14 sessions for streaming.
As for the number of supported session in each model, refer to"Support Command Reference Chart".

Each single session is related to the sessionID of RTSP method. The session is controlled by the SessionID in SETUP of RTSP.
When a client SETUP and PLAY to control audio and video separately the client can use it with different session ID in SETUP. In this case two sessions are consumed.

7.2. Framerate

Regarding JPEG streaming use of RTPoverRTSP and RTPoverRTSPoverHTTP in transport layer causes the camera to drop it's performance. So it may stream less than user specified framerate.
In case that H.264 streaming is valid, JPEG framerate will be 5 fps.

7.3. **Back Channel Connection**

Supported Transport: UDP, RTP over RTSP, RTP over RTSP over HTTP

We recommend that audio packet interval for client should be set to the same value as the setting of browser. In the case of RTP over RTSP, the interval of the audio packet should be at least the following value because of the buffer size. Our recommendation value for "RTP over RTSP" is 160ms and 320ms.

browser setting	Client
Audio output interval	Audio packet interval (millisec)
160ms	160
320ms	160 - 320
640ms (initial)	160 - 640
1280ms	160 - 1280

The session for Audio Back Channel should be set separately from Audio/Video session because the back channel will be disconnected in five minutes(*) by camera in order not to hold the session for a long time.
(*) It depends the setting of "Audio output duration" from browser.(1min – 1hour)
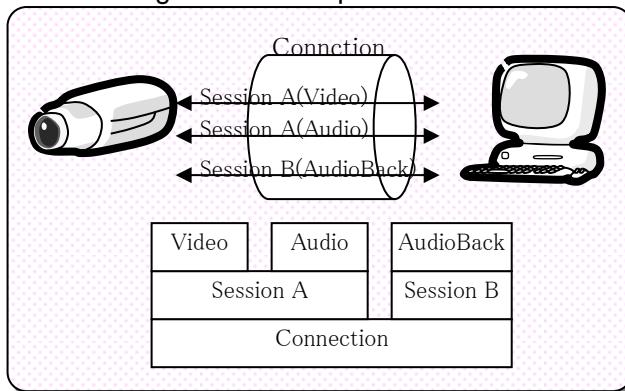
Below is a sequence of audio back channel.

After 5 minutes of AudioBackChannel, the BackChannel session will be closed from camera. So the client should start a new session for AudioBackChannel from SETUP method.
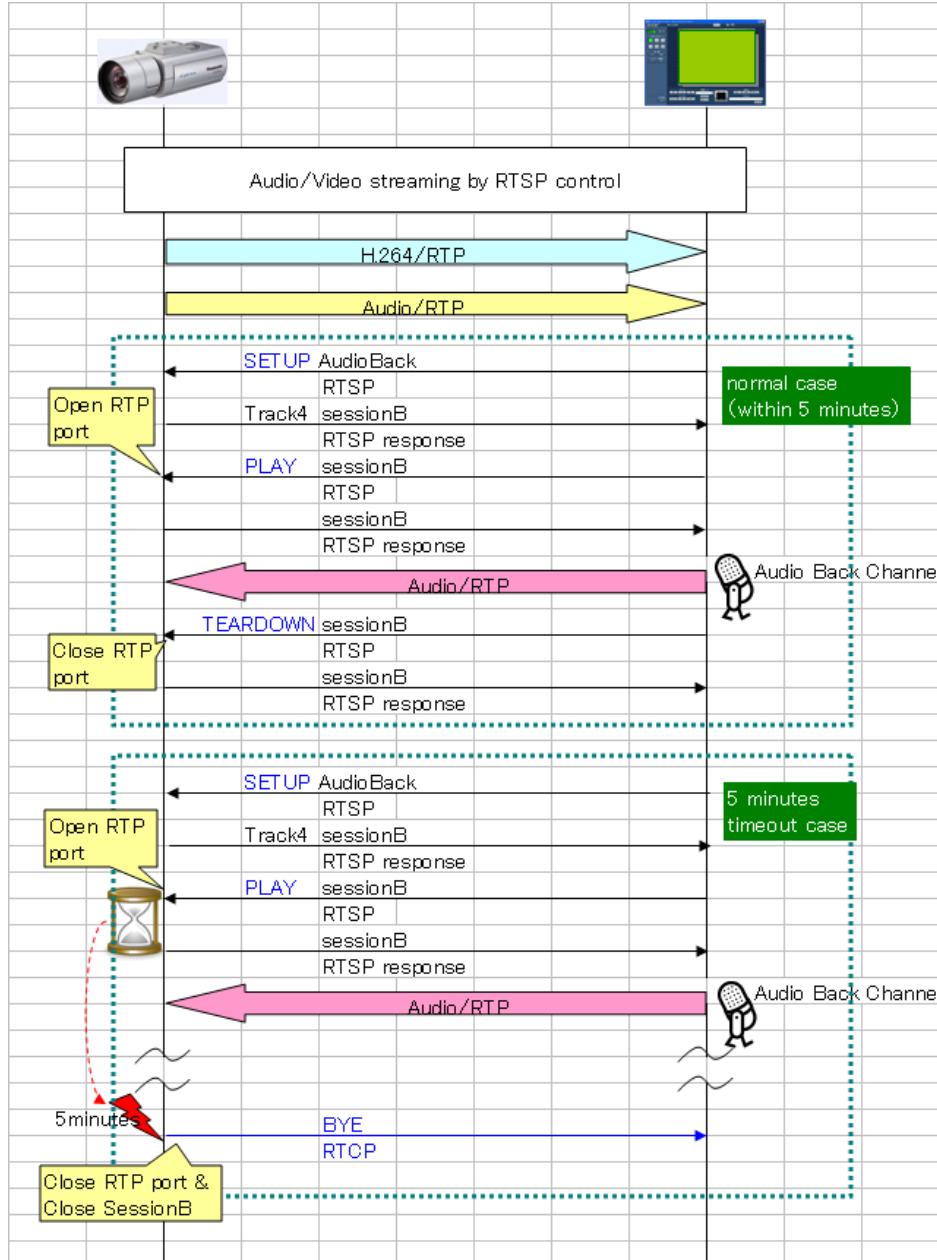
7.4. Relationship with Cropping feature

Some cameras are supporting cropping feature, but ONVIF interface is not supported. If a client want to control the streaming for cropped view, cgi interface is available. In ONVIF interface, cropping feature is not recommended because unexpected image may be sent.

7.5. **Restriction of streaming**

The following models have some restriction of streaming.

WV-SFV481, WV-SFN480:
  1) the number of streaming
      These models support one stream in total for H.264 and JPEG.
      So GetGuaranteedNumberOfVideoEncoderInstances function return value 1 in TotalNumber as
      below.

```
<GetGuaranteedNumberOfVideoEncoderInstancesResponse
  xmlns="http://www.onvif.org/ver10/media/wsdl">
  <trt:TotalNumber>1</trt:TotalNumber>
   <trt:JPEG>1</trt:JPEG>
   <trt:H264>1</trt:H264>
</GetGuaranteedNumberOfVideoEncoderInstancesResponse>
```

      In order to get two different kind of stream, the following URLs can be used for RTSP request.
      These are not for ONVIF, but for browser. So the settings of the stream follow that of browser.

```
H.264 Stream1
rtsp://<ip>/Src/MediaInput/h264/stream_1    ("stream_1" can be omitted)

H.264 Stream2
rtsp://<ip>/Src/MediaInput/h264/stream_2
```

  2) ONVIF streaming during recording
      When recording format is set to H.264 and start recording, it can't stream.
      When recording format is set to JPEG, it can't stream regardless of whether it's recording or not.

