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# User manual

(Onvif Server)

*Happytimesoft Technology Co., LTD*

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## Declaration

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[www.happytimesoft.com](http://www.happytimesoft.com)

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## Chapter 1 Files Description

**Windows** version contains the following files:

<b>File name</b>	<b>Description</b>
config.xml	The onvif server default configuration file (A runtime configuration file runconfig.xml will be generated when the onvif server stop)
happytime-rtsp-server	Happytime rtsp server. It can stream several kinds of media file. (The rtsp server is a demo version, only for testing rtsp streams, the release version does not include rtsp server)
OnvifServer.exe	onvif server executable file
runme.bat	A batch file, run rtsp server and onvif server
snapshot.jpg	The default snapshot file, for onvif snapshot interface
User manual.pdf	This manual
libcrypto-1_1.dll	Openssl dynamic library
libssl-1_1.dll	Openssl dynamic library
zlibwapi.dll	Zlib dynamic library
ssl.ca	Openssl connection certificate (For testing only, please apply for an official SSL certificate for use)
ssl.key	Openssl connection private key (For testing only, please apply for an official SSL certificate for use)

**Linux** version contains the following files:

(Tested on centos 7 and ubuntu 18.04 LTS)

<b>File name</b>	<b>Description</b>
config.xml	The onvif server default configuration file (A runtime configuration file runconfig.xml will be generated when the onvif server stop)
happytime-rtsp-server	Happytime rtsp server. It can stream several kinds of media file (The rtsp server is a demo version, only for testing rtsp streams, the release version does not include rtsp server)
onvifserver	onvif server executable file
runme.sh	A script file, run rtsp server and onvif server
snapshot.jpg	The default snapshot file, for onvif snapshot interface
User manual.pdf	This manual
libcrypto.so.1.1	Openssl dynamic library

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libssl.so.1.1	Openssl dynamic library
libz.so.1.2.11	Zlib dynamic library
ssl.ca	Openssl connection certificate (For testing only, please apply for an official SSL certificate for use)
ssl.key	Openssl connection private key (For testing only, please apply for an official SSL certificate for use)

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## Chapter 2 Configuration

### 2.1 Configuration Templates

```
<?xml version="1.0" encoding="utf-8"?>
<config>
  <server_ip></server_ip>
  <http_enable>1</http_enable>
  <http_port>8000</http_port>
  <https_enable>1</https_enable>
  <https_port>8443</https_port>
  <cert_file>ssl.ca</cert_file>
  <key_file>ssl.key</key_file>
  <http_max_users>16</http_max_users>
  <need_auth>0</need_auth>
  <log_enable>1</log_enable>
  <log_level>1</log_level>
  <information>
    <Manufacturer>Happytimesoft</Manufacturer>
    <Model>IPCamera</Model>
    <FirmwareVersion>2.4</FirmwareVersion>
    <SerialNumber>123456</SerialNumber>
    <HardwareId>1.0</HardwareId>
  </information>
  <user>
    <username>admin</username>
    <password>admin</password>
    <userlevel>Administrator</userlevel>
  </user>
  <user>
    <username>user</username>
    <password>123456</password>
    <userlevel>User</userlevel>
  </user>
  <profile>
    <video_source>
      <width>1280</width>
      <height>720</height>
    </video_source>
```

---

```
<video_encoder>
  <width>1280</width>
  <height>720</height>
  <quality>4</quality>
  <session_timeout>10</session_timeout>
  <framerate>25</framerate>
  <encoding_interval>1</encoding_interval>
  <bitrate_limit>2048</bitrate_limit>
  <encoding>H264</encoding>
  <h264>
    <gov_length>25</gov_length>
    <h264_profile>Main</h264_profile>
  </h264>
</video_encoder>
<audio_source></audio_source>
<audio_encoder>
  <session_timeout>10</session_timeout>
  <sample_rate>8</sample_rate>
  <bitrate>64</bitrate>
  <encoding>G711</encoding>
</audio_encoder>
<stream_uri></stream_uri>
</profile>
<profile>
  <video_source>
    <width>1280</width>
    <height>720</height>
  </video_source>
  <video_encoder>
    <width>640</width>
    <height>480</height>
    <quality>4</quality>
    <session_timeout>10</session_timeout>
    <framerate>25</framerate>
    <encoding_interval>1</encoding_interval>
    <bitrate_limit>2048</bitrate_limit>
    <encoding>H264</encoding>
    <h264>
```

