Using RTSP on QC Series DVRs and NVRs

The purpose of this document is to detail the necessary steps for setting up a Real Time Streaming Protocol (RTSP) for our QC Series DVRs and NVRs. Prior to setting up a RTSP, your QC series DVR/NVR must be set up for Remote Viewing; for video instructions, CLICK HERE.

Step 1: Create the RTSP Command

This is the format of the RTSP command for QC DVRs

rtsp://**IP**:**PORT**/cam/realmonitor?channel=**CHANNEL**&subtype=**ENCODING**&authbasic=**LOGIN**

Example values using DVR default settings ..

IP: 192.168.1.108
Port: 554
Channel: 1
Encoding: 00 (Main Stream)
Login: YWRtaW46YWRtaW4= (admin)

Using the above values, this is the RTSP connection to a QC DVR

rtsp://192.168.1.108:554/cam/realmonitor?channel=1&subtype=00&authbasic=YWRtaW46YWRtaW4=

QC RTSP Port
In most cases the port is fixed and cannot be changed.

QC RTSP Channel
The channel number can be 1-32.

QC RTSP Encoding
This can be Main Stream (00) or Extra Stream (01).

QC RTSP Login
The login is encoded with base64 and uses the format *user:password*

Login examples:

admin:admin
Encoded: YWRtaW46YWRtaW4=

666666:666666
Encoded: NjY2NjY2OjY2NjY2Ng==

Create your RTSP command ..

Enter IP address

192.168.1.108

Enter Port

554

Select Channel

1 ▼

Select Encoding

Main Stream ▼

Enter user:password

admin:admin

Create only the base64 login ..
Enter user:password

admin:admin

Step 2: IP Camera RTSP Command

The RTSP command for QC IP Cameras sends the login as plain text.

This is the format of the RTSP command for QC IP Cameras ..

rtsp://**LOGIN**@**IP**:**PORT**/cam/realmonitor?channel=**CHANNEL**&subtype=**ENCODING**

Using the above format, this is a sample RTSP connection to a QC IP camera ..

rtsp://admin:admin@192.168.1.108:554/cam/realmonitor?channel=1&subtype=1

Important

1) For remote access, forward the RTSP port in your router settings

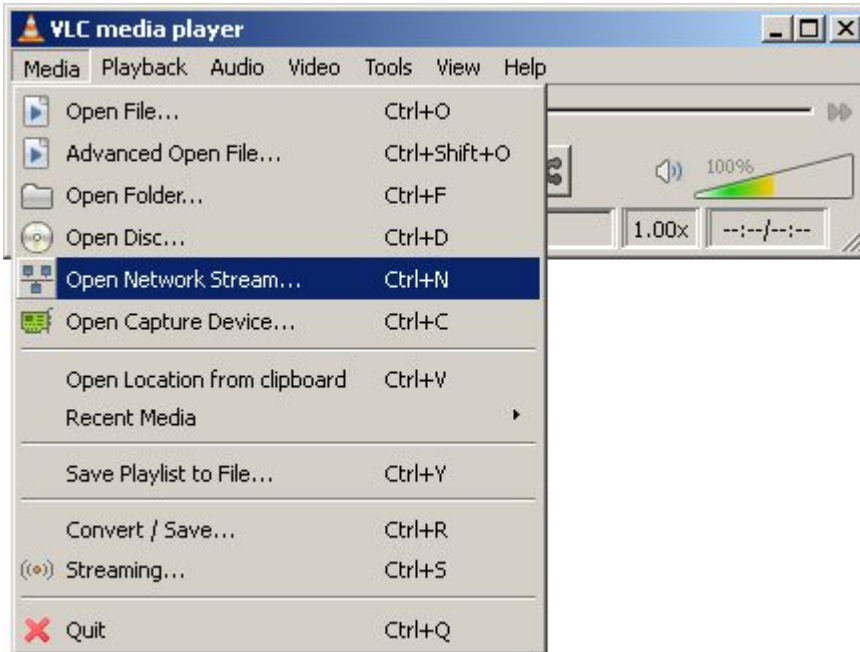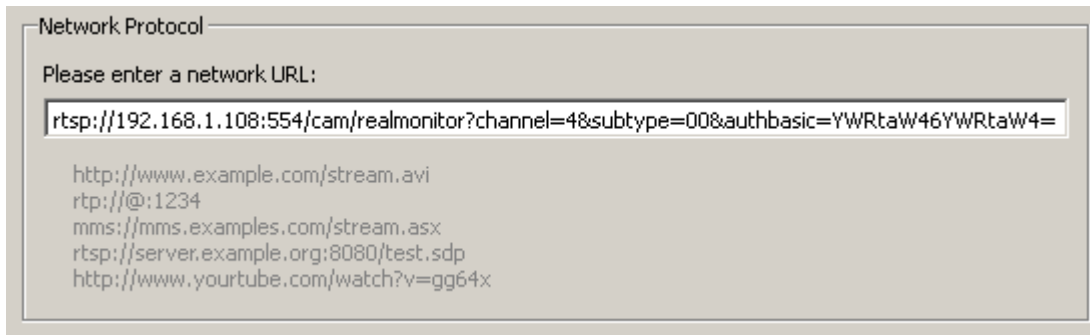*2) Verify the user account actually exists and is not locked*