  3) FTP transmission and ONVIF JPEG streaming
      When mail notification with JPEG image is activated, JPEG streaming cannot be used since FTP
      use the JPEG.
        - Alarm Image FTP transmission
        - FTP periodic image transmission

      This restriction is for JPEG, not for H.264.

  4) ONVIF streaming when analytics
      ONVIF streaming is restricted depending on the following case.
        - i-VMD, People count, Heat map
         In 9M Fisheye and 4M Fisheye, it can't stream.

        - MOR function
         It can't stream in any case.

8. PTZ Service

This camera supports "Generic" coordinate system and Spherical one.
"Speed" setting is not supported. If speed setting parameter is specified in "AbsoluteMove" and "RelativeMove" it is ignored.
Default profiles have PTZConfiguration by default. When a client control PTZ with user profile, the client have to add a PTZConfiguration to the user profile.

8.1. Use case of PTZ

8.1.1. Set PTZ configuration

[1] Choose MediaProfile to control PTZ .

[2] Add PTZ Configuration to the MediaProfile if the profile doesn't have one.
- Find available PTZConfiguration (GetPTZConfigurations)
- Add one to MediaProfile (AddPTZConfiguration)

[3] Set PTZ Configuration
- Find available node (GetNodes)
- Check configurable parameters and their ranges (GetConfigurationOptions)
- Set the configuration (SetConfiguration)

8.1.2. PTZ control

[1] Move to absolute position
- Confirm default coordinate space of the PTZ Configuration
- Move the absolute position of the coordinate apace (AbsoluteMove)

[2] Move continuously
- Move continuously with velocity of the coordinate space (ContinuousMove)
- Stop (Stop)

8.1.3. Home Position

As default, camera doesn't have home position, so a client have to set the Home position beforehand. The last number of the Preset number is reserved for the Home position, for example 64 for WV-SC385 and 256 for WV-SW396.

8.1.4. Zoom the power

For a camera supporting 1,080x zoom a client can control until 999.9x zoom by ONVIF interface.

8.1.5. Wiper, Washer, IR-LED

Wiper control · washer control · IR-LED control can be performed using SendAuxiliaryCommand().

It is possible to input the character string obtained by GetNodes () or GetCapabilityes () of PTZService.

The relationship with Native CGI control is as follows:

i-Pro Native CGI (wiper)	AuxiliaryData (ONVIF)	Description
wiper=high	tt:Wiper|On	Keep wiping fast
wiper=low	tt:Wiper|Low	Keep wiping slowly
wiper=off	tt:Wiper|Off	Stop the wiper
wiper=1shot	tt:Wiper|1shot	Move wiper only once
wiper=with_washer	tt:WasherProcedure|On	Start the washer
wiper=off	tt:WasherProcedure|Off	Stop the washer
ir_led_sync=Off	tt:IRLamp|Off	Turn off IR LED Light
ir_led_sync=AutoH	tt:IRLamp|Auto	Set IR LED Light to Auto (High)
ir_led_sync=AutoH	tt:IRLamp|Auto_High	Set IR LED Light to Auto (High)
ir_led_sync=AutoM	tt:IRLamp|Auto_Mid	Set IR LED Light to Auto (Mid)
ir_led_sync=AutoL	tt:IRLamp|Auto_Low	Set IR LED Light to Auto (Low)

8.1.5.1. How to switch "Day & Night (IR)" of native Setting with ONVIF

To switch "Day & Night (IR)" of native Setting with ONVIF, please send two commands as follows:

Please set the values in the table below to AuxiliaryData and send SendAuxiliaryCommand.

Please set the values in the table below to IrCutFilter and send SetImagingSettings().

Please send in order of 1 and 2

For example, to set "Day & Night (IR)" to "Auto 2"

First set 'tt: IRLamp | Auto_High' to AuxiliaryData of PTZService and send SendAuxiliaryCommand().

Next, set IrCutFilter of ImagingSettings to "AUTO" and send SetImagingSettings().

Native setting Day & Night(IR)	ONVIF PTZService. 1) AuxiliaryData	ONVIF ImagingService. 2) ImagingSettings.IrCutFilter	note
Off	(no need to set)	ON	
On	(no need to set)	OFF	In the case of "Day & Night (electrical)", IrCutFilter = OFF setting is ignored by the camera.
Auto1(Normal)	tt:IRLamp|Off	AUTO	
Auto2(IR Light)	tt:IRLamp|Auto tt:IRLamp|Auto_High tt:IRLamp|Auto_Mid tt:IRLamp|Auto_Low	AUTO	
Auto3(SCC)	-	-	Cannot set Auto3(SCC) from ONVIF

9. Event service

9.1. Notification Events

The following ONVIF standard events are supported.

Service	Type	Topic Expression
Imaging	VMD Alarm	tns1:VideoSource/MotionAlarm
DeviceIO	Digital Input	tns1:Device/Trigger/DigitalInput
	Relay Output	tns1:Device/Trigger/Relay
PTZ	PresetTour status	tns1:PTZController/PTZPresetTours/Configuration
Search	Recording status	tns1:RecordingHistory/Recording/State
	Track status	tns1:RecordingHistory/Track/State
Recording	Recording job state	tns1:RecordingConfig/JobState
	Recording configuration	tns1:RecordingConfig/RecordingConfiguration
	Track configuration	tns1:RecordingConfig/TrackConfiguration
	Recording job configuration	tns1:RecordingConfig/RecordingJobConfiguration
Media2	Profile	tns1:Media/ProfileChanged
	Configuration	tns1:Media/ConfigurationChanged

The following shows Panasonic proprietary events.

Type	Topic Expression
VMD Alarm	tns1:VideoAnalytics/tnspana1:MotionDetector/FigureChanged
Terminal Alarm	tns1:UserAlarm/tnspana1:AlarmDetector/IO1/SignalDetected : tns1:UserAlarm /tnspana1:AlarmDetector/IO3/SignalDetected
Command Alarm	tns1:UserAlarm/tnspana1:Command/Received
remaining capacity of the SD memory card	tns1:Device/tnspana1:SD/Capacity/Decreased

9.2. The number of event registration

This camera allows up to 6 subscription for Pull-Point Notification and total 8 subscription for Basic Notification and Pull-Point Notification.
The subscription period is up to 7 days.
When a client restart the camera, all the "Subscribe" information is discarded.
This camera doesn't support ContentExpression.

9.3. How to use event

Our camera supports some Panasonic specific events and ONVIF standard events. This chapter describes the usage of Panasonic events. The following is the namespace for the event;
xmlns:tnspana1="http://panasonic.co.jp/sn/psn/2010/event/topics"

9.3.1. Terminal alarm

All of the terminals are set to Off by default. Onvif specification doesn't have the terminal enable command, so user have to the terminals enabled from alarm settings page of the browser.
For Terminal alarm the following topic is defined;

> *tns1:Device/Trigger/DigitalInput*

Terminal number is described in InputToken in the event message.

