

ONVIF™

ONVIF Specification Version 2.2.1 Release Notes

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1. Summary

The ONVIF 2.2.1 is a maintenance release with a number of minor clarifications. The changes themselves are described in details in the list below.

2. Changes

Find below all errata's from Version 2.2 to 2.2.1 in order to improve interoperability.

The numbers correspond to the Change Request ticket numbers and are not necessarily continuously ascending.

If not noted otherwise the changes refer to the Core specification.

693 Clarify requirement for discovery scopes

In ONVIF Core Specification section 7.3.2.2 replace:

A device shall include at least one entry of the profile, location, hardware and name categories respectively in the scopes list. A device may include any other additional scope attributes in the scopes list.

by

A device shall include at least one fixed entry (defined by the device vendor) of the profile, hardware and name categories respectively in the scopes list. A device may include any other additional scope attributes in the scopes list.

707 Lower Requirement Level for Stateful DHCPv6 addressing

In the ONVIF Core Specification apply the following changes.

Add to section Network of Table 12 the entry:

DHCPv6 Indicates support for Stateful IPv6 DHCP.

Add the same capability to devicemgmt.wsdl.

In section 6 replace

A device that supports IPv6 shall support stateful IP configuration according to [RFC3315].

by

A device that supports IPv6 shall support stateful IP configuration via DHCPv6 according to [RFC3315] if signaled via the corresponding capability.

In section 8.2.11 Set Network Interface Configuration add to table 24 the error code

env:Receiver

ter:ActionNotSupported

ter:InvalidDHCPv6 The requested stateful DHCPv6 mode is not supported.

708 Add prefix description for service specifications

To each of the Service Specification add a table with namespace prefixes used add the end of the Overview section.

709 Remove hyperlinks from service specifications

Removed hyperlinks from the chapter "Service specific data types" of the following service specification.

- Imaging Service Specification
- Receiver Service Specification
- Recording Control Service Specification
- Recording Search Service Specification
- Video Analytics Device Service Specification.

719 Remove capability 'DeleteData' from the specification

In the ONVIF Recording Control Specification remove from section 5.20 the capability 'DeleteData'.

730, 838 Remove extra space

In the ONVIF Imaging wsdl file replace:

```
<xs:element name="ForcePersistence " type="xs:boolean"/>
```

by

```
<xs:element name="ForcePersistence" type="xs:boolean"/>
```

742 Fix error code of GetReplayUri

In the ONVIF Replay Service Specification:

Replace

```
env:Sender  
ter:InvalidArgVal  
ter:NoProfile
```

by

```
env:Sender  
ter:InvalidArgVal  
ter:NoRecording
```

Replace the Fault reason in Table 6: Replay service specific fault code tables
Profile token does not exist.

by

Recording token does not exist.

Replace the Description in Table 6

The requested profile token ProfileToken does not exist.

By

The RecordingToken provided in the request does not exist.

743 Add capability for RTP/RTSP/TCP to Replay Service

In the ONVIF Replay Specification add to section 5.4.1:

RTP_RTSP_TCP: Indication if the device supports RTP/RTSP/TCP transport, see Section 5.1.1.3 of the ONVIF Streaming Specification.

Add corresponding attribute to replay.wsdl.

746 Add capability for maximum number of Dot1XConfigurations

In the ONVIF Core Specification add to table 12:

Dot1XConfigurations Indicates the maximum number of Dot1X configurations supported by the device, see 8.4.7.

Add a capability attribute to the Network section of the device management service capabilities.

749 Correct typo - scheme should be schema

In the ONVIF Device Management wsdl file correct

The transport addresses where the service can be reached. The schema and IP part shall match the one used in the request (i.e. the GetServices request).

by

The transport addresses where the service can be reached. The scheme and IP part shall match the one used in the request (i.e. the GetServices request).

751 Clarification for contents of GetServices response

Add to section 8.1.2.1 GetServices of the Core Specification the sentence:

All of returned service capabilities shall be structured by different namespaces which are supported by a device.

759 Clarify requirements for the RecordingJobSource

In the ONVIF Recording Control Specification add to section 5.3.3:

A device that includes the ONVIF Media Service shall support a Media Profile token and a device that includes the ONVIF Receiver Service shall support a Receiver token.

