ONVIF™

ONVIF Core Specification Version 2.0 Release Notes

November 2010

1. Summary

The ONVIF 2.0 release is the second major specification release. It adds a number of new services and extends functionality of existing services to support multiple new feature sets. Interfaces available with 1.02 have been kept fully backward compatible. A small number of maintenance changes have been applied and are described in section 3.

2. New Features

2.1. Device Types

See section 4.4 for an introduction to the new device types and 5.5.1 for their respective service requirements. The newly defined device types are called network video storage (NVS), network video display (NVD) and network video analytics (NVA).

2.2. Additions to the Device Management Service

To this section features for remote user management and 802.11 network configuration have been added. The IO features have been moved to a new IO service. Devices must continue to support the existing APIs to ensure client side backward compatibility.

2.3. Device IO Service

This newly defined service gathers all physical IO functionality. The service offers commands to retrieve and configure the settings of physical inputs and outputs of a device.

2.4. Receiver Service

The receiver service provides a receiving mechanism as base building block for the NVD, NVS and NVA. A receiver is an object that acts as an RTSP client endpoint. A receiver has a configuration that determines the RTSP endpoint to which it should connect and the connection parameters it should use.

2.5. Display Service

The display service provides the key functionality of the NVD. The service introduces panes, each of which occupies an area of the physical display. The configuration of the pane maps audio inputs and outputs to a video output. The configuration also references a receiver object which receives the data to be displayed. Functions to retrieve and configure the configuration of a pane are provided. A layout defines how these panes are visible on the display (e.g single view or quad view). The service introduces commands to retrieve the current layout of a display and change the layout.

2.6. Recording Control Service

The recording control service enables a client to manage recordings, and to configure the transfer of data from data sources to recordings. Managing recordings includes creation and deletion of recordings and tracks.

2.7. Recording Search Service

This mandatory service for any NVS provides the facilities for information lookup from simple queries for recorded media up to analytics search. The service enables a client to find information about the recordings on the storage device, for example to construct a "timeline" view, and to find data of interest within a set of recordings. The latter is achieved by searching for events that are included in the metadata track of the recording.

2.8. Playback Control Service

The replay service enables a client to play back recorded data, including video, audio and metadata. Functions are provided to start and stop playback and to change speed and direction of the replayed stream. It also enables a client to download data from the storage device so that export functionality can be provided.

2.9. Video Analytics Device Service

This service provides the necessary hooks for establishing media streams or metadata enhanced media streams an NVA.

2.10. Audio Backchannel

In order to support bidirectional audio connections the media service and the streaming specification have been extended.

3. Changes

Find below all errata's from Version 1.02 to 2.0 applicable to existing APIs in order to improve interoperability. Note that this list does only include those change requests that apply to items that have been part of the specification 1.02.

Errata #	Subject				CR#
2. 1	**Typo in PathExpr grammar**				190
Document reference	**Clause**	**Sub-Clause**		**Page(s)**	**Line(s)**
Core 2 Draft 8	15.5.5			238	
	Change				

Replace

[3]PathExpr ::= // 'Prefix ':' SimpleItem' NodeTest | //Prefix ':'? ElementItem' NodeTest

With (And renumber the items below 3)

[3] PathExpr ::= ['//'Prefix?'SimpleItem' | '//'Prefix?'ElementItem'] NodeTest

[4] Prefix::= NamespacePrefix':' | ''

The *Prefix* shall correspond to the http://www.onvif.org/ver10/schema namespace.

Errata #	Subject				CR#
2.2	**Typo in TopicPath grammar**				191
Document reference	**Clause**	**Sub-Clause**		**Page(s)**	**Line(s)**
Core 2 Draft 8	15.7.3			241	
	Change				

Replace

[4] TopicPath ::= RootTopic ChildTopicExpression* *('//.)?*

With

[4] TopicPath ::= RootTopic ChildTopicExpression* *('//.')?*

Errata #	Subject				CR#
2.3	Add Error Code of "UsernameTooShort"				193
Document reference	**Clause**	**Sub-Clause**	**Page(s)**		**Line(s)**
Core 2 Draft 8	Section 8.4.4/8.6		105 / 124		
Change					

Add error code "ter:UsernameTooShort" with description **"The username was too short"**

to function CreateUsers(in Table 66) and to Table 90(Device service specific fault codes).