---

```
<gov_length>25</gov_length>
<h264_profile>Main</h264_profile>
</h264>
</video_encoder>
<audio_source></audio_source>
<audio_encoder>
  <session_timeout>10</session_timeout>
  <sample_rate>8</sample_rate>
  <bitrate>64</bitrate>
  <encoding>G711</encoding>
</audio_encoder>
<stream_uri></stream_uri>
</profile>
<scope>onvif://www.onvif.org/location/country/china</scope>
<scope>onvif://www.onvif.org/type/video_encoder</scope>
<scope>onvif://www.onvif.org/name/IP-Camera</scope>
<scope>onvif://www.onvif.org/hardware/HI3518C</scope>
<event>
  <renew_interval>60</renew_interval>
  <simulate_enable>1</simulate_enable>
</event>
</config>
```

## 2.2 Configuring Node Description

### **<server\_ip>**

Specify the IP address of the onvif server, if not specified, the onvif server will listen to all network interfaces.

### **<http\_enable>**

Indicates whether enable http connection, 0-disable, 1-enable

### **<http\_port>**

Specify the http service port, providing onvif web service on this port, the default is 8000.

### **<https\_enable>**

Indicates whether enable https connection, 0-disable, 1-enable



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**<https\_port>**

Specify the https service port, providing onvif web service on this port, the default is 8443.

**<cert\_file>**

If HTTPS is enabled, specify the SSL certificate file

**<key\_file>**

If HTTPS is enabled, specify the SSL key file

**<http\_max\_users>**

Maximum supported HTTP clients numbers, if both HTTP and HTTPS are enabled, they can support  $2 * \text{http\_max\_users}$  connections in total.

The maximum number of HTTP connections is limited by the FD\_SETSIZE size of the platform. The default value is 200 for Windows platforms and 1024 for Linux platforms.

**<need\_auth>**

Indicates whether authentication is required, 0 don't require, 1 require.

**<log\_enable>**

Indicates whether logging is enabled, 0-disable, 1-enable.

**<log\_level>**

The log level:

TRACE 0  
DEBUG 1  
INFO 2  
WARN 3  
ERROR 4  
FATAL 5

**<information>** : Config the ONVIF device basic information

**<Manufacturer>**

The manufacturer of the device

**<Model>**

The device model

**<FirmwareVersion>**

The firmware version of the device

---

**<SerialNumber>**

The serial number of the device

**<HardwareId>**

The hardware ID of the device

**<user>** : Contains a list of the onvif users, it can configure multiple nodes

**<username>**

Username string

**<password>**

Password string

**<userlevel>**

User level string, The following values can be configured:

**Administrator**

**Operator**

**User**

**Anonymous**

**<profile>** : A media profile maps a video and audio source to a video and audio encoder configurations. It can configure multiple nodes.

Currently, a maximum of 8-10 profiles are supported, because too many profiles will result in too large GetProfiles response messages.

**<video\_source>** : If the media profile contains a video, the video source configuration

**<width>**

The video source width

**<height>**

The video source height

**<video\_encoder>**: If the media profile contains a video, the video encoder configuration

**<width>**

Encoded video width

**<height>**

Encoded video height

---

**<quality>**

Relative value for the video quantizers and the quality of the video. A high value within supported quality range means higher quality

**<session\_timeout>**

The rtsp session timeout for the related video stream

**<framerate>**

Maximum output framerate in fps

**<encoding\_interval>**

Interval at which images are encoded and transmitted. (A value of 1 means that every frame is encoded, a value of 2 means that every 2nd frame is encoded ...)