Token	Terminal number
InputPort1	Terminal1
InputPort2	Terminal2
InputPort3	Terminal3

```
<wsnt:NotificationMessage>
  <wsnt:SubscriptionReference>
    <wsa:Address>
      http://192.168.0.10/Subscription?Idx=12345
    </wsa:Address>
  </wsnt:SubscriptionReference>
  <wsnt:Topic
Dialect="http://www.onvif.org/ver10/tev/topicExpression/ConcreteSet">
    tns1:Device/Trigger/DigitalInput
  </wsnt:Topic>
  <wsnt:Message>
    <tt:Message UtcTime="2016-04-03T14:00:00Z" PropertyOperation="Initialized">
      <tt:Source>
        <tt:SimpleItem Name="InputToken" Value="InputPort1"/>
      </tt:Source>
      <tt:Data>
        <tt:SimpleItem Name="LogicalState" Value="true"/>
      </tt:Data>
    </tt:Message>
  </wsnt:Message>
</wsnt:NotificationMessage>
```

Following topic are also available for backward compatibility.
For example, set "Terminal alarm 1" to "Alarm input".
For Terminal alarm the following topic is defined;

> *tns1:UserAlarm/tnspana1:AlarmDetector/IO1/SignalDetected*
> *tns1:UserAlarm/tnspana1:AlarmDetector/IO2/SignalDetected*
> *~*
> *tns1:UserAlarm/tnspana1:AlarmDetector/IO8/SignalDetected*

Note: The number that is following "IO" is matched to physical terminal numbers.

9.3.2. VMD alarm

In order to use VMD alarm "Detection area" must be registered. These setting should be configured from browser.

For VMD alarm the following topic is defined;
tns1:VideoAnalytics/tnspana1:MotionDetector/FigureChanged

The following ONVIF standard event is also supported;
tns1:VideoSource/MotionAlarm

These events are notified only the first time of the motion detection as below.
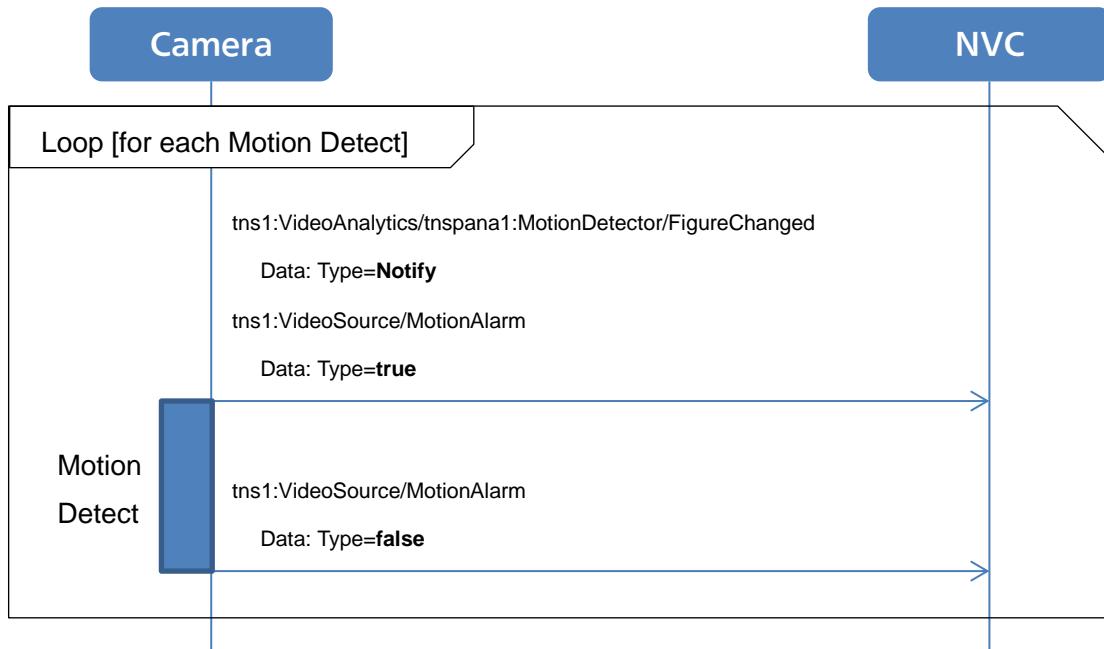
9.3.3. Command alarm

When the camera receives Panasonic original command alarm from other camera, event will be occurred.
This function need to be configured from browser.
For Command alarm the following topic is defined;

tns1:UserAlarm/tnspana1:Command/Received

9.3.4. Remaining capacity of the SD memory card

Remaining SD memory card capacity notification. Please refer to the Operating Instructions manual for settings.
For this alarm the following topic is defined;

tns1:Device/tnspana1:SD/Capacity/Decreased

10. **Recording Service**

10.1. **to use**

10.1.1. Activation for storage feature

The following is the usage without recording control service. In case of starting to record via Recoding control service, these changes which are the following 2) and 3) are automatically executed.

1) Insertion of SD card

   For using storage feature, you need to firstly insert SD card.

2) Change of a encoding for recording to H.264

   Please change the setting of SD memory card from JPEG to H264 using the browser.

   Note: When the setting is changed SD card will be formatted.

3) Change of save mode to manual

   Then please change the save trigger from alert to manual. To use only search or replay service, this step can be skipped.

Note: After executing SetSystemDeafultSettings these setting will be rollback.

10.2. **Bitrate Limit and GovLength**

The maximum number of bitrate for H.264 recording depends on models. Please refer to the operating instruction manual for detail.If the bitrate of video encoder configuration relating to the recording is more than max bitrate, it will be adjusted automatically when recording is started.

And GovLength may be changed to the value in such a way that at least one i-frame is in a second.

11. **Search Service**

11.1. **Search filter for FindEvent**

To use Recording and track for Search filter they are needed to specify separately.

12. **Replay Service**

12.1. **Replay Session**

Camera support one replay session at a time. When receiving another replay request during replay, camera send 503 Service Unavailable.

13. **Media2 Service**

13.1. **Profile**

13.1.1. Share Profile with ONVIF and native settings

Refer to the chapter "6.1.1 Share Profile with ONVIF and native settings".

13.1.1.1. Relationship between 'Setup/Image' of native setting and VideoencoderConfiguration.token of

ONVIF.

The model sharing the setting with ONVIF and Native is defined in "6.1.1 Share Profile with ONVIF and native settings".

Comparison of properties on ONVIF and settings via browser

Native setting Setup > image	Other models ONVIF VideoencoderConfiguration.token	SPV781/SFV781 ONVIF VideoencoderConfiguration.token
Stream (1)	H26x_1_video	h264_1_video
Stream (2)	H26x_2_video	h264_2_video
Stream (3)	H26x_3_video	-
Stream (4)	H26x_4_video	-
JPEG(1)	jpeg_1_video	jpeg_1_video
JPEG(2)	jpeg_2_video	jpeg_2_video
JPEG(3)	jpeg_3_video	-

13.1.1.2. Relationship between 'Setup / Image' of native setting and ONVIF setting items.

The model sharing the setting with ONVIF and Native is defined in "6.1.1 Share Profile with ONVIF and native settings".

As shown in the table below, the camera's existing settings and the ONVIF settings are linked

Native Setting JPEG (n)*	ONVIF setting	Description
Image capture size	Resolution	VideoEncoderConfiguration.Resolution
Image quality	Quality	VideoEncoderConfiguration.Quality See capture "Quality" Parameter

*Setup > Image > JPEG (n)

Native setting stream (n)*	ONVIF setting	Description
Stream transmission	-	If "Stream transmission" is set to "OFF" with Native setting, video is not delivered even with the ONVIF profile linked with NativeSetting's Stream. At this time, the value of the ONVIF profile is NOT changed.
Stream encoding format	Encoding	VideoEncoder2Configuration.Encoding H265 can be acquired only when Media2 service is used
Internet mode (over HTTP)	-	
Image capture size	Resolution	VideoEncoder2Configuration.Resolution
Transmission priority	(Media2) ConstantBitRate	VideoEncoder2Configuration.RateControl. ConstantBitRate Settings can be changed only from Media 2 See 13.2.2.3"ConstantBitRate" Parameter)
Frame rate	FrameRateLimit	VideoEncoder2Configuration.RateControl.FrameRateLimit See capture "Quality" Parameter
Max bit rate (per client)	BitrateLimit	VideoEncoder2Configuration.RateControl.BitrateLimit
Image quality	Quality	VideoEncoder2Configuration.Quality See capture "Quality" Parameter
Smart Coding	-	See 6.2.5.2"GovLength" Parameter of Smart Coding
Refresh interval	GovLength	VideoEncoder2Configuration :: GovLength See 6.2.5"GovLength" Parameter
Transmission type	-	Unicast and multicast settings are independent for ONVIF configuration and native configuration.

