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QVR PRO SDK

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History

Revision History	Description	Date
Version 1.0	- document created	2017-03-09
Version 1.0 Rev 0.1	- remove user.cgi - add authLogin.cgi - add example command	2017-03-10
Version 1.0 Rev 0.2	- add streaming chapter	2017-03-21
Version 1.0 Rev 0.3	- correct 4.1.1	2017-04-06

Contents

1. Authorization

1.1 Authorization : Author status

CGI name: authLogin.cgi
CGI Path{CGI}: /cgi-bin/authLogin.cgi

1.1.1 Get SID and login

HTTP Request:
{CGI}?user={NAME}&serviceKey=1&pwd={PASSWORD}

Parameter name	Value	Description
user	string	user name
serviceKey	1	
password	string	BASE64 encrypted

Response:

```
<QDocRoot version="1.0">'
    ...
    <authSid>81ulhjmu</authSid> <==== Session id
    ...
</DocRoot>
```

Property name	Value	Description
nss_need_reboot	integer	0: false, 1: true

Fail:

```
<QDocRoot version="1.0">'
    ...
    <errorValue>-1</errorValue>
    ...
```

```
</DocRoot>
```

Error value	Description
-1	login failed

Example:

```
$ curl -X GET
http://10.77.89.123:8080/cgi-bin/authLogin?user=jordan&serviceKey=1&
pwd=YWRtaW4=
```

2. Camera settings

2.1 Camera settings : Camera status

CGI name: camera_status.cgi
CGI Path{CGI}: /qvrpro/apis/camera_status.cgi

2.1.1. Get camera list

HTTP Request:
{CGI}?sid={sid}&act=list&[get_rec_days=1]

Parameter name	Value	Description
sid	{sid}	sid
act	list	Action
brand	string(8) [allow blank]	fisrt 8 codes of UMSID null: don't use this para
model	string(8) [allow blank]	last 8 codes of UMSID null: don't use this para
status	integer [allow blank]	1: connection 2: disconnection null: both status are needed
name	string [allow blank]	fuzzy search, like '%name%'
get_rec_days	1	(optional) get recording days information.

Response:

```
{
        "datas": [{
```

```
                "channel_index":0,
                "name":"Camera_vivotesk",
                "umsid":"0000000100400002",
                "guid":"00089BF9B26200089BF9B26200080000",
                "brand":"VIVOTEK",
                "model":"IP8130",
                "mac":"00:02:D1:28:7E:D6",
                "ver":"IP8130-VVTK-0101a",
                "ip":"10.64.104.143",
                "port":"80",
                "video_codec_setting":"H.264",
                "video_resolution_setting":"640x400",
                "frame_rate_setting":"20",
                "video_quality_setting":"1000K bps",
                "data_retention_enabled":0,
                "keep_data_minimum":3,
                "protocol":"http",
                "stream_state":[
                ],
                "status":"NVR_CAM_CONNECTED",
                "rec_state":"RECORDING",
                "rec_state_err_code":0,
                "frame_rate":"20",
                "bit_rate":1269104,
                "normal_rec_size":0,
                "alarm_rec_size":0,
                "normal_rec_days":0,
                "alarm_rec_days":0,
                "virtual_cams":[
                ]
        },{
                another camera...
        }],
        "success": true,
        "channel_mode":"none",
        "total_channel_num":128,
        "file_system":"EXT4"
}
```