**<bitrate\_limit>**

The maximum output bitrate in kbps

**<encoding>**

Used video codec, either JPEG, MPEG4, H264 or H265

**<h264>**: Configure H.264 related parameters

**<gov\_length>**

Group of Video frames length. Determines typically the interval in which the I-Frames will be coded. An entry of 1 indicates I-Frames are continuously generated. An entry of 2 indicates that every 2nd image is an I-Frame, and 3 only every 3rd frame, etc. The frames in between are coded as P or B Frames

**<h264\_profile>**

The H.264 profile, either Baseline, Main, Extended or High

**<h265>**: Configure H.265 related parameters

**<gov\_length>**

Group of Video frames length. Determines typically the interval in which the I-Frames will be coded. An entry of 1 indicates I-Frames are continuously generated. An entry of 2 indicates that every 2nd image is an I-Frame, and 3 only every 3rd frame, etc. The frames in between are coded as P or B Frames

**<h265\_profile>**

The H.265 profile, either Main or Main10

---

**<mpeg4>**: Configure MPEG4 related parameters

**<gov\_length>**

Determines the interval in which the I-Frames will be coded. An entry of 1 indicates I-Frames are continuously generated. An entry of 2 indicates that every 2nd image is an I-Frame, and 3 only every 3rd frame, etc. The frames in between are coded as P or B Frames

**<mpeg4\_profile>**

The Mpeg4 profile, either simple profile (SP) or advanced simple profile (ASP)

**<audio\_source>** : If the media profile contains a audio, the audio source configuration

**<audio\_encoder>**:If the media profile contains a audio, the audio encoder configuration

**<session\_timeout>**

The rtsp session timeout for the related audio stream

**<sample\_rate>**

The output sample rate in kHz

**<bitrate>**

The output bitrate in kbps

**<encoding>**

Audio codec used for encoding the audio input (either G711, G726 or AAC)

**<stream\_uri>**

The RTSP stream address of the profile, if not specify, the default is **rtsp://yourip/test.mp4**

**<scope>**

Contains a list of URI defining the device scopes.

All ONVIF defined scope URIs have the following format:

onvif://www.onvif.org/<path>

A device may have other scope URIs. These URIs are not restricted to ONVIF defined scopes.

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.

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A device might include an arbitrary number of scopes in its scope list. This implies that one unit might for example define several different location scopes. A probe is matched against all scopes in the list.

**<event>** : Event Configuration parameters

**<renew\_interval>**

Event renew interval.

The onvif client subscribes or creates an event polling point. If the renew or pullmessage request is not called within the renew\_interval interval, the onvif server will delete the subscription or event polling point.

**<simulate\_enable>**

Specifies whether to generate simulation event, 0-disable, 1-enable.

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## Chapter 3 Configuration file

When running onvif server for the first time, use the default configuration file `config.xml`, which sets 2 profiles.

When stop onvif server, it writes the runtime configuration into the `runconfig.xml` file, and the configuration in the `runconfig.xml` file will be load at the next time it runs.

If you modify the default configuration file `config.xml`, you should stop the onvif server first, then delete the runtime configuration `runconfig.xml`, and run onvif server again to make the default configuration effective.