* Setup > Image > stream (n)

13.1.2. About models compatible with MPEG-4

There are no models that can use Media 2 and can select MPEG-4.

13.2. **Configuration**

13.2.1. Note for configuration changes

Refer to the chapter "6.2.1".

13.2.2. "RateControl" Parameters

13.2.2.1. "BitrateLimit" Parameter

Refer to the chapter "6.2.2.1".

13.2.2.2. "FramerateLimit" Parameter

Refer to the chapter "6.2.2.1 ".

13.2.2.3. "ConstantBitRate" Parameter

On 16.03 and later models, you can set VBR by setting ConstantBitrate to False, and you can set the frame rate by setting ConstantBitrate to true. For models less than 16.03, only frame rate setting is possible.

Conditions under which frame rate, VBR, CBR can be set:

(ONVIF) ConstantBitRate	native	models before Core Spec Ver. 16.03	Models on and after Core Spec Ver.16.03
True	Frame rate	Configurable	Configurable
False	VBR	-	Configurable
-	CBR	-	-

13.2.3. "Multicast" Parameter

Refer to the chapter "6.2.3".

13.2.4. "SessionTimeout" Parameter

Refer to the chapter "6.2.4".

13.2.5. "GovLength" Parameter

13.2.5.1. "GovLength" Parameter

Even in the case of H265, it rounds "GovLength" Parameter like Media1.

See 6.2.5"GovLength" Parameter Section.

13.2.5.2. "GovLength" Parameter of Smart Coding

Refer to the chapter "6.2.5.2".

13.2.6. "Metadata" Configuration
Refer to the chapter "6.2.6".

13.2.7. "Audio Back Channel" Configuration
Refer to the chapter "6.2.7".

13.2.8. "Quality" Parameter
When handling a model that supports only Media 1, refer to 6.2.8 "Quality" Parameter

(native) Transmission priority : VBR

(ONVIF) ConstantBitrate= False

(ONVIF) "Quality"	(i-Pro Native setting) "Image quality" of JPEG,H264,H265
0	9 Low
1	8
2	7
3	6
4	5 Normal default setting
5	4
6	3
7	2
8	1 Fine
9	0 Super Fine

(native) Transmission priority : Frame rate

(ONVIF) ConstantBitrate=true

(ONVIF) "Quality"	(i-Pro Native setting) "Image quality"
0	
1	Low(Motion priority)
2	
3	
4	
5	Normal default setting
6	
7	
8	Fine(Image quality priority)
9	

13.2.9. "Rotate" Parameter

Refer to the chapter "6.2.9".

13.3. OSD

13.3.1. Maximum number of OSD

Refer to the chapter "6.3.1 ".

13.4. VideoSourceMode

For models compatible with Media 2, reboot does not occur due to the change of VideoSourceMode.

Appendix

I.   How to use Event service

A) Receive push type events (WS-BaseNotification)

1.   Flow of receiving Motion Detect Event
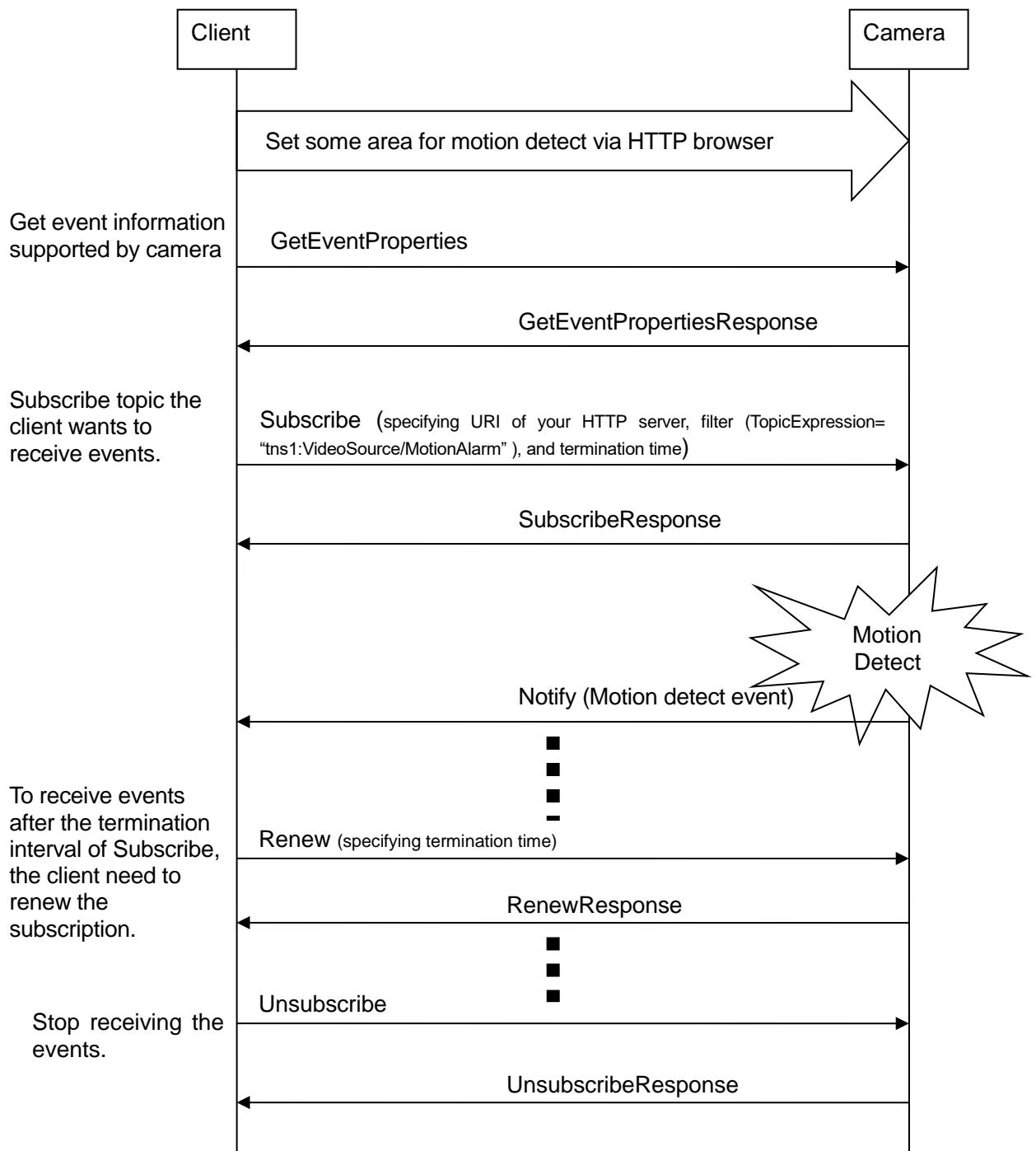
2. Example of SOAP trace
1) GetEventProperties

```xml
<?xml version="1.0" encoding="utf-8"?>
<soap12:Envelope xmlns:soap12="http://www.w3.org/2003/05/soap-envelope"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-u
tility-1.0.xsd">
  <soap12:Header>
    <wsa:Action
soap12:mustUnderstand="1">http://www.onvif.org/ver10/events/wsdl/EventPortType/
GetEventPropertiesRequest</wsa:Action>
    <wsa:MessageID>urn:uuid:299a2e0e-9a41-4aca-9dee-06d1ca916620</wsa:MessageID>
    <wsa:ReplyTo>
     <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsse:Security>
     <wsu:Timestamp wsu:Id="Time">
       <wsu:Created>2011-02-03T05:23:39Z</wsu:Created>
       <wsu:Expires>2011-02-03T05:23:49Z</wsu:Expires>
     </wsu:Timestamp>
     <wsse:UsernameToken wsu:Id="User">
       <wsse:Username>admin</wsse:Username>
       <wsse:Password
Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-pr
ofile-1.0#PasswordDigest">w8DYVj1hK4RyLcuLqyFV5GIzE00=</wsse:Password>
       <wsse:Nonce>yrgktV0w/kSlagnckOOK6g==</wsse:Nonce>
       <wsu:Created>2011-02-03T05:23:39Z</wsu:Created>
     </wsse:UsernameToken>
    </wsse:Security>
    <wsa:To soap12:mustUnderstand="1">http://192.168.0.10/onvif</wsa:To>
  </soap12:Header>
  <soap12:Body>
    <GetEventProperties xmlns="http://www.onvif.org/ver10/events/wsdl" />
  </soap12:Body>
</soap12:Envelope>
```