765 Clarification for NumberRecording parameter in GetRecordingSummary

Replace sentence in Table 1 in the ONVIF Recording Search Service Specification

Returns a structure containing: DataFrom specifying the first time when there is recorded data on the device; DataUntil specifying the last point in time where there is data recorded on the device; the total estimated number of recordings and tracks.

by

Returns a structure containing: DataFrom specifying the first time when there is recorded data on the device; DataUntil specifying the last point in time where there is data recorded on the device; the total number of recordings on the device.

Replace the annotation text in RecordingSummary type in onvif.xsd

The device contains at least this many recordings.

by

The device contains this many recordings.

766 Clarification for GetXXXResults

Replace all the occurrences of the following text in the ONVIF Recording Search Service Specification

If any of the specified parameters MinResult, MaxResult and WaitTime exceed the supported range a device shall adapt them instead of responding an error.

by

If any of the specified parameters `MinResult` and `WaitTime` exceed the supported range a device shall adapt them instead of responding an error.

768 Clarification for immediate header

Replace the last paragraph of 6.9 in the ONVIF Streaming Specification

An ONVIF compliant RTSP server shall support the immediate header field for playback.

by

An ONVIF compliant RTSP server shall support the immediate header field for playback with value "yes". The behavior without immediate header or value "no" is not defined by the specification.

774 Action definition for GetServiceCapabilities in Event service

Replace the following definition in `event.wsdl`

```
<wsdl:portType name="EventPortType?">
  <wsdl:operation name="GetServiceCapabilities?">
    <wsdl:documentation>Returns the capabilities of the event service. The result is
    returned in a typed answer.</wsdl:documentation>
    <wsdl:input message="tev:GetServiceCapabilitiesRequest"/>
    <wsdl:output message="tev:GetServiceCapabilitiesResponse"/>
  </wsdl:operation>
```

by

```
<wsdl:portType name="EventPortType?">
  <wsdl:operation name="GetServiceCapabilities?">
    <wsdl:documentation>Returns the capabilities of the event service. The result is
    returned in a typed answer.</wsdl:documentation>
    <wsdl:input message="tev:GetServiceCapabilitiesRequest"
    wsaw:Action="http://www.onvif.org/ver10/events/wsdl/EventPortType/GetServiceCapabi
    litiesRequest"/>
    <wsdl:output message="tev:GetServiceCapabilitiesResponse"
    wsaw:Action="http://www.onvif.org/ver10/events/wsdl/EventPortType/GetServiceCapabi
    litiesResponse"/>
  </wsdl:operation>
```


778 Clarification for event state in backward search in FindEvents

Add the following sentence in 5.9 Find Events in the ONVIF Recording Search Service Specification

Although the values of property events refer to the forward direction, they shall be reported identically in reverse search mode.

780 Clarification for event state in backward search in FindEvents – IncludeStartState=true

Replace the following sentence in Table 6 in 5.9 Find Events in the ONVIF Recording Search Service Specification

By setting IncludeStartState to true, the client indicates that virtual events at the time of StartPoint should be returned to represent the state in the recording.

by

By setting IncludeStartState to true, the client indicates that virtual events at the time of StartPoint should be returned to represent the state in the recording. In case of a backward search, virtual events at the time of EndPoint and StartPoint should be returned.

783 Change text in 9.7 Topic Structure section

Replace the following sentence in 9.7 Topic Structure section in the ONVIF Core Specification

This standard extends the Topic framework defined in the [WS-Topics] specification. Section 9.7.1 describes an ONVIF Topic Namespace, which should be taken as a basis for vendor specific topics. The Appendix 0 shows typical examples for such extensions. Section 9.7.2 defines an interface to topic properties. This interface shall be implemented by an ONVIF compliant device. Section 9.7.3 incorporates the Message Description Language defined in section 9.5.4 into the TopicSet? structure. All topics grown from the ONVIF Topic Namespace describes the type of a topic according to section 9.7.3. Section 9.7.3 defines the Topic Expression Dialects which are supported by a device.

by

This standard extends the Topic framework defined in the [WS-Topics] specification. Section 9.7.1 describes an ONVIF Topic Namespace. Section 9.7.2 defines an interface to topic properties. This interface shall be implemented by an ONVIF compliant device. Section 9.7.3 incorporates the Message Description Language defined in section 9.5.4 into the TopicSet? structure. All topics grown from the ONVIF Topic Namespace describe the type of a topic according to section 9.7.3. This section also defines the Topic Expression Dialects to be supported by a device.