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## Chapter 4 Compatibility test

ONVIF SERVER PROFILE S passed the compatibility test version

Windows version download from:

<https://www.happytimesoft.com/downloads/happytime-onvif-server-profiles.zip>

Linux version download from:

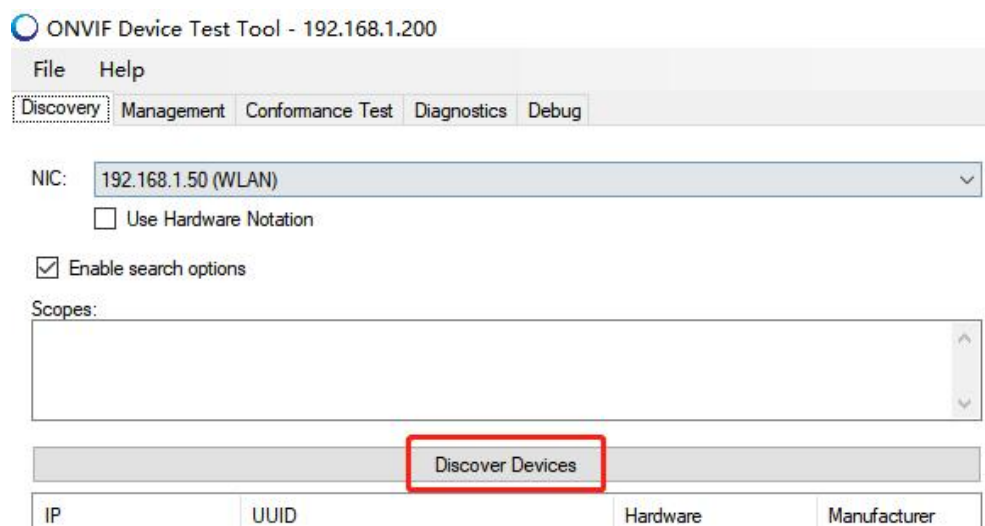
<https://www.happytimesoft.com/downloads/happytime-onvif-server-profiles.tar.gz>

Follow the steps below to perform compatibility testing.

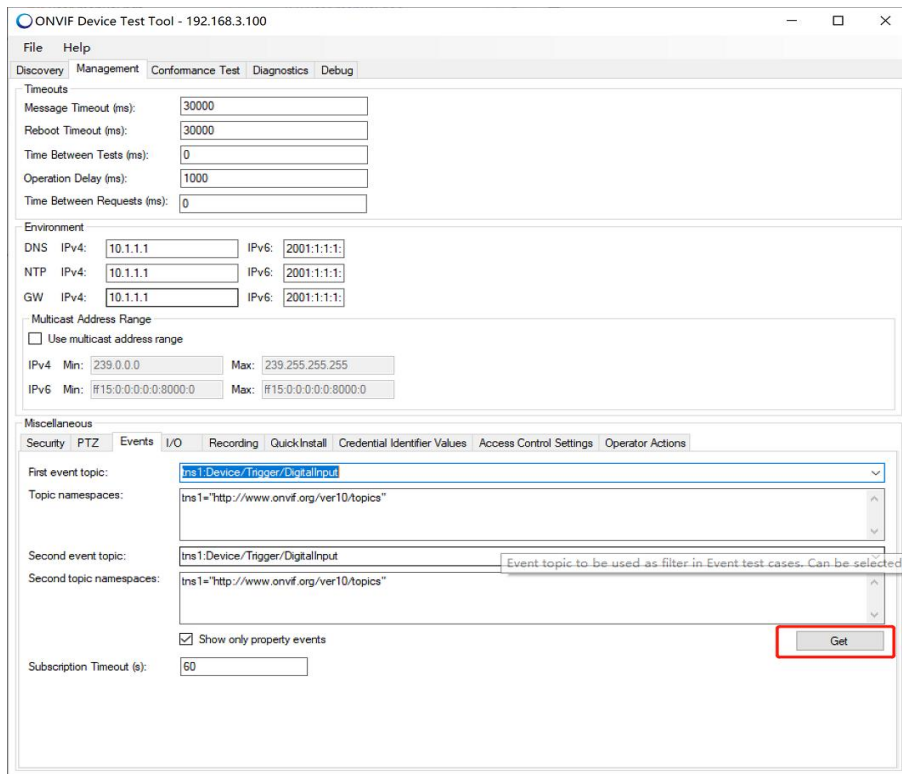
1. Modify the ONVIF SERVER configuration file config.xml and specify the <need\_auth> value as 1.
2. If there is an onvif runtime configuration file, delete the runtime configuration file runconfig.xml.
3. Run the rtspserver and onvif server.
4. Run the ONVIF Device Test Tool.