2) GetEventPropertiesResponse

```xml
<?xml version="1.0" encoding="utf-8"?>
<env:Envelope xmlns:env="http://www.w3.org/2003/05/soap-envelope"
xmlns:enc="http://www.w3.org/2003/05/soap-encoding"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:rpc="http://www.w3.org/2003/05/soap-rpc"
xmlns:xop="http://www.w3.org/2004/08/xop/include"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
xmlns:wstop="http://docs.oasis-open.org/wsn/t-1"
xmlns:tev="http://www.onvif.org/ver10/events/wsdl">
  <env:Header>
    <wsa:MessageID>urn:uuid:068e6052-1c36-13b2-9497-0080450da45b</wsa:MessageID>
    <wsa:RelatesTo>urn:uuid:3f5ae575-8f28-4ff0-b60f-36230574372b</wsa:RelatesTo>
    <wsa:To
env:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
    <wsa:Action
env:mustUnderstand="1">http://www.onvif.org/ver10/events/wsdl/EventPortType/Get
EventPropertiesResponse</wsa:Action>
  </env:Header>
  <env:Body>
    <GetEventPropertiesResponse xmlns="http://www.onvif.org/ver10/events/wsdl">
```

```
<TopicNamespaceLocation>http://www.onvif.org/onvif/ver10/topics/topicns.xml</To
picNamespaceLocation>
      <wsnt:FixedTopicSet>true</wsnt:FixedTopicSet>
      <wstop:TopicSet xmlns:tns1="http://www.onvif.org/ver10/topics"
xmlns:tnspana1="http://panasonic.co.jp/sn/psn/2010/event/topics">
        <tns1:UserAlarm>
          <tnspana1:AlarmDetector>
            <IO1>
              <SignalDetected wstop:topic="true">
                <tt:MessageDescription IsProperty="false">
                  <tt:Source>
                   <tt:SimpleItemDescription Name="AlarmDetectNumber"
Type="xsd:string" />
                  </tt:Source>
                  <tt:Data>
                   <tt:SimpleItemDescription Name="Type" Type="xsd:string" />
                  </tt:Data>
                </tt:MessageDescription>
              </SignalDetected>
            </IO1>
          </tnspana1:AlarmDetector>
        </tns1:UserAlarm>
        <tns1:UserAlarm>
          <tnspana1:AlarmDetector>
            <IO2>
              <SignalDetected wstop:topic="true">
                <tt:MessageDescription IsProperty="false">
                  <tt:Source>
                   <tt:SimpleItemDescription Name="AlarmDetectNumber"
Type="xsd:string" />
                  </tt:Source>
                  <tt:Data>
                   <tt:SimpleItemDescription Name="Type" Type="xsd:string" />
                  </tt:Data>
                </tt:MessageDescription>
              </SignalDetected>
            </IO2>
          </tnspana1:AlarmDetector>
        </tns1:UserAlarm>
        <tns1:UserAlarm>
          <tnspana1:AlarmDetector>
            <IO3>
              <SignalDetected wstop:topic="true">
                <tt:MessageDescription IsProperty="false">
                  <tt:Source>
                   <tt:SimpleItemDescription Name="AlarmDetectNumber"
Type="xsd:string" />
                  </tt:Source>
                  <tt:Data>
                   <tt:SimpleItemDescription Name="Type" Type="xsd:string" />
                  </tt:Data>
                </tt:MessageDescription>
              </SignalDetected>
            </IO3>
          </tnspana1:AlarmDetector>
        </tns1:UserAlarm>
        <tns1:VideoAnalytics>
          <tnspana1:MotionDetector>
            <FigureChanged wstop:topic="true">
              <tt:MessageDescription IsProperty="false">
                <tt:Source>
                 <tt:SimpleItemDescription Name="VideoAnalytics" Type="xsd:string"
/>
                </tt:Source>
                <tt:Data>
                 <tt:SimpleItemDescription Name="Type" Type="xsd:string" />
```

```
            </tt:Data>
          </tt:MessageDescription>
        </FigureChanged>
      </tnspana1:MotionDetector>
    </tns1:VideoAnalytics>
    <tns1:UserAlarm>
      <tnspana1:Command>
        <Received wstop:topic="true">
          <tt:MessageDescription IsProperty="false">
            <tt:Source>
              <tt:SimpleItemDescription Name="Alarm" Type="xsd:string" />
            </tt:Source>
            <tt:Data>
              <tt:SimpleItemDescription Name="Type" Type="xsd:string" />
            </tt:Data>
          </tt:MessageDescription>
        </Received>
      </tnspana1:Command>
    </tns1:UserAlarm>
    <tns1:Device>
      <tnspana1:SD>
        <Capacity>
          <Decreased wstop:topic="true">
            <tt:MessageDescription IsProperty="false">
              <tt:Source>
                <tt:SimpleItemDescription Name="Memory" Type="xsd:string" />
              </tt:Source>
              <tt:Data>
                <tt:SimpleItemDescription Name="Capacity" Type="xsd:string" />
              </tt:Data>
            </tt:MessageDescription>
          </Decreased>
        </Capacity>
      </tnspana1:SD>
    </tns1:Device>
    <tns1:RecordingHistory>
      <Recording>
        <State wstop:topic="true">
          <tt:MessageDescription IsProperty="true">
            <tt:Source>
              <tt:SimpleItemDescription Name="RecordingToken"
Type="tt:ReferenceToken" />
            </tt:Source>
            <tt:Data>
              <tt:SimpleItemDescription Name="IsRecording" Type="xsd:boolean" />
            </tt:Data>
          </tt:MessageDescription>
        </State>
      </Recording>
      <Track>
        <State wstop:topic="true">
          <tt:MessageDescription IsProperty="true">
            <tt:Source>
              <tt:SimpleItemDescription Name="RecordingToken"
Type="tt:ReferenceToken" />
              <tt:SimpleItemDescription Name="Track" Type="tt:ReferenceToken" />
            </tt:Source>
            <tt:Data>
              <tt:SimpleItemDescription Name="IsDataPresent" Type="xsd:boolean"
/>
            </tt:Data>
          </tt:MessageDescription>
        </State>
      </Track>
    </tns1:RecordingHistory>
    <tns1:RecordingConfig>
      <JobState wstop:topic="true">
```

```
            <tt:MessageDescription IsProperty="true">
              <tt:Source>
               <tt:SimpleItemDescription Name="RecordingJobToken"
Type="tt:ReferenceToken" />
              </tt:Source>
              <tt:Data>
                <tt:SimpleItemDescription Name="State" Type="xsd:stringn" />
                <tt:ElementItemDescription Name="Information"
Type="tt:RecordingJobStateInformation" />
              </tt:Data>
            </tt:MessageDescription>
          </JobState>
        </tns1:RecordingConfig>
        <tns1:VideoSource>
          <MotionAlarm wstop:topic="true">
            <tt:MessageDescription IsProperty="false">
              <tt:Source>
               <tt:SimpleItemDescription Name="VideoSourceToken"
Type="tt:ReferenceToken" />
              </tt:Source>
              <tt:Data>
                <tt:SimpleItemDescription Name="State" Type="xsd:boolean" />
              </tt:Data>
            </tt:MessageDescription>
          </MotionAlarm>
        </tns1:VideoSource>
      </wstop:TopicSet>

<wsnt:TopicExpressionDialect>http://www.onvif.org/ver10/tev/topicExpression/Con
creteSet</wsnt:TopicExpressionDialect>

<wsnt:TopicExpressionDialect>http://docs.oasis-open.org/wsn/t-1/TopicExpression
/Concrete</wsnt:TopicExpressionDialect>

<MessageContentFilterDialect>http://www.onvif.org/ver10/tev/messageContentFilte
r/ItemFilter</MessageContentFilterDialect>

<MessageContentSchemaLocation>http://www.onvif.org/ver10/schema/onvif.xsd</Mess
ageContentSchemaLocation>
    </GetEventPropertiesResponse>
  </env:Body>
</env:Envelope>
```