Concrete event definitions are specified in the Events sections of the service specifications.

785 Add missing root topic

Add missing root topic to the list in section 9.7 in the ONVIF Core Specification

```
<wstop:Topic name="Monitoring"/>
```

798 Correction of the password derivation description

Replace the following text in the fourth paragraph of 5.12.2.1 in the ONVIF Core Specification

HMAC_SHA-1 is the algorithm specified in [RFC 2104] using SHA-1 [FIPS 180-2] as the underlying algorithm. The key value to use for the HMAC function is the user password, P-UA, directly mapped to its binary equivalent. Similar, the value PE-UA should be mapped to its ASCII equivalent before transmitting it to the device.

by

HMAC_SHA-1 is the algorithm specified in [RFC 2104] using SHA-1 [FIPS 180-2] as the underlying algorithm. The key value to use for the HMAC function is the concatenation of the username and password, UA + P-UA, directly mapped to its binary equivalent. Similar, the value PE-UA should be mapped to its ASCII equivalent before transmitting it to the device.

824 Remove irrelevant device service specific fault codes

Remove the following lists from table 93 of Device service specific fault codes in section 8.8 in the ONVIF Core Specification

```
env:Sender/ter:OperationProhibited/ter:DataLengthOver
```

```
env:Sender/ter:OperationProhibited/ter:DelimiterNotSupport
```

825 Correction of PTZ service specific fault code

Replace the following service specific fault code in table 27 in the ONVIF PTZ Service Specification

```
env:Receiver/ter:InvalidArgVal/ter:NoPTZConfiguration
```

by

```
env:Sender/ter:InvalidArgVal/ter:NoPTZConfiguration
```

826 Correction of Media service specific fault codes

Replace the following service specific fault codes in table 5, table 11, table 12 and table 49 in the ONVIF Media Service Specification

env:Sender/ter:InvalidArgs/ter:NoProfile

env:Sender/ter:InvalidArgs/ter:NoConfig

by

env:Sender/ter:InvalidArgVal/ter:NoProfile

env:Sender/ter:InvalidArgVal/ter:NoConfig

827 Addition of service specific fault codes

Add service specific fault codes in the following service specification documents.

- Recording Control Service Specification
- Recording Search Service Specification
- Video Analytics Device Service Specification

837 Clarification for the behavior of EndSearch

Add the following sentence in section 5.16 EndSearch to clarify what happens if the requested search session has been already completed.

Note that an error message will occur if the search session has been already completed before this request.

845 Determine MaxRecordingJobs in the device

Add the following capability to signal device capability on how many jobs are supported by the device.

MaxRecordingJobs Maximum total number of supported recording jobs by the device.

848 Correction of service specific fault codes in ONVIF Video Analytics Device service spec.

Replace the following SOAP fault code

env:Sender ter:InvalidArgVal ter:invalidConfig

by

env:Sender ter:InvalidArgVal ter:InvalidConfig

849 Correction of service specific fault codes in ONVIF Video Analytics Device service spec (2).

Replace the following SOAP fault codes

env:Sender ter:Action ter:CannotDeleteEngineInput in table 5

env:Sender ter:Action ter:CannotDeleteControl in table 14

by

env:Receiver ter:Action ter:CannotDeleteEngineInput

env:Receiver ter:Action ter:CannotDeleteControl

852 Clarification for SourceTag in RecordingJobTrack

Replace the following paragraph in section 5.23.16 in Recording Control service specification by adding some clarification

SourceTag

If the received RTSP stream contains multiple tracks of the same type, the SourceTag differentiates between those Tracks.

By

SourceTag

If the received RTSP stream contains multiple tracks of the same type, the SourceTag differentiates between those Tracks. In case of the recording for local source, this field shall be ignored.