**Note:** ONVIF SERVER and test tools should run on different computers

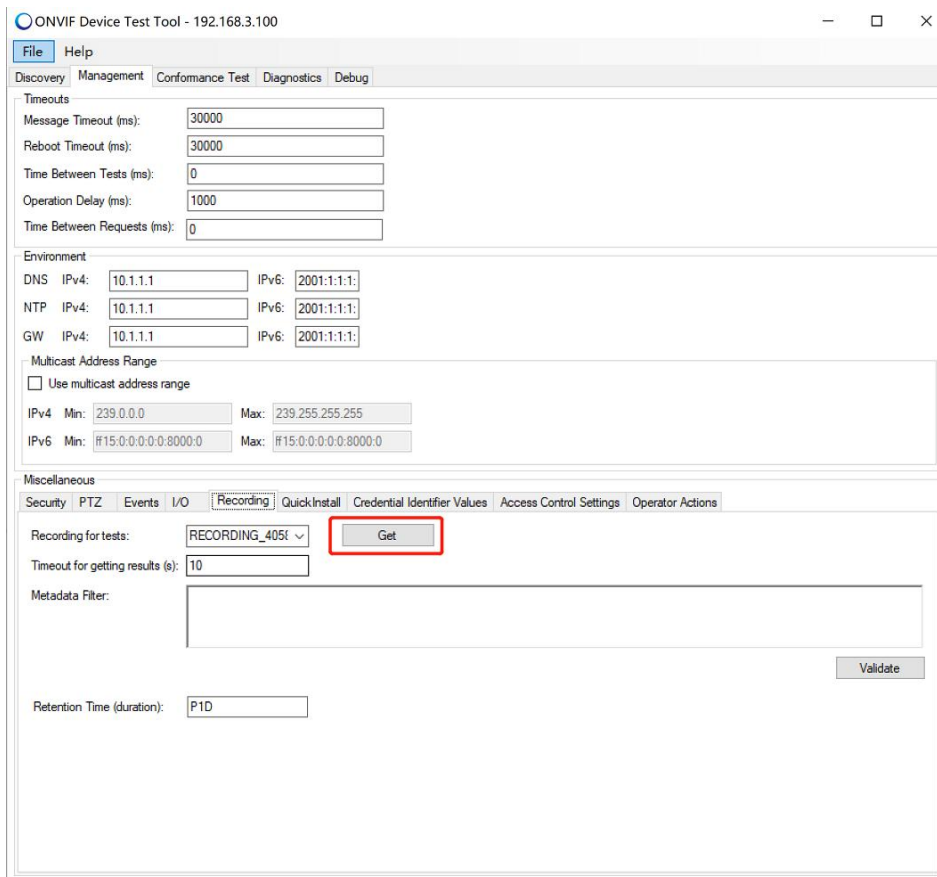
5. Click “Discover Devices” button, as the following:



5. Switch to “Management” tab, select “Events” tab, then click “Get” button, as the following:



6. select “Recording” tab, then click “Get” button, as the following:





7. Switch to “Conformance Test” tab, click “Start Conformance Test” button:

The screenshot shows the ONVIF Device Test Tool interface. The window title is "ONVIF Device Test Tool - 192.168.1.200". The interface has a menu bar with "File" and "Help". Below the menu bar are tabs: "Discovery", "Management", "Conformance Test", "Diagnostics", and "Debug". The "Conformance Test" tab is selected and highlighted with a red box. The main area contains several sections:

- Responsible Member:** Member Name: Happytimesoft, Member Address: shenzhen.china. A "Clear" button is present.
- Device Under Test Information:** Product Name: Happytime onvif server, Brand: Happytimesoft, Model: IPCamera, Other Information: (empty). Product Type: A list box with options: Access Controller, Access Controller Gateway, Access Control Management System, Decoder, Encoder. Product Type (other): (empty). A "<< Add" button and a "Clear" button are present.
- Technical Support Information:** Technical support website URL: http://www.happytimesoft.com, Technical support e-mail: (empty), Technical support phone: (empty). General international support mailing address: support@happytimesoft.com, Regional support contact address: (empty). A "Clear" button is present.