3) Subscribe

```
<?xml version="1.0" encoding="utf-8"?>
<soap12:Envelope xmlns:soap12="http://www.w3.org/2003/05/soap-envelope"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-u
tility-1.0.xsd">
  <soap12:Header>
    <wsa:Action
soap12:mustUnderstand="1">http://docs.oasis-open.org/wsn/bw-2/NotificationProdu
cer/SubscribeRequest</wsa:Action>
    <wsa:MessageID>urn:uuid:7ec8a56e-97c9-4484-9280-0de010f96306</wsa:MessageID>
    <wsa:ReplyTo>
      <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsse:Security>
      <wsu:Timestamp wsu:Id="Time">
```

```
       <wsu:Created>2011-02-03T05:31:00Z</wsu:Created>
       <wsu:Expires>2011-02-03T05:31:10Z</wsu:Expires>
     </wsu:Timestamp>
     <wsse:UsernameToken wsu:Id="User">
       <wsse:Username>admin</wsse:Username>
       <wsse:Password
Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-pr
ofile-1.0#PasswordDigest">1505c1EjzO54yS9rOXwz+c3bNVA=</wsse:Password>
       <wsse:Nonce>E6vRIg7rO0egXIwyYj31Pg==</wsse:Nonce>
       <wsu:Created>2011-02-03T05:31:00Z</wsu:Created>
     </wsse:UsernameToken>
   </wsse:Security>
   <wsa:To soap12:mustUnderstand="1">http://192.168.0.10/onvif</wsa:To>
 </soap12:Header>
 <soap12:Body>
   <Subscribe xmlns="http://docs.oasis-open.org/wsn/b-2">
     <ConsumerReference>
      <wsa:Address>http://192.168.0.111:10000/onvif/events</wsa:Address>
     </ConsumerReference>
     <Filter>
      <TopicExpression
Dialect="http://www.onvif.org/ver10/tev/topicExpression/ConcreteSet"
xmlns:tns1="http://www.onvif.org/ver10/topics">tns1:VideoSource/MotionAlarm</To
picExpression>
     </Filter>
     <InitialTerminationTime>PT10M</InitialTerminationTime>
   </Subscribe>
 </soap12:Body>
</soap12:Envelope>
```

4) SubscribeResponse

```
<?xml version="1.0" encoding="utf-8"?>
<env:Envelope xmlns:env="http://www.w3.org/2003/05/soap-envelope"
xmlns:enc="http://www.w3.org/2003/05/soap-encoding"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:rpc="http://www.w3.org/2003/05/soap-rpc"
xmlns:xop="http://www.w3.org/2004/08/xop/include"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
xmlns:wstop="http://docs.oasis-open.org/wsn/t-1">
  <env:Header>
    <wsa:MessageID>urn:uuid:0119875c-d680-1419-9d13-00804559a33b</wsa:MessageID>
    <wsa:RelatesTo>urn:uuid:7ec8a56e-97c9-4484-9280-0de010f96306</wsa:RelatesTo>
    <wsa:To
env:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
    <wsa:Action
env:mustUnderstand="1">http://docs.oasis-open.org/wsn/bw-2/NotificationProducer
/SubscribeResponse</wsa:Action>
  </env:Header>
  <env:Body>
    <wsnt:SubscribeResponse xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2">
      <wsnt:SubscriptionReference>

<wsa:Address>http://192.168.0.10/onvif/Subscription?Idx=17818</wsa:Address>
      </wsnt:SubscriptionReference>
      <wsnt:CurrentTime>2011-02-03T05:36:52Z</wsnt:CurrentTime>
      <wsnt:TerminationTime>2011-02-03T05:46:52Z</wsnt:TerminationTime>
    </wsnt:SubscribeResponse>
  </env:Body>
</env:Envelope>
```

5) Notify

```
<?xml version="1.0" encoding="utf-8"?>
<env:Envelope xmlns:env="http://www.w3.org/2003/05/soap-envelope"
xmlns:enc="http://www.w3.org/2003/05/soap-encoding"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:rpc="http://www.w3.org/2003/05/soap-rpc"
xmlns:xop="http://www.w3.org/2004/08/xop/include"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
xmlns:wstop="http://docs.oasis-open.org/wsn/t-1"
xmlns:tev="http://www.onvif.org/ver10/events/wsdl">
  <env:Header>
    <wsa:MessageID>urn:uuid:502a7b53-1c35-13b2-9497-0080450da45b</wsa:MessageID>
    <wsa:To
env:mustUnderstand="1">http://192.168.0.51:10000/onvif/events</wsa:To>
    <wsa:Action
env:mustUnderstand="1">http://docs.oasis-open.org/wsn/bw-2/NotificationConsumer
/Notify</wsa:Action>
  </env:Header>
  <env:Body>
    <wsnt:Notify>
      <wsnt:NotificationMessage>
        <wsnt:SubscriptionReference>

<wsa:Address>http://192.168.0.20/onvif/Subscription?Idx=17972</wsa:Address>
        </wsnt:SubscriptionReference>
        <wsnt:Topic
Dialect="http://www.onvif.org/ver10/tev/topicExpression/ConcreteSet"
xmlns:tns1="http://www.onvif.org/ver10/topics"
xmlns:tnspana1="http://panasonic.co.jp/sn/psn/2010/event/topics">tns1:VideoSour
ce/MotionAlarm</wsnt:Topic>
        <wsnt:Message>
          <tt:Message UtcTime="2013-07-31T08:33:59Z">
            <tt:Source>
              <tt:SimpleItem Name="VideoSourceToken" Value="3M" />
            </tt:Source>
            <tt:Data>
              <tt:SimpleItem Name="State" Value="True" />
            </tt:Data>
          </tt:Message>
        </wsnt:Message>
      </wsnt:NotificationMessage>
    </wsnt:Notify>
  </env:Body>
</env:Envelope>
```