Property name	Value	Description
datas[]	list	Camera list
channel_index	integer	Zero-based channel index
umsid	string	Channel umsid
guid	string	Channel GUID
name	string	Camera name
brand	string	Camera brand
model	string	Camera model
ip	string	
port	string	
video_codec_setting	string	
video_resolution_setting	string	
frame_rate_setting	string	
video_quality_setting	string	
data_retention_enabled	integer	
keep_data_minimum	integer	
protocol	string	
stream_state[]	list	status of each stream (in multi stream mode)
status	string	NVR_CAM_CONNECTED: Connected, NVR_CAM_CONNECT_IDLE: Idle, NVR_CAM_CONNECTING: Connecting, NVR_CAM_UNDEFINED: Unsupported
frame_rate	string	

bit_rate	integer	
normal_rec_size	integer	
alarm_rec_size	integer	
normal_rec_days	integer	Is real only when get_rec_days=1
alarm_rec_days	integer	Is real only when get_rec_days=1
virtual_cams[]	list	not support in QVR Pro
channel_mode	string	not support in QVR Pro
total_channel_num	integer	
file_system	string	

Fail:

```
{
        "success":false,
        "error_code":ERROR_CODE
}
```

Error code	Description
0x95000000	authorization fail
0x95000001	internal error (library call error)
0x95000003	illegal parameter or missing of parameter

Example:

```
$ curl -X GET
http://10.77.89.123:8080/qvrpro/apis/camera_status.cgi?act=list&get_
rec_days=0&sid=yr2m4bbe
```

2.1.2. Get CPU usage.

HTTP Request:

{CGI}?sid={sid}&act=cpu

Parameter name	Value	Description
sid	{sid}	sid
act	cpu	Action

Response:

```
{
    "success": true,
    "data": CPU_USAGE_PERCENTAGE
}
```

Property name	Value	Description
data	integer	CPU usage

Example:

```
$ curl -X GET
http://10.77.89.123:8080/qvrpro/apis/camera_status.cgi?act=cpu&sid=y
r2m4bbe
```

2.1.3. Get recording status of camera

HTTP Request:

{CGI}?sid={sid}&act=rec_status&guid={guid}&stream_id={stream_id}

Parameter name	Value	Description
sid	{sid}	Sid
act	“rec_status”	Action
guid	string	Channel guid
stream_id	integer	Stream ID

Response:

```
{
    "success": true,
    "rec_status": 0
}
```

Property name	Value	Description
rec_status	integer	0: Not recording 1: Recording

Fail:

```
{
        "success":false,
        "error_code":ERROR_CODE
}
```

Error code	Description
0x95000000	authorization fail
0x95000003	illegal parameter or missing of parameter

Example:

```
$ curl -X GET
http://10.77.89.123:8080/qvrpro/apis/camera_status.cgi?act=
rec_status&sid=yr2m4bbe&guid=00089BF9B26200089BF9B26200080000
```


2.2 Camera settings : get live image

CGI name: getliveimage.cgi
CGI Path{CGI}: /qvrpro/apis/getliveimage.cgi

2.2.1. Get channel snapshot.

HTTP Request:
{CGI}?sid={sid}&guid={GUID}&[origin=1&stream_id={stream_id}]

Parameter name	Value	Description
sid	string	sid
guid	string	Channel GUID
origin	1	Get snapshot from video

		stream (optional)
stream_id	int	Stream ID (optional)

Response:

Success:

An image.

Fail:

```
{
        "success":false,
        "error_code":ERROR_CODE
}
```

Error code	Description
0x95000000	authorization fail
0x95000003	illegal parameter or missing of parameter
0x96070001	timeout
0x96070002	transcode busy
0x96070003	internal error

Example:

```
$ curl -X GET http://10.77.89.123:8080/qvrpro/apis/getliveimage.cgi?
sid=yr2m4bbe&guid=00089BF9B26200089BF9B26200080000
```


2.3. Camera settings : manual recording

CGI name: mrec.cgi

CGI Path{CGI}: /qvrpro/apis/mrec.cgi

HTTP Request:

{CGI}?sid={sid}&ch={channel_id}&act={action_id}

Parameter name	Value	Description
sid	string	sid
ch	integer	channel ID
act	integer	manual recording status, 0: stop 1: start

Response:

```
{
        "success":true
}
```

Fail:

```
{
        "success":false,
        "error_code":ERROR_CODE
}
```

Error code	Description
0x95000000	authorization fail
0x95000003	illegal parameter or missing of parameter
0x96070003	internal error