Step 3: Play Live Video with VLC

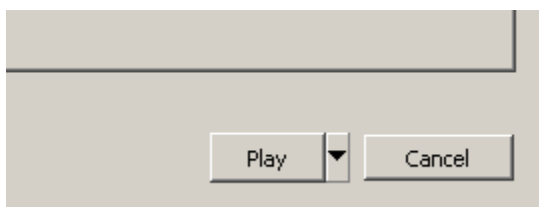Download VLC for your particular operating system.

Run VLC and select "Media", "Open Network Stream".

Enter your full RTSP command in the network URL box.

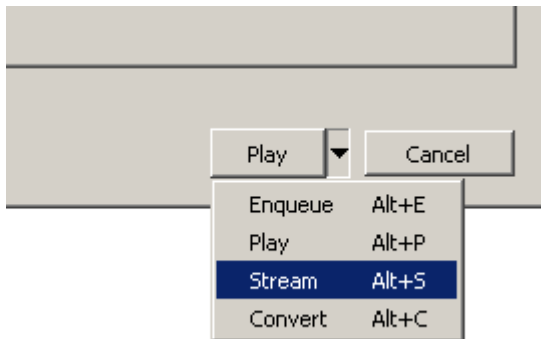Click "Play" to begin streaming live video from the DVR.

Step 4: Stream Live Video with Media Player

Open VLC if it is not already open, or stop any previous video.

Select "Media", "Open Network Stream", and enter your full RTSP command as before.
This time you will select "Stream" from the drop down menu.

You will then see the Stream Output window appear.

The Source tab will show your RTSP command. This cannot be edited.
If you need to make changes click "Cancel" and start again.
Click the "Next" button to continue.

Under the Destinations tab select "MS-WMSP (MMSH)" from the drop down box.
To view live video on this computer check the "Display locally" box (not recommended).
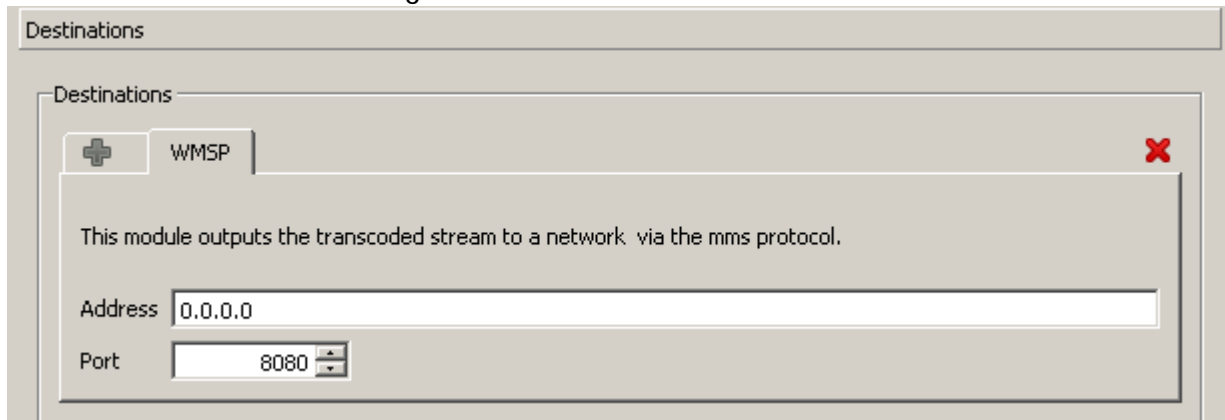Click "Add" to show the Network options.