854 Correction of GetSystemBackup API access class

Replace the following access class of GetSystemBackup API defined in Table 41 of ONVIF Core Specification

WRITE_SYSTEM_SECRET

By

READ_SYSTEM_SECRET

855 Define how to receive SPS/PPS header for H.264 if using StartMulticast

Add the following paragraph in section 5.17.1 Start Multicast streaming in ONVIF Media service specification.

The implementation shall ensure that the RTP stream can be decoded without setting up an RTSP control connection. Especially in case of H.264 video, the SPS/PPS header shall be sent inband.

786 Wrong declaration of PTZSpeed in ContinuousMove in ptz.wsdl

Replace the following sentences in ptz.wsdl

Speed argument is optional. If the speed argument is omitted, the default speed set by the PTZConfiguration will be used.

By

If the space argument is omitted, the default space set by the PTZConfiguration will be used.

And add the following clarification text in PanTilt and Zoom annotation text in PTZSpeed in onvif.xsd

If omitted in the request, the current (if any) PanTilt movement should not be affected.

If omitted in the request, the current (if any) Zoom movement should not be affected.

789 Clarification for Multicast Address and Port Configuration

In the ONVIF Media Service Specification, add the following text in 5.21.50 MulticastConfiguration section,

An ONVIF Device supporting Multicast transport shall support any mix of valid Multicast address and port independent of the address and port configured in the other entities of the unit as long as each address and port configuration is unique. Note that the port should be set to an even number as defined in RFC 3550.

866 Typo in fault code descriptions

In the ONVIF Recording Control Specification, replace all the occurrences of 'exiting' by 'existing' in fault code descriptions.

867 Add fault code to CreateRecordingJob

In the ONVIF Recording Control Specification, add the following fault code so that a device can indicate that the RecordingToken referred by the request is not correct.

env:Sender

ter:InvalidArgVal

ter:NoRecording

The RecordingToken does not reference an existing recording.

870 Clarify SetRecordingJobConfiguration

Add the following statement in 5.16 in the ONVIF Recording Control Service Specification,

A device shall reject a request that tries to modify the RecordingToken.

And also replace the bullet of the following section in 5.3.3,

Destination: The destination is the tracktoken of the track to which the device shall store the received data.

By

Destination: The destination is the track token of the track to which the device shall store the received data. All tracks must belong to the recording identified by the RecordingToken.

843 Add GetServices response example in ONVIF Core Spec

Add the following sentence in 8.1.2.1 GetServices in ONVIF Core Specification,

For making sure about the structure of GetServices response with capabilities, please refer to Annex C.

Add Annex C. Example for GetServices Response with capabilities as follows.

```
<?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:xop="http://www.w3.org/2004/08/xop/include"
xmlns:tds="http://www.onvif.org/ver10/device/wsd1"
xmlns:tt="http://www.onvif.org/ver10/schema">
  <env:Header>
</env:Header>
  <env:Body>
    <tds:GetServicesResponse>
      <tds:Service>
        <tds:Namespace>http://www.onvif.org/ver10/device/wsd1</tds:Namespace>
        <tds:XAddr>http://192.168.0.10/onvif/device_service</tds:XAddr>
        <tds:Capabilities>
          <tds:Capabilities>
            <tds:Network IPFilter="false" ZeroConfiguration="true"
IPVersion6="false" DynDNS="false" Dot11Configuration="false"
HostnameFromDHCP="false" NTP="0" />