Example:

```
$ curl -X GET http://10.77.89.123:8080/qvrpro/apis/mrec.cgi?
sid=yr2m4bbe&ch=0&act=0
```

3. Logs

3.1 Logs : list

API name: logs
API Path{API}: {HOST}:10150/qvrpro/logs/
Method: GET

HTTP Request:
{API}/logs?sid={SID}

Property name	Value	Description
sid	string	sid
Optional query parameters		
level	string	Log level 0 : information 1 : warning 2 : error (Multiple, split by ', ').
user	string	User name.
source_ip	string	Source IP.
source_name	string	Source Name.
channel_id	string	Channel id(Multiple, split by ', ').
global_channel_id	string	Global channel id(Multiple, split by ', ').
start_time	integer	Timestamp of start time(millisecond).
end_time	integer	Timestamp of end time(millisecond).
start	integer	Start index, default: 0.

max_results	integer	Max number for response items, default: 10.
sort_field	string	Field to sort. (log_id(serial number), log_type, level, time)
dir	string	Sorting direction, value: ASC|DESC, default: DESC.

Response:


```
{
    "code": 200,
    "mesg": "OK",
    "items": [
        {
            "UTC_time":1444436555000,
            "log_type": 6,
            "log_id": 6234,
            "level": 1,
            "time": "2017-03-08 00:00:00",
            "timezone": "Asia/Taipei",
            "user": "System",
            "source_ip": "10.0.0.1",
            "source_name": "NAS-471",
            "nas_ip": "10.0.0.2",
            "nas_name": "TS-471",
            "content": "Content"
        },
        {
            another log....
        }
    ],
    "responseItems": 10,
    "totalItems": 7646
}
```


Property name	Value	Description
code	integer	Status code.

mesg	string	Result description
items	list	Log resource.
responseItems	integer	The number of response datas.
totalItems	integer	The total number of querying results.
UTC_time	integer	UTC time
log_type	integer	1: Surveillance Settings 2: Surveillance Events 3: Surveillance Connection 4: System Events 5: System Connection
log_id	integer	serial number
level	integer	log level
time	string	date time
timezone	string	timezone of system
source_ip	string	source ip
source_name	string	source name
nas_name	string	Nas name
nas_ip	string	Nas ip
content	string	Log content.

Fail:

```
{
    "code": 400,
    "mesg": ERROR_MESSAGE
}
```

Example:

```
$ curl -X GET http://10.77.89.123:8080/qvrpro/logs/logs?sid=yr2m4bbe
```

```
$ curl -X GET
http://10.77.89.123:8080/qvrpro/logs/logs?sid=yr2m4bbe&sort_field=ti
me&dir=DESC&start=0&max_result=20
```

```
$ curl -X GET
http://10.77.89.123:8080/qvrpro/logs/logs?sid=yr2m4bbe&sort_field=ti
me&dir=ASC&start_time=1489126232000&end_time=1489131553000&
channel_id=0,1&level=0
```

4. Streaming

4.1 Streaming : live stream

CGI name: getstream.cgi
CGI Path{CGI}: /qvrpro/streaming/getstream.cgi

4.1.1 get live stream

HTTP Request:
{CGI}?sid ={sid}&ch_sid={channel_sid}&stream_id={stream_id}

Parameter name	Value	Description
{sid}	string	QVR Pro sid
{channel_sid}	string	32 characters global channel id
{stream_id}	integer	stream id

Response:

```
[return_code]\n
[media_frame]
```

Property name	Value	Description
return_code	integer	0: success, continue to get stream data <0: failed
media_frame	frame format	A video or an audio frame. The format of [media_frame] are defined in 5.1.2.