Errata #	Subject				CR#
2.4	MessageDescription uses two expressions SimpleItem and SimpleItemDescription				194
Document reference	**Clause**	**Sub-Clause**	**Page(s)**		**Line(s)**
Core 2 Draft 8	-	-	-		-
Change					

Replace from **"SimpleItem"** in the following chapter to **"SimpleItemDescription"** :

13.4.1 ChangeState

13.4.2 Connection Failed

14.4.1   Decoding error event

15.10.2 GetEventPropertiesResponse

19.20.1 Recording job state changes

19.20.2 Configuration changes

19.20.3 Data deletion

19.20.4 Recording and track creation and deletion

20.17   Recording Event Descriptions

A.1.1   Profile

A.1.2   VideoSourceConfiguration

A.1.3   AudioSourceConfiguration

A.1.4   VideoEncoderConfiguration

A.1.5   AudioEncoderConfiguration

A.1.6   VideoAnalyticsConfiguration

A.1.7   PTZConfiguration

A.1.8   MetaDataConfiguration

A.1.10 Relay

A.1.11 PTZ Controller Topics

Errata #	Subject				CR#
2.6	Mistaking how to use "a=sendonly" of RTSP				196
Document reference	Clause	Sub-Clause	Page(s)		Line(s)
Core 2 Draft 8	12.2.1.1.3	-	208		-
Change					

Replace from:

```
server->client:        RTSP/1.0 200 OK
                       CSeq: 1
                       Content-Type: application/sdp
                       Content-Length: XXX
                       v=0
                       o=- 2890844256 2890842807 IN IP4 172.16.2.93
                       s=RTSP Session
                       m=audio 0 RTP/AVP 0
                       a=control:rtsp://example.com/onvif_camera /audio
                       m=video 0 RTP/AVP 26
                       a=control:rtsp://example.com/onvif_camera /video
                       m=application 0 RTP/AVP 107
                       a=control:rtsp://example.com/onvif_camera/metadata
                       a=sendonly
                       a=rtpmap
                       a=rtpmap:107 vnd.onvif.metadata/90000
```

To:

```
server->client:        RTSP/1.0 200 OK
                       CSeq: 1
                       Content-Type: application/sdp
                       Content-Length: XXX
                       v=0
                       o=- 2890844256 2890842807 IN IP4 172.16.2.93
                       s=RTSP Session
                       m=audio 0 RTP/AVP 0
                       a=control:rtsp://example.com/onvif_camera /audio
                       m=video 0 RTP/AVP 26
                       a=control:rtsp://example.com/onvif_camera /video
                       m=application 0 RTP/AVP 107
                       a=control:rtsp://example.com/onvif_camera/metadata
                       a=recvonly
                       a=rtpmap
                        a=rtpmap:107 vnd.onvif.metadata/90000
```

Errata #	Subject				CR#
2.10	Mistaking Action name of PullMessagesFaultResponse				200
Document reference	**Clause**	**Sub-Clause**	**Page(s)**		**Line(s)**
event.wsdl (v2.0)					

Change

Replace from:

event.wsdl(v2.0)

```
<wsdl:operation name="PullMessages">
        <wsdl:input message="tev:PullMessagesRequest"
wsa:Action="http://www.onvif.org/ver10/events/wsdl/PullPointSubscription/PullMessagesRequest"/>
        <wsdl:output message="tev:PullMessagesResponse"
wsa:Action="http://www.onvif.org/ver10/events/wsdl/PullPointSubscription/PullMessagesResponse"/>
        <wsdl:fault name="PullMessagesFaultResponse" message="tev:PullMessagesFaultResponse"
```
wsa:Action="http://schemas.xmlsoap.org/ws/2004/08/addressing/fault"/>
```
</wsdl:operation>
```