At the bottom of the interface, there is a "Conformance" section with a "Start Conformance Test" button, which is highlighted with a red box.

## Chapter 5 ONVIF features

The onvif server supports the onvif features listed in the following table:

Feature			
Security	WS-Username Token		
	Digest		
Discovery	BYE Message		
	Types	tds:Device	
		dn:Network Video Transmitter	
Device Service	Capabilities	GetCapabilities	
		GetService	
	Network	Zero Configuration	
		NTP	
		Dynamic DNS	
		IP Filter	
		HTTPS	
	System	System Logging	
		HTTP System Logging	
		HTTP Firmware Upgrade	
		HTTP Support Information	
		HTTP System Backup	
	Security	Default Access Policy	
		Maximum Users	
		Remote User Handling	
		Maximum Username Length	
		Maximum Password Length	
	I/O	Relay outputs	
	Event Service	WS Basic Notification	
		Message Content Filter	ONVIF Message Content Filter Dialect
Get Service Capabilities		MaxPullPoints capability	
Pull-Point Notification			
Media Service	Video	JPEG	
		H.264	
		MPEG4	

	Audio	G.711
		G.726
		AAC
	Audio Output	G.711
		AAC
	Real-time Streaming	RTP/UDP
		RTP/RTSP/HTTP
		RTP/RTSP/TCP
		RTP-Multicast/UDP
	Snapshot URI	
Media2 Service	Video	H.265
		H.264
	Audio	G.711
		AAC
	Audio outputs	G.711
		AAC
	Real-time Streaming	RTP/UDP
		RTP/RTSP/HTTP
		RTP/RTSP/TCP
		RTP-Multicast/UDP
	RTSP WebSocket	
	Snapshot URI	
	Video Source Mode	
	OSD	
	Analytics	
	Metadata	
	Media2 Events	Media/ProfileChanged
		Media/ConfigurationChanged
PTZ Service	Absolute move	Pan/Tilt movement
		Zoom movement
	Relative move	Pan/Tilt movement
		Zoom movement
	Continuous move	Pan/Tilt movement
		Zoom movement
	Presets	
	Home position	Configuration
	Auxiliary operations	

	Speed	Speed for Pan/Tilt
		Speed for Zoom
	Move Status	
	Status Position	
	Get Compatible Configurations	
Device IO Service	Relay outputs	Bistable Mode
		MonoStable Mode
	Digital Inputs	Digital Input Options
Imaging Service	IrCutfilter Configuration	
	Tampering Events	Image Too Blurry
		Image Too Dark
		Image Too Bright
		Global Scene Change
	Motion Alarm	
	Focus Control	
Analytics Service	Rule Engine	Rule Options
		Motion Region Detector Rule
	Analytics Modules	Analytics Module Options
Recording Control Service	Dynamic Recordings	
	Dynamic Tracks	
	Audio Recording	
	Recording Options	
	tns1:RecordingCofig/DeleteTrackData	
	Metadata Recording	
	Encoding	JPEG
		H264
		MPEG4
Recording Search Service	Metadata Search	
	PTZ Position Search	
Door Control Service	Door Entity	Access Door
		Lock Door
		Double Lock Door
		Block Door
		Lock Down Door
		Lock Open Door
		Door Monitor