6) Renew

```
<?xml version="1.0" encoding="utf-8"?>
<soap12:Envelope xmlns:soap12="http://www.w3.org/2003/05/soap-envelope"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-u
tility-1.0.xsd">
  <soap12:Header>
    <wsa:Action
soap12:mustUnderstand="1">http://docs.oasis-open.org/wsn/bw-2/SubscriptionManag
er/RenewRequest</wsa:Action>
    <wsa:MessageID>urn:uuid:6012ba9e-98b7-4cee-97f6-1d7fb7ef9b69</wsa:MessageID>
    <wsa:ReplyTo>
```

```
      <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsse:Security>
      <wsu:Timestamp wsu:Id="Time">
        <wsu:Created>2011-02-03T05:31:18Z</wsu:Created>
        <wsu:Expires>2011-02-03T05:31:28Z</wsu:Expires>
      </wsu:Timestamp>
      <wsse:UsernameToken wsu:Id="User">
        <wsse:Username>admin</wsse:Username>
        <wsse:Password
Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-pr
ofile-1.0#PasswordDigest">A1lMZDH7iYc1c82lBlLlGXYSMUk=</wsse:Password>
        <wsse:Nonce>cda1gOMjckWHsXZeCKrDTA==</wsse:Nonce>
        <wsu:Created>2011-02-03T05:31:18Z</wsu:Created>
      </wsse:UsernameToken>
    </wsse:Security>
    <wsa:To
soap12:mustUnderstand="1">http://192.168.0.10/onvif/Subscription?Idx=17818</wsa
:To>
  </soap12:Header>
  <soap12:Body>
    <Renew xmlns="http://docs.oasis-open.org/wsn/b-2">
      <TerminationTime>PT10M</TerminationTime>
    </Renew>
  </soap12:Body>
</soap12:Envelope>
```

7) RenewResponse

```
<?xml version="1.0" encoding="utf-8"?>
<env:Envelope xmlns:env="http://www.w3.org/2003/05/soap-envelope"
xmlns:enc="http://www.w3.org/2003/05/soap-encoding"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:rpc="http://www.w3.org/2003/05/soap-rpc"
xmlns:xop="http://www.w3.org/2004/08/xop/include"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
xmlns:wstop="http://docs.oasis-open.org/wsn/t-1">
  <env:Header>
    <wsa:MessageID>urn:uuid:0119875e-d680-1419-9d13-00804559a33b</wsa:MessageID>
    <wsa:RelatesTo>urn:uuid:6012ba9e-98b7-4cee-97f6-1d7fb7ef9b69</wsa:RelatesTo>
    <wsa:To
env:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
    <wsa:Action
env:mustUnderstand="1">http://docs.oasis-open.org/wsn/bw-2/SubscriptionManager/
RenewResponse</wsa:Action>
  </env:Header>
  <env:Body>
    <wsnt:RenewResponse xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2">
      <wsnt:TerminationTime>2011-02-03T05:47:09Z</wsnt:TerminationTime>
      <wsnt:CurrentTime>2011-02-03T05:37:09Z</wsnt:CurrentTime>
    </wsnt:RenewResponse>
  </env:Body>
</env:Envelope>
```

8) Unsubscribe

```
<?xml version="1.0" encoding="utf-8"?>
<soap12:Envelope xmlns:soap12="http://www.w3.org/2003/05/soap-envelope"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
```

```
xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
secext-1.0.xsd"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-u
tility-1.0.xsd">
  <soap12:Header>
    <wsa:Action
soap12:mustUnderstand="1">http://docs.oasis-open.org/wsn/bw-2/SubscriptionManag
er/UnsubscribeRequest</wsa:Action>
    <wsa:MessageID>urn:uuid:efa87460-e34d-427f-b81d-eff21994b412</wsa:MessageID>
    <wsa:ReplyTo>
     <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsse:Security>
     <wsu:Timestamp wsu:Id="Time">
       <wsu:Created>2011-02-03T05:31:24Z</wsu:Created>
       <wsu:Expires>2011-02-03T05:31:34Z</wsu:Expires>
     </wsu:Timestamp>
     <wsse:UsernameToken wsu:Id="User">
       <wsse:Username>admin</wsse:Username>
       <wsse:Password
Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-pr
ofile-1.0#PasswordDigest">PPh5+jImR39oFcrMDVHkw6KKGsI=</wsse:Password>
       <wsse:Nonce>ADUm0HiQY023wB3WyBlHZA==</wsse:Nonce>
       <wsu:Created>2011-02-03T05:31:24Z</wsu:Created>
     </wsse:UsernameToken>
    </wsse:Security>
    <wsa:To
soap12:mustUnderstand="1">http://192.168.0.10/onvif/Subscription?Idx=17818</wsa
:To>
  </soap12:Header>
  <soap12:Body>
    <Unsubscribe xmlns="http://docs.oasis-open.org/wsn/b-2" />
  </soap12:Body>
</soap12:Envelope>
```

9) UnsubscribeResponse

```
<?xml version="1.0" encoding="utf-8"?>
<env:Envelope xmlns:env="http://www.w3.org/2003/05/soap-envelope"
xmlns:enc="http://www.w3.org/2003/05/soap-encoding"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:rpc="http://www.w3.org/2003/05/soap-rpc"
xmlns:xop="http://www.w3.org/2004/08/xop/include"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
xmlns:wstop="http://docs.oasis-open.org/wsn/t-1">
  <env:Header>
    <wsa:MessageID>urn:uuid:0119875f-d680-1419-9d13-00804559a33b</wsa:MessageID>
    <wsa:RelatesTo>urn:uuid:efa87460-e34d-427f-b81d-eff21994b412</wsa:RelatesTo>
    <wsa:To
env:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
    <wsa:Action
env:mustUnderstand="1">http://docs.oasis-open.org/wsn/bw-2/SubscriptionManager/
UnsubscribeResponse</wsa:Action>
  </env:Header>
  <env:Body>
    <wsnt:UnsubscribeResponse xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2">
    </wsnt:UnsubscribeResponse>
  </env:Body>
</env:Envelope>
```

B) Get pull type events (Event service of ONVIF)
   1. Flow of receiving Motion Detect Event

Client		Camera

Set some area for motion detect via HTTP browser

Get event information supported by the camera

GetEventProperties

GetEventPropertiesResponse

CreatePullPointSubscription (specifying filter (TopicExpression= "tns1:VideoSource/MotionAlarm"), and termination time)

Subscribe topics the client wants to receive.

CreatePullPointSubscriptionResponse

Motion detected

PullMessages

Get events anytime.

PullMessagesResponse

∎
∎
∎

Renew (specifying termination time)

RenewResponse

∎
∎
∎
∎

Unsubscribe

Stop the receiving events.