To:

event.wsdl(v2.0)

```
<wsdl:operation name="PullMessages">
        <wsdl:input message="tev:PullMessagesRequest"
wsa:Action="http://www.onvif.org/ver10/events/wsdl/PullPointSubscription/PullMessagesRequest"/>
        <wsdl:output message="tev:PullMessagesResponse"
wsa:Action="http://www.onvif.org/ver10/events/wsdl/PullPointSubscription/PullMessagesResponse"/>
        <wsdl:fault name="PullMessagesFaultResponse" message="tev:PullMessagesFaultResponse"
```
wsa:Action="http://www.onvif.org/ver10/events/wsdl/PullPointSubscription/PullMessages/Fault/PullMessagesFaultResponse"/>
```
</wsdl:operation>
```

Errata #	Subject					CR#
2.11	Consistent fault codes for SetUserSettings					201
Document reference	Clause		Sub-Clause	Page(s)		Line(s)
Core 2 Draft 8	8.4 Security		8.4.6 Set users settings	106		

Change

Replace from:

Fault codes	Description
env:Sender ter:InvalidArgVal ter:UsernameMissing	*Username NOT recognized.*
env:Sender ter:InvalidArgVal ter:PasswordTooLong	*The password was too long*
env:Sender ter:InvalidArgVal ter:PasswordTooWeak	*Too weak password*

To:

Fault codes	Description
env:Sender ter:InvalidArgVal ter:UsernameMissing	*Username NOT recognized.*
env:Sender ter:InvalidArgVal ter:PasswordTooLong	*The password was too long*
env:Sender ter:InvalidArgVal ter:PasswordTooWeak	*Too weak password*
env:Sender ter:OperationProhibited ter:AnonymousNotAllowed	*User level anonymous is not allowed.*

Item #	Subject	
202	Errors in event.wsdl when trying to validate schema	

Document reference	Clause	Sub-Clause	Page(s)	Line(s)
onvif2.0_wsdl201 00601/event.wsdl				see description

Date		Author	
	14 Sep 2010		Scott Hudson

Change

Problem description

Multiple errors like the following in wsdl when trying to validate schema:

Engine name: Xerces
Severity: error
Description: cvc-datatype-valid.1.2.1: 'wsnt:ResourceUnknownFault' is not a valid value for 'NCName'.
Start location: 211:65
URL: http://www.w3.org/TR/xmlschema-2/#cvc-datatype-valid

Change

1. Remove wsnt: prefixes on all <soap:fault name=
2. Remove urn: from all <soap:operation soapAction="urn:

Errata #	Subject				CR#
2.14	**Typo in 11.16.1 Request snapshot URI**				206
Document reference	**Clause**	**Sub-Clause**	**Page(s)**		**Line(s)**
Core 2 Draft 8	11.16.1		192		
Change					

Replace from:

"An NVCA client uses the GetSnapshotUri command to obtain a JPEG snhapshot <u>froorm</u> the NVT."

To:

"A network client (NVC) uses the GetSnapshotUri command to obtain a JPEG snapshot **from** the NVT."

Errata #	Subject				CR#
2.15	Update to new Name ONVIF™				207
Document reference	**Clause**	**Sub-Clause**	**Page(s)**		**Line(s)**
Core 2 Draft 8					
Change					

Replace from "Open Network Video Interface Forum" to **ONVIF™** as following parts

- Document headline states "Open Network Video Interface Forum"
- Document header also contains "Open Network Video Interface Forum"
- Page 2, Copyright note. it should be correct to refer to "Open Network Video Interface Forum, Inc." as this is formally the legal entity.