```

```

        <tds:Security TLS1.0="false" TLS1.1="false" TLS1.2="false"
OnboardKeyGeneration="false" AccessPolicyConfig="false"
DefaultAccessPolicy="false" Dot1X="false" RemoteUserHandling="false"
X.509Token="false" SAMLToken="false" KerberosToken="false" UsernameToken="false"
HttpDigest="false" RELToken="false" />
        <tds:System DiscoveryResolve="true" DiscoveryBye="true"
RemoteDiscovery="false" SystemBackup="false" SystemLogging="false"
FirmwareUpgrade="true" HttpFirmwareUpgrade="false" HttpSystemBackup="false"
HttpSystemLogging="false" HttpSupportInformation="false" />
        <tds:MiscCapabilities AuxiliaryCommands="" />
    </tds:Capabilities>
</tds:Capabilities>
<tds:Version>
    <tt:Major>2</tt:Major>
    <tt:Minor>20</tt:Minor>
</tds:Version>
</tds:Service>
<tds:Service>
    <tds:Namespace>http://www.onvif.org/ver10/media/wsdl</tds:Namespace>
    <tds:XAddr>http://192.168.0.10/onvif</tds:XAddr>
    <tds:Capabilities>
        <trt:Capabilities xmlns:trt="http://www.onvif.org/ver10/media/wsdl"
SnapshotUri="true" Rotation="false">
            <trt:ProfileCapabilities MaximumNumberOfProfiles="10" />
            <trt:StreamingCapabilities RTPMulticast="true" RTP_TCP="false"
RTP_RTSP_TCP="true" NonAggregateControl="true" />
        </trt:Capabilities>
    </tds:Capabilities>
<tds:Version>
    <tt:Major>2</tt:Major>
    <tt:Minor>20</tt:Minor>
</tds:Version>
</tds:Service>
<tds:Service>
    <tds:Namespace>http://www.onvif.org/ver20/ptz/wsdl</tds:Namespace>
    <tds:XAddr>http://192.168.0.10/onvif</tds:XAddr>
    <tds:Capabilities>
        <tptz:Capabilities xmlns:tptz="http://www.onvif.org/ver20/ptz/wsdl"
EFlip="false" Reverse="false" />
    </tds:Capabilities>
<tds:Version>

```



```

        <tt:Major>2</tt:Major>
        <tt:Minor>20</tt:Minor>
    </tds:Version>
</tds:Service>
<tds:Service>
    <tds:Namespace>http://www.onvif.org/ver10/events/wsdl</tds:Namespace>
    <tds:XAddr>http://192.168.0.10/onvif</tds:XAddr>
    <tds:Capabilities>
        <tev:Capabilities xmlns:tev="http://www.onvif.org/ver10/events/wsdl"
WSSubscriptionPolicySupport="false" WSPullPointSupport="false"
WSPausableSubscription="false" />
    </tds:Capabilities>
    <tds:Version>
        <tt:Major>2</tt:Major>
        <tt:Minor>20</tt:Minor>
    </tds:Version>
</tds:Service>
<tds:Service>
    <tds:Namespace>http://www.onvif.org/ver20/imaging/wsdl</tds:Namespace>
    <tds:XAddr>http://192.168.0.10/onvif</tds:XAddr>
    <tds:Capabilities>
        <timg:Capabilities xmlns:timg="http://www.onvif.org/ver20/imaging/wsdl"
ImageStabilization="false" />
    </tds:Capabilities>
    <tds:Version>
        <tt:Major>2</tt:Major>
        <tt:Minor>20</tt:Minor>
    </tds:Version>
</tds:Service>
<tds:Service>
    <tds:Namespace>http://www.onvif.org/ver10/deviceIO/wsdl</tds:Namespace>
    <tds:XAddr>http://192.168.0.10/onvif</tds:XAddr>
    <tds:Capabilities>
        <tmd:Capabilities xmlns:tmd="http://www.onvif.org/ver10/deviceIO/wsdl"
VideoSources="1" VideoOutputs="0" AudioSources="1" AudioOutputs="1"
RelayOutputs="0" SerialPorts="0" DigitalInputs="0" />
    </tds:Capabilities>
    <tds:Version>
        <tt:Major>2</tt:Major>
        <tt:Minor>20</tt:Minor>
    </tds:Version>

```

```

    </tds:Service>
  </tds:GetServicesResponse>
</env:Body>
</env:Envelope>

```

Note that capabilities can be omitted if a device does not support newly introduced capability or new capability is defined after the device implementation.

Replace Annex C. Revision History by Annex D. Revision History according to the above addition.

862 Set of RecordingSourceInformation Capabilities

Add the following statements in section 5.24.2 Recording Source Information & wsdl

SourceId	A device shall support at least 128 characters.
Name	A device shall support at least 20 characters.
Address	A device shall support at least 128 characters

Add the following paragraph in section 5.3.1 RecordingConfiguration.