Error code	Description
0x93000000	Illegal Args

0x93000001	Reject Connection (DDOS)
0x93000002	Exceed Max Connection no
0x93000003	Stream is not ready
0x93000004	Open Stream failed
0x93000005	Auth failed
0x93000000	Illegal Args
0x93000001	Reject Connection (DDOS)

Example:

```
$ curl -X GET
http://10.77.89.123:8080/qvrpro/streaming/getstream.cgi?sid
=sefe43&ch_sid=00089BF9B26200089BF9B26200080000&stream_id=2
```

4.1.2 Streaming : Frame format

Format of video frame:

Field name	Length	Description
FourccCode	4	fourcc code, including qIVG, QIVG, qMP4, QMP4, QV3K, QV6K, q264, Q264,qXPG
dwFlags	4	bit 0: 1 for key frame
dwWidth	4	frame width in pixel
dwHeight	4	frame height in pixel
llTimestamp	8	unit in milliseconds, elapses since 1970/1/1
szOSDText	24	channel name, null terminated
dwReserved	4	offset to the beginning of media frame data = 0
dwFrameDataSize	4	media frame size (excluding the header)
Frame data	dwFrameDataSize	Standard compressed raw data (ex. H.264, MPEG-4…)

Note: All numeric data are stored in Little Endian.

Formate of audio frame:

Field name	Length	Description
FourccCode	4	fourcc code, including G726/Q726/FAAC/G711/PCM/ 0AAC/A711/QAAC
dwFlags	4	bit 0: 1 for key frame
dwWidth	4	0
dwHeight	4	0
llTimestamp	8	unit in milliseconds, elapses since 1970/1/1
szOSDText	24	channel name, null terminated
dwReserved	4	offset to the beginning of media frame data = 8
dwFrameDataSize	4	media frame size (excluding the header)
SamplingRate	4	sampling rate
BitsPerSample	2	bits per sample
Audio Channel Num	2	audio channel number
Audio Frame Data	dwFrameDataSize	audio frame data

Note: All numeric data are stored in Little Endian.

4.2 Streaming : playback

CGI name: qplay.cgi
CGI Path{CGI}: /qvrpro/apis/qplay.cgi

4.2.1 starting playback session

Method: GET
HTTP Request:
{CGI}?ver=v1&cmd=open&sid={**auth_sid**}&ch_sid={**channel_sid**}&query_type={**query_type**}&start_time={**start_time**}&end_time={**end_ti**

me}&recording_type={**recording_type**}&stream={**stream_id**}&alarm_stream={**alarm_stream_id**}&data_type={**data_type**}

Parameter name	Type	Description
auth_sid	string	Getting sid and login QVR Pro with sid.
channel_sid	string	Need to get channel guid.
query_type	integer	0 : Play recording file by time (replace Time period and Normal recording file)
start_time / end_time	integer	UTC time(ms)
recording_type	integer	0: All recording file 1: Only alarm file 2: Normal recording file
stream_id / alarm_stream_id	integer	0, 1: stream 1 recording data 2: stream2 recording data 3: stream3 recording data 16: no stream id 255: all stream recording data
data_type	integer	0: JPEG (default), only key frame transcode to jpeg format 1: source format of recording files

Response:

[return code]
[session_id]

Property name	Value	Description
return_code	integer	0 : success, <0 : failed
session_id	string	sent if successful (30 bytes string)

QVRPro Error Code	Description
0x93010002	open qplay session failed
0x93010006	sid authentication failed
0x93010007	open session failed (session num full)
0x93010102	start_time, end_time or time_val not specified
0x93010103	channel_id not specified

Example:

```
$ curl -X GET
http://10.77.89.123:8080/qvrpro/apis/qplay.cgi?ver=v1&cmd=open&sid=2
cqyopg&ch_sid=8FBC58E2F7274AF3B6F6761E90FB0001&query_type=0&start_ti
me=1447819048000&recording_type=0&stream=0&data_type=1
```