Errata #	Subject		CR#
2.19	Clarify documentation for SetVideoEncoderConfiguration and SetAudioEncoderConfiguration		215

Document reference	Clause	Sub-Clause	Page(s)	Line(s)
Core 2 Draft 8	11.5.5, 11.7.5		168, 172	

Change

Change the text to:

Section 11.5.5:

This operation modifies a video encoder configuration. The ForcePersistence flag indicates if the changes shall remain after reboot of the NVT. Changes in the Multicast settings shall always be persistent. Running streams using this configuration may be immediately updated according to the new settings, but the changes are not guaranteed to take effect unless the client requests a new stream URI and restarts any affected stream. If the new settings invalidate any parameters already negotiated using RTSP, for example by changing codec type, the NVT must not apply these settings to existing streams. Instead it must either continue to stream using the old settings or stop sending data on the affected streams.

NVC methods for changing a running stream are out of scope for this specification. The NVT shall support the modification of video encoder parameters through the SetVideoEncoderConfiguration command.

Change the text to:

Section 11.7.5:

This operation modifies an audio source configuration. The ForcePersistence flag indicates if the changes shall remain after reboot of the NVT. Running streams using this configuration may be immediately updated according to the new settings, but the changes are not guaranteed to take effect unless the client requests a new stream URI and restarts any affected stream. If the new settings invalidate any parameters already negotiated using RTSP, for example by changing codec type, the NVT must not apply these settings to existing streams. Instead it must either continue to stream using the old settings or stop sending data on the affected streams.

NVC methods for changing a running stream are out of scope for this specification. An NVT that supports audio streaming from NVT to client shall support the configuration of audio source parameters through the SetAudioSourceConfiguration command.

Errata #	Subject				CR#
	Missing BitRateRange in Mpeg4Options and H264Options				218
Document reference	**Clause**	**Sub-Clause**	**Page(s)**	**Line(s)**	
Onvif Schema, ver 1.1	VideoEncoderConfiguration	VideoEncoderConfigurationOptions		282 and 292	
Date	18/Oct/2010	**Author**	Hugo Brisson (Genetec)		
Change					

Problem description

There is no way to know minimum and maximum allowed bitrate when using RateControl for Mpeg4 and H264. We had problems when specifying very low bitrate with a few manufacturers which did not support lower values than a fixed minimum. Same goes for maximum bitrate value; since we have no way to find dynamically what the maximum supported value is for a device we have to rely on hard coded value.

Change

Add new H264Options and Mpeg4Options with the following field and extension elements:

<xs:element name="BitRateRange" type="tt:IntRange" />

Errata #	Subject				CR #
	GetSystemDateAndTime – UTCDateTime Mandatory				219
Document reference	**Clause**	**Sub-Clause**	**Page(s)**		**Line(s)**
10723r02ONVIF _Members-Core_2_Draft	8 Device Management	8.3.6 Get system date and time	93		
Date	18/Oct/2010	**Author**	Hugo Brisson (Genetec)		
Change					

Problem description

Managing time synchronization between server and client is a lot more complicated when using LocalDateTime over UTCDateTime, have to take into consideration Daylight Savings and adapt to time change, plus unnecessary TimeZone parsing and validation. Making UTCDateTime mandatory would ensure easier and simplified time synchronization between units and NVC.

Change

Replace:

"If system time and date are set manually, the device shall return UTCDateTime orLocalDateTime in the response."

with the following text:

"If system time and date are set manually, the device shall return UTCDateTime in the response. The device may include optional LocalDateTime in the response."

Errata #	Subject				CR #
	Fix parameter name of GetSystemDateAndTime				220
Document reference	**Clause**	**Sub-Clause**		**Page(s)**	**Line(s)**
Core 2 Draft 8	8.3.6			93	
Date	19/Oct/2010	**Author**		Hans.busch@de.bosch.com / johan.adolfsson@axis.com	
Change					

Problem description

Name of the last parameter is misspelled. The parameter names in Onvif.xsd SystemDateTime are correct.