		Double Lock Monitor
		Alarm
		Tamper
		Fault
	Door Control Events	
	Door Management	
	Client Supplied Token	
Access Control Service	Area Entity	
	Access Point Entity	Enable/Disable Access Point
		Duress
		Access Taken
		Anonymous Access
	Access Point Management	
	Area Management	
	Access Control Events	
Replay Service	RTP/RTSP/TCP	
Receiver Service		
Credential Service	Credential Validity	
	Credential Access Profile Validity	
	pt:Card	
	pt:PIN	
	pt:Fingerprint	
	Reset Antipassback Violation	
	Client Supplied Token	
	Whitelist	
	Blacklist	
	Validity Supports Time Value	
Access Rules Service	Multiple Schedules Access Point	
	Client Supplied Token	
Schedule Service		
Thermal Service		

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## Chapter 6 ONVIF Version

The onvif server implements the following ONVIF service:

ONVIF Service	Prefix	Url	version
device	tds	<a href="http://www.onvif.org/ver10/device/wsdl">http://www.onvif.org/ver10/device/wsdl</a>	22.06
event	tev	<a href="http://www.onvif.org/ver10/events/wsdl">http://www.onvif.org/ver10/events/wsdl</a>	22.06
media	trt	<a href="http://www.onvif.org/ver10/media/wsdl">http://www.onvif.org/ver10/media/wsdl</a>	21.12
media 2	tr2	<a href="http://www.onvif.org/ver20/media/wsdl">http://www.onvif.org/ver20/media/wsdl</a>	21.12
ptz	tptz	<a href="http://www.onvif.org/ver20/ptz/wsdl">http://www.onvif.org/ver20/ptz/wsdl</a>	20.12
image	timg	<a href="http://www.onvif.org/ver20/imaging/wsdl">http://www.onvif.org/ver20/imaging/wsdl</a>	22.06
analytics	tan	<a href="http://www.onvif.org/ver20/analytics/wsdl">http://www.onvif.org/ver20/analytics/wsdl</a>	22.06
recording control	trc	<a href="http://www.onvif.org/ver10/recording/wsdl">http://www.onvif.org/ver10/recording/wsdl</a>	21.12
search	tse	<a href="http://www.onvif.org/ver10/search/wsdl">http://www.onvif.org/ver10/search/wsdl</a>	22.06
replay	trp	<a href="http://www.onvif.org/ver10/replay/wsdl">http://www.onvif.org/ver10/replay/wsdl</a>	21.12
access control	tac	<a href="http://www.onvif.org/ver10/accesscontrol/wsdl">http://www.onvif.org/ver10/accesscontrol/wsdl</a>	21.06
door control	tdc	<a href="http://www.onvif.org/ver10/doorcontrol/wsdl">http://www.onvif.org/ver10/doorcontrol/wsdl</a>	21.06
device IO	tmd	<a href="http://www.onvif.org/ver10/deviceIO/wsdl">http://www.onvif.org/ver10/deviceIO/wsdl</a>	22.06
thermal	tth	<a href="http://www.onvif.org/ver10/thermal/wsdl">http://www.onvif.org/ver10/thermal/wsdl</a>	22.06
credential	tcr	<a href="http://www.onvif.org/ver10/credential/wsdl">http://www.onvif.org/ver10/credential/wsdl</a>	19.12
access rules	tar	<a href="http://www.onvif.org/ver10/accessrules/wsdl">http://www.onvif.org/ver10/accessrules/wsdl</a>	19.06
schedule	tsc	<a href="http://www.onvif.org/ver10/schedule/wsdl">http://www.onvif.org/ver10/schedule/wsdl</a>	18.12
receiver	trv	<a href="http://www.onvif.org/ver10/receiver/wsdl">http://www.onvif.org/ver10/receiver/wsdl</a>	21.12
provisioning	tpv	<a href="http://www.onvif.org/ver10/provisioning/wsdl">http://www.onvif.org/ver10/provisioning/wsdl</a>	18.12

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## Chapter 7 Supports multiple channels

The onvif server supports multi channel. Each <profile> tag represents a channel in the configuration file.