A device may truncate any descriptive string without causing a fault if it exceeds the supported length. Descriptive strings are Location, Description and Content.

872 New method GetRecordingOptions

Insert new section GetRecordingOptions in ONVIF Recording Control Service Specification as follows.

GetRecordingOptions returns information for a recording identified by the RecordingToken. The information includes the number of additional tracks as well as recording jobs that can be configured.

This method shall be supported if the Options supports is signaled via the capabilities.

Note that this information is not static and is only guaranteed to be valid until the next modification of any recording jobs or tracks.

The track options shall be supported if the device signals support for dynamic tracks.

Also insert the following table in this new section.

GetRecordingOptions	Access Class: READ_MEDIA
Message name	Description
GetRecordingOptionsRequest	The RecordingToken identifies the recording.

tt:RecordingReference RecordingToken[1][1]

GetRecordingOptionsResponse The **JobOptions** contain a single attribute:

Spare Number of spare jobs that can be created for the recording.

The TrackOptions contain four attributes:

SpareTotal Total spare number of tracks that can be added to this recording.

SpareVideo Number of spare video tracks for this recording

SpareAudio Number of spare audio tracks for this recording

SpareMetadata Number of spare metadata tracks for this recording

trc:JobOptions **JobOptions**[1][1]

trc:TrackOptions **TrackOptions**[1][1]

Fault codes Description

env:Sender

ter:InvalidArgVal

ter:NoRecording The RecordingToken does not reference an existing recording.

Add the following capability in the renumbered Capabilities section in ONVIF Recording Control Service Specification.

Options Indication if the device supports the GetRecordingOptions command.

Add the correspondent method and data types in recording.wsdl.

878 SynchronizationPoint and SPS/PPS headers

Add the following paragraph to section 5.1.3 Synchronization Point in the ONVIF Streaming Specification.

For H.264 Video the SPS/PPS headers must be sent in-band if these have been changed during the transmission.

860 Error in 9.7.2 example

Remove the 'wstop:tpic="true"' attribute from the tns1:RuleEngine, tns1:LineDetector and tns1:FieldDetector elements in section 9.7.2 Topic Type Information in the ONVIF Core Specification.

861 Clarify SetRecordingJobMode

Add the following paragraph to section 5.18 SetRecordingJobMode in the ONVIF Recording Control Service Specification.

Note that the state of a recording job will only become active if the recording job has the highest priority of all active jobs of a recording.

And replace the following text in section 5.3.3,

Mode: The mode of the job. If it is idle, nothing shall happen. If it is active, the device shall try to obtain data from the receivers. A client shall use GetRecordingJobState to determine if data transfer is really taking place. The only valid values for Mode shall be "Idle" and "Active".

By

Mode: If it is idle, nothing shall happen. If it is active and the recording job has the highest priority, the device shall try to obtain data from the receivers. A client shall use GetRecordingJobState to determine if data transfer is really taking place. The only valid values for Mode shall be "Idle" and "Active".

720, 756 Clarification for Character Set for Configuration Name

Add the following new section after 5.12 in the ONVIF Core Specification.

5.13 String representation

The following sub-paragraphs are valid for all ONVIF services.

5.13.1 Character Set

A device shall support the UTF-8 character set and it may support other character sets. If a client sends a request using UTF-8, the device shall always reply using the UTF-8 character set.

5.13.2 Allowed characters in strings

A device shall not have any restriction regarding legal characters in string that aren't explicitly stated in this and other ONVIF specifications.

868 Clarification for audio reverse playback

Add the following paragraph in section 6.5.1 Packet Transmission Order in the ONVIF Streaming Specification.

Note that reverse playback of Audio packet isn't useful. Therefore Audio packets should generally not be transmitted during reverse playback.

874 Signal subscriber limits

Add the following 2 capabilities in section 9.9 in the ONVIF Core Specification.

MaxNotificationProducers: Maximum number of supported notification producers as defined by WS-BaseNotification.

MaxPullPoints: Maximum supported number of notification pull points.

And also add the above capability fields in event.wsdl.