Here you can change the default port or leave it as is - this step must be completed either way.
For remote access to the live stream this port must be forwarded to the computer running VLC.

Destinations

Destinations

WMSP

This module outputs the transcoded stream to a network via the mms protocol.

Address 0.0.0.0

Port 8080

Under Transcoding Options select "Video - WMV + WMA (ASF)" from the drop down box.
Verify the "Activate Transcoding" box is checked.

Transcoding options

☑ Activate Transcoding

Profile   Video - WMV + WMA (ASF)
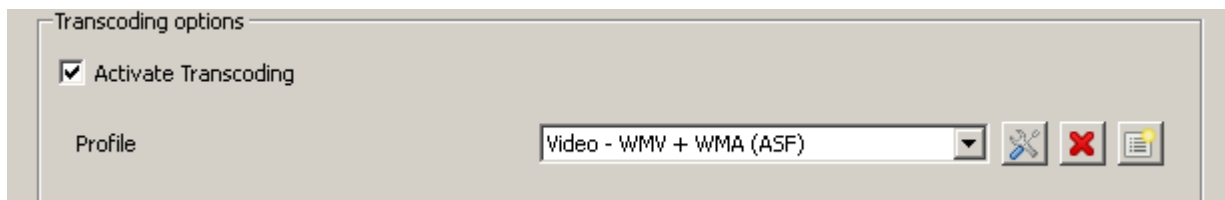
Click "Stream" to begin streaming live video from the DVR.

Stream   Cancel
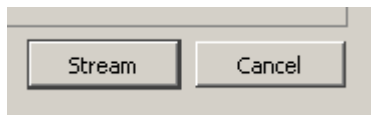
If you selected "Display locally" you will see live video.
Otherwise you can just minimize the VLC window.