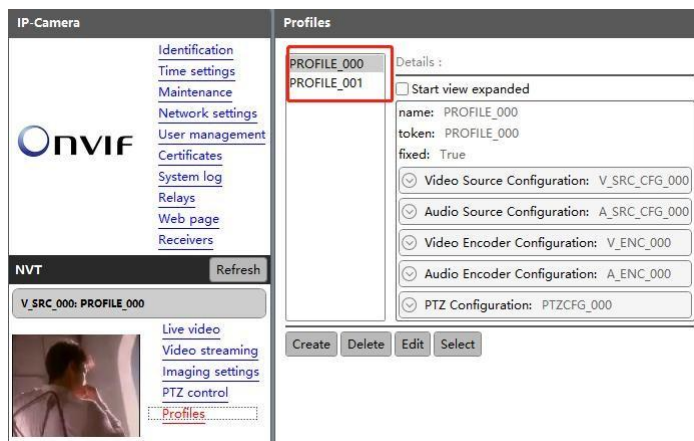
The default configuration file supports 2 channels, you can add <profile> tag to support more channels.

Note : If <video\_source>.width and <video\_source>.height of multiple <profile> tags are the same, example:

```
<profile>
  <video_source>
    <width>1280</width>
    <height>720</height>
  </video_source>
  ....
</profile>
```

```
<profile>
  <video_source>
    <width>1280</width>
    <height>720</height>
  </video_source>
  ....
</profile>
```

The onvif device manager will show the profiles as the following:



The screenshot displays the ONVIF device manager interface. On the left, there is a navigation menu with options like Identification, Time settings, Maintenance, Network settings, User management, Certificates, System log, Relays, Web page, and Receivers. Below the menu, there is a section for 'NVT' with a 'Refresh' button and a list of profiles, including 'V\_SRC\_000: PROFILE\_000'. A small video preview window is visible at the bottom left. On the right, the 'Profiles' section is active, showing a list of profiles: 'PROFILE\_000' and 'PROFILE\_001'. The 'PROFILE\_000' entry is highlighted with a red box. Below the list, there is a 'Details' section for the selected profile, which includes a 'Start view expanded' checkbox and several configuration items: 'name: PROFILE\_000', 'token: PROFILE\_000', 'fixed: True', 'Video Source Configuration: V\_SRC\_CFG\_000', 'Audio Source Configuration: A\_SRC\_CFG\_000', 'Video Encoder Configuration: V\_ENC\_000', 'Audio Encoder Configuration: A\_ENC\_000', and 'PTZ Configuration: PTZCFG\_000'. At the bottom of the details section, there are buttons for 'Create', 'Delete', 'Edit', and 'Select'.

---

If `<video_source>.width` and `<video_source>.height` of multiple `<profile>` tags are not the same, example:

```
<profile>
  <video_source>
    <width>1280</width>
    <height>720</height>
  </video_source>
  ....
</profile>
```

```
<profile>
  <video_source>
    <width>640</width>
    <height>480</height>
  </video_source>
  ....
</profile>
```

The onvif device manager will show the profiles as the following:





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## Chapter 8 Modify RTSP stream address

If the value of `<stream_uri>` in the `<profile>` tag in the onvif server configuration file is not modified, the RTSP stream address provided by the onvif server by default is `rtsp://ip/test.mp4`, you can modify the `<stream_uri>` in `<profile>` tag to specify the rtsp stream address provided by the onvif server. such as:

```
<profile>
...
  <stream_uri>rtsp://192.168.3.27/live</stream_uri>
</profile>
```

---

## Chapter 9 Run Onvif Server

Windows platform:

Run runme.bat, it will run rtspserver as RTSP server and onvif server

Linux platform:

Run runme.sh, it will run rtspserver as RTSP server and onvif server