Change

Replace:

tt:DateTime LocalTimeDate [0][1]

with the following text:

tt:DateTime LocalDateTime [0][1]

CR #	Subject			
230	Errors in the GetEventProperties example			
Document reference	**Clause**	**Sub-Clause**	**Page(s)**	**Line(s)**
Core spec (2.0)	15.10.2		244	
Date	04/October/2010	**Author**	stefan.andersson@axis.com	
Change				

Problem description:

There is two errors (each error occurs several times) in the GetEventProperties example:
- wstop:topic="true" should only be on the Topic that are actual topics for the notification producer, i.e. the one that contains a message description. It simplest to see this in the example section (4, from line 279) in the WS-Topic specification. But you could also see other part of the WS-Topic spec:
  - About the wstop:Topic attribute:
    "This is an attribute of type xsd:boolean, used to distinguish elements that represent Topics in the set from those that do not. An element in the content of wstop:TopicSet MUST have a wstop:@topic attribute with a value of "true" if and only if it represents a Topic in the Topic Set."
  - About the wstop:TopicSet element:
    The TopicSet contains an element corresponding to each Topic that is included in the Topic Set. ... The TopicSet element can contain additional elements that do not represent Topics in the Set – it MUST contain additional, appropriately named elements where these are needed to ensure the correct position in the hierarchy of the elements that do represent Topics in the Set. It MAY contain additional elements that carry Producer-specific metadata.
- Only root topic shall be a QName, child topics shall be NCName .e.g. <tns1:Crossed wstop:topic="true"> shall be <Crossed wstop:topic="true">. The WS-Topics specifications clearly states (see section 7): "If a Topic is not a root Topic it MUST be represented by a non-qualified (NCName) element, and MUST NOT appear as an immediate child of wstop:TopicSet."

Proposal

<p align="center">Replace</p>

```
<tns1:RuleEngine wstop:topic="true">

<tns1:LineDetector wstop:topic="true">

<tns1:Crossed wstop:topic="true">
```

<p align="center">With</p>

```
<tns1:RuleEngine>

<LineDetector>

<Crossed wstop:topic="true">
```

CR #	Subject			
233	Fix configuration of ObjectTracker example			
Document reference	**Clause**	**Sub-Clause**	**Page(s)**	**Line(s)**
Core spec (2.0)	17.3.1		286	
Date	06/October/2010	**Author**	stefan.andersson@axis.com	
Change				

Problem description:
The SimpleItem element has a type attribute it should have a value attribute
Proposal:
Replace:

```
<tt:VideoAnalyticsConfig>

<tt:AnalyticsEngineConfig>

<tt:AnalyticsModule Name="MyObjectTracker" Type="nn:ObjectTracker">

<tt:Parameters>

<tt:SimpleItem Name="MinObjectWidth" Type="0.01"/>

<tt:SimpleItem Name="MinObjectHeight" Type="0.01"/>

<tt:SimpleItem Name="MaxObjectWidth" Type="0.5"/>

<tt:SimpleItem Name="MaxObjectHeight" Type="0.5"/>

</tt:Parameters>

</tt:AnalyticsModule>

</tt:AnalyticsEngineConfig>
```

With:

```
<tt:VideoAnalyticsConfig>

<tt:AnalyticsEngineConfig>

<tt:AnalyticsModule Name="MyObjectTracker" Type="nn:ObjectTracker">

<tt:Parameters>

<tt:SimpleItem Name="MinObjectWidth" Value="0.01"/>

<tt:SimpleItem Name="MinObjectHeight" Value="0.01"/>

<tt:SimpleItem Name="MaxObjectWidth" Value="0.5"/>

<tt:SimpleItem Name="MaxObjectHeight" Value="0.5"/>

</tt:Parameters>

</tt:AnalyticsModule>

</tt:AnalyticsEngineConfig>
```