UnsubscribeResponse

2. Example of SOAP trace

1) CreatePullPointSubscription

```
<?xml version="1.0" encoding="utf-8"?>
<soap12:Envelope xmlns:soap12="http://www.w3.org/2003/05/soap-envelope"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurit
y-secext-1.0.xsd"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity
-utility-1.0.xsd">
  <soap12:Header>
    <wsa:Action
soap12:mustUnderstand="1">http://www.onvif.org/ver10/events/wsdl/EventPortTyp
e/CreatePullPointSubscriptionRequest</wsa:Action>

<wsa:MessageID>urn:uuid:cca999f8-b0e1-4e4e-ac7e-04a074d49fbf</wsa:MessageID>
    <wsa:ReplyTo>

<wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsse:Security>
      <wsu:Timestamp wsu:Id="Time">
        <wsu:Created>2011-02-03T05:32:40Z</wsu:Created>
        <wsu:Expires>2011-02-03T05:32:50Z</wsu:Expires>
      </wsu:Timestamp>
      <wsse:UsernameToken wsu:Id="User">
        <wsse:Username>admin</wsse:Username>
        <wsse:Password
Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-
profile-1.0#PasswordDigest">0FVLlgsnsY4Uebmes7iHn9Yw4Qk=</wsse:Password>
        <wsse:Nonce>tDGL/U0o8UiHlkd2QguF3A==</wsse:Nonce>
        <wsu:Created>2011-02-03T05:32:40Z</wsu:Created>
      </wsse:UsernameToken>
    </wsse:Security>
    <wsa:To soap12:mustUnderstand="1">http://192.168.0.10/onvif</wsa:To>
  </soap12:Header>
  <soap12:Body>
    <CreatePullPointSubscription
xmlns="http://www.onvif.org/ver10/events/wsdl">
      <Filter>
        <TopicExpression
Dialect="http://www.onvif.org/ver10/tev/topicExpression/ConcreteSet"
xmlns="http://docs.oasis-open.org/wsn/b-2"
xmlns:tns1="http://www.onvif.org/ver10/topics">tns1:VideoSource/MotionAlarm</
TopicExpression>
      </Filter>
      <InitialTerminationTime>PT10M</InitialTerminationTime>
    </CreatePullPointSubscription>
  </soap12:Body>
</soap12:Envelope>
```

2) CreatePullPointSubscriptionResponse

```
<?xml version="1.0" encoding="utf-8"?>
<env:Envelope xmlns:env="http://www.w3.org/2003/05/soap-envelope"
xmlns:enc="http://www.w3.org/2003/05/soap-encoding"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:rpc="http://www.w3.org/2003/05/soap-rpc"
xmlns:xop="http://www.w3.org/2004/08/xop/include"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
xmlns:wstop="http://docs.oasis-open.org/wsn/t-1">
```

```
  <env:Header>

<wsa:MessageID>urn:uuid:01198760-d680-1419-9d13-00804559a33b</wsa:MessageID>

<wsa:RelatesTo>urn:uuid:cca999f8-b0e1-4e4e-ac7e-04a074d49fbf</wsa:RelatesTo>
    <wsa:To
env:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To
>
    <wsa:Action
env:mustUnderstand="1">http://www.onvif.org/ver10/events/wsdl/EventPortType/C
reatePullPointSubscriptionResponse</wsa:Action>
  </env:Header>
  <env:Body>
    <CreatePullPointSubscriptionResponse
xmlns="http://www.onvif.org/ver10/events/wsdl">
      <SubscriptionReference>

<wsa:Address>http://192.168.0.10/onvif/Subscription?Idx=399</wsa:Address>
      </SubscriptionReference>
      <wsnt:CurrentTime>2011-02-03T05:38:32Z</wsnt:CurrentTime>
      <wsnt:TerminationTime>2011-02-03T05:48:32Z</wsnt:TerminationTime>
    </CreatePullPointSubscriptionResponse>
  </env:Body>
</env:Envelope>
```

3) PullMessages

```
<?xml version="1.0" encoding="utf-8"?>
<soap12:Envelope xmlns:soap12="http://www.w3.org/2003/05/soap-envelope"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurit
y-secext-1.0.xsd"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity
-utility-1.0.xsd">
  <soap12:Header>
    <wsa:Action
soap12:mustUnderstand="1">http://www.onvif.org/ver10/events/wsdl/PullPointSub
scription/PullMessagesRequest</wsa:Action>

<wsa:MessageID>urn:uuid:c70fe246-0bd1-424a-abfa-6eab7bde8fd4</wsa:MessageID>
    <wsa:ReplyTo>

<wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsse:Security>
      <wsu:Timestamp wsu:Id="Time">
        <wsu:Created>2013-07-31T08:55:51Z</wsu:Created>
        <wsu:Expires>2013-07-31T08:56:01Z</wsu:Expires>
      </wsu:Timestamp>
      <wsse:UsernameToken wsu:Id="User">
        <wsse:Username>admin</wsse:Username>
        <wsse:Password
Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-
profile-1.0#PasswordDigest">4dG7CPI8rj+CjVCeaNTNiCX3QmM=</wsse:Password>
        <wsse:Nonce>vhcI1VHgDEWEJ/L5+TsCOg==</wsse:Nonce>
        <wsu:Created>2013-07-31T08:55:51Z</wsu:Created>
      </wsse:UsernameToken>
    </wsse:Security>
    <wsa:To
soap12:mustUnderstand="1">http://192.168.0.20/onvif/Subscription?Idx=2104</ws
a:To>
  </soap12:Header>
  <soap12:Body>
    <PullMessages xmlns="http://www.onvif.org/ver10/events/wsdl">
```

```
      <Timeout>PT1S</Timeout>
      <MessageLimit>1</MessageLimit>
    </PullMessages>
  </soap12:Body>
</soap12:Envelope>
```

4) PullMessagesResponse

```
<?xml version="1.0" encoding="utf-8"?>
<env:Envelope xmlns:env="http://www.w3.org/2003/05/soap-envelope"
xmlns:enc="http://www.w3.org/2003/05/soap-encoding"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:rpc="http://www.w3.org/2003/05/soap-rpc"
xmlns:xop="http://www.w3.org/2004/08/xop/include"
xmlns:wsa="http://www.w3.org/2005/08/addressing"
xmlns:tt="http://www.onvif.org/ver10/schema"
xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
xmlns:wstop="http://docs.oasis-open.org/wsn/t-1"
xmlns:tev="http://www.onvif.org/ver10/events/wsdl">
  <env:Header>

<wsa:MessageID>urn:uuid:684fc9d2-1c38-13b2-9497-0080450da45b</wsa:MessageID>

<wsa:RelatesTo>urn:uuid:c70fe246-0bd1-424a-abfa-6eab7bde8fd4</wsa:RelatesTo>
    <wsa:To
env:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To
>
    <wsa:Action
env:mustUnderstand="1">http://www.onvif.org/ver10/events/wsdl/PullPointSubscr
iption/PullMessagesResponse</wsa:Action>
  </env:Header>
  <env:Body>
    <PullMessagesResponse xmlns="http://www.onvif.org/ver10/events/wsdl">
      <CurrentTime>2013-07-31T08:56:08Z</CurrentTime>
      <TerminationTime>2013-08-01T00:00:00Z</TerminationTime>
      <wsnt:NotificationMessage>
       <wsnt:SubscriptionReference>

<wsa:Address>http://192.168.0.20/onvif/Subscription?Idx=2104</wsa:Address>
       </wsnt:SubscriptionReference>
       <wsnt:Topic
Dialect="http://www.onvif.org/ver10/tev/topicExpression/ConcreteSet"
xmlns:tns1="http://www.onvif.org/ver10/topics"
xmlns:tnspana1="http://panasonic.co.jp/sn/psn/2010/event/topics">tns1:VideoSo
urce/MotionAlarm</wsnt:Topic>
       <wsnt:Message>
        <tt:Message UtcTime="2013-07-31T08:56:05Z">
          <tt:Source>
           <tt:SimpleItem Name="VideoSourceToken" Value="3M" />
          </tt:Source>
          <tt:Data>
           <tt:SimpleItem Name="State" Value="True" />
          </tt:Data>
        </tt:Message>
       </wsnt:Message>
      </wsnt:NotificationMessage>
    </PullMessagesResponse>
  </env:Body>
</env:Envelope>
```