Streaming - VLC media player

Media   Playback   Audio   Video   Tools   View   Help

Streaming   1.00x   00:00/00:00
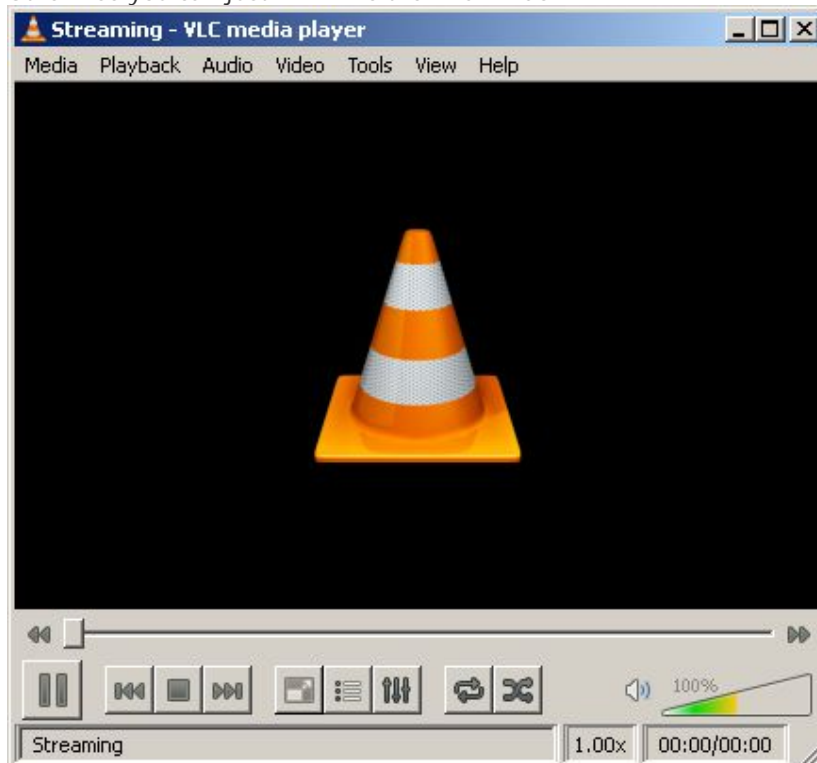
Open Windows Media Player on your remote computer.
Verify HTTP is enabled in the Network options.
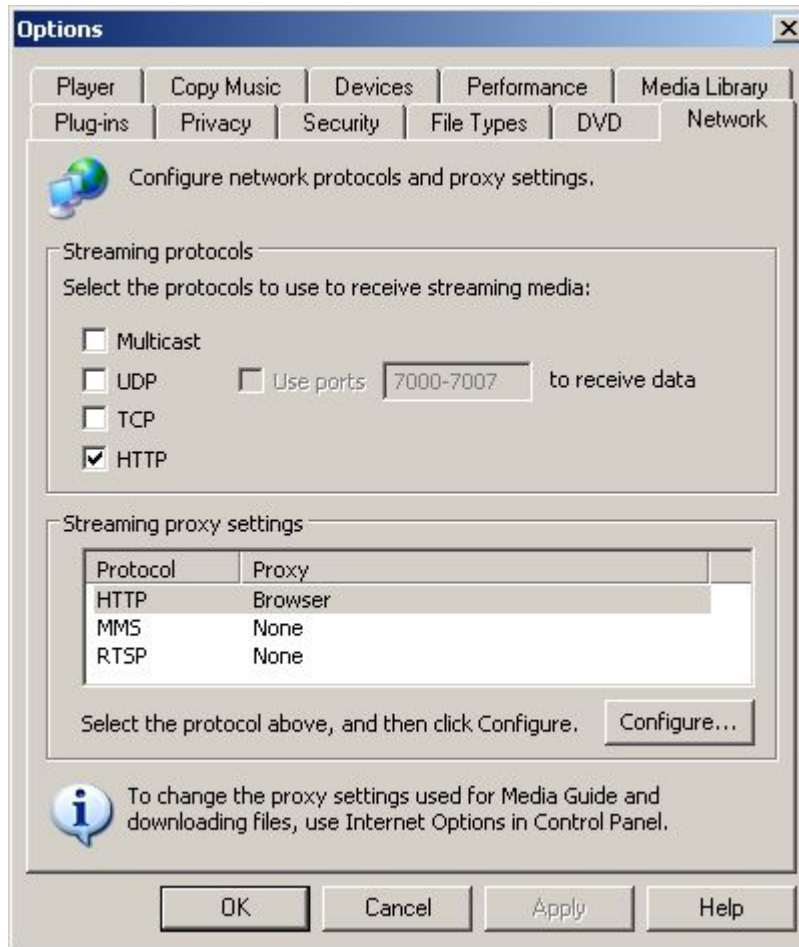
Goto "File", "Open URL", and enter the IP/Domain and port number of your VLC computer.

Click "Ok" to begin streaming live video from VLC.

Step 5: Stream Live Video on a Webpage

Open VLC if it is not already open, or stop any previous video.

Select "Media", "Open Network Stream", and enter your full RTSP command as before.
Select "Stream" from the drop down menu.
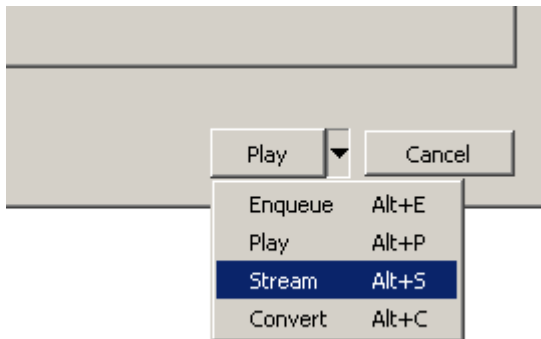
You will then see the Stream Output window appear.

The Source tab will show your RTSP command. This cannot be edited.
If you need to make changes click "Cancel" and start again.

Skip "Destinations" and click the "Options" tab.

Enter the VLC stream output string and click "Stream".
I will provide you with example strings below.

JW Player in Google Chrome ..

You can now stream this video from compatible players such as JW Player or FlowPlayer.

This allows you to embed it into your website using JavaScript and Flash.
The stream format would be http://IP:PORT/FILE

VLC Stream Output Strings ..

I will will show you 3 examples for QC DVRs - FLV and H.264 encoded.
All 3 examples will output FLV (flash) files for live streaming video.

Adjust the scale value based on your original encode size.
To use the original encode size you can simply leave out the scale setting.
Incorrect scale/bitrate/fps values result in a corrupted video stream.

Using RTSP on QC