4.2.2 Playback session control

Method: GET
HTTP Request:
{CGI}?
ver=v1&cmd={**command**}&session={**session_id**}&seek_time={**seek_time**}&speed={**speed**}&enable={**enable_val**}

The value of{ command} are described below:

Value	Description
close	close session
play	play file
pause	pause file
live	live report
seek	seek time, argument `seek_time` should be specified, the valid value is **UTC time(ms)**
ff	forward playing
rew	rewind playing
speed	speed control, argument `speed` should be specified
prev_frame	get previous frame

next_frame	get next frame
all_frame	play all frame mode
skip_frame	play only key frame mode on fast speed playing
timecontrol	frame time control, argument `enable` should be specified
playclose	auto play end close, argument `enable` should be specified

Parameter name	Type	Description
speed	integer	1~160 : speed, "value / 10"
enable_val	integer	cmd=**timecontrol** enable=0 - disable frame time control enable=1 - (default), enable frame time control cmd=**playclose** enable=0 - disable play end close session enable=1 - (default), enable play end close session
session_id	string	session id
seek_time		cmd=**seek** the UTC time (ms) want to goto

Response:

[return code]

Property name	Value	Description
return_code	integer	0 : success, <0 : failed

QVRPro Error Code	Description

0x93010104	session_id not specified
0x93010107	seek_time not specified
0x93010108	session_id too long
0x93010109	speed_num not specified
0x9301010B	enable not specified
0x93010201	controlling stream failed
0x93010202	session not found
0x93010203	session is being closed
0x93010204	seek no file

Example:

```
$ curl -X GET
http://10.77.89.123:8080/qvrpro/apis/qplay.cgi?ver=v1&cmd=seek&sessi
on=8FBC58E2F7274AF3B6F6761E90FB0001&seek_time=1490072112000
```

4.2.3 Playback data retrieval

Method: GET
HTTP Request:
{CGI}? ver=v1&cmd=get&session={**session_id**}

Parameter name	Type	Description
session_id	string	session id

Response:

[return code]
[media frame]

Property name	Value	Description
return_code	integer	0 : success, <0 : failed
media frame	string	described below

Note :

1. If data_type is "0: JPEG"
   The frame is only video frame

[channel_name] [timestamp] // in UTC time format [jpeg image length] // INT [jpeg data] // BINARY, binary data of length [jpeg image length]

2. If data_type is "1: Source format of recording files"
   A [media frame] is either a video or an audio frame. The format of [media frame] is the same as the live stream in 5.1.2 .

QVRPro Error Code	Description
0x93010003	cmd is illegal
0x93010004	insufficient memory

Example:

```
$ curl -X GET
http://10.77.89.123:8080/qvrpro/apis/qplay.cgi?ver=v1&cmd=get&sessio
n=8FBC58E2F7274AF3B6F6761E90FB0001
```

4.2.4 How to get recording stream

Step 1 : get session_id

```
$ curl -X GET
http://10.77.89.123:8080/qvrpro/apis/qplay.cgi?ver=v1&cmd=open&sid=2
cqyopg&ch_sid=8FBC58E2F7274AF3B6F6761E90FB0001&query_type=0&start_ti
me=1490068112000&recording_type=0&stream=0&data_type=1
```

Step 2 : seek time

```
$ curl -X GET
http://10.77.89.123:8080/qvrpro/apis/qplay.cgi?ver=v1&cmd=seek&sessi
on=8FBC58E2F7274AF3B6F6761E90FB0001&seek_time=1490072112000
```

Step 3 : play

```
$ curl -X GET
```

```
http://10.77.89.123:8080/qvrpro/apis/qplay.cgi?ver=v1&cmd=play&session=8FBC58E2F7274AF3B6F6761E90FB0001&speed=100
```

Step 4 : get data

```
$ curl -X GET
http://10.77.89.123:8080/qvrpro/apis/qplay.cgi?ver=v1&cmd=get&session=8FBC58E2F7274AF3B6F6761E90FB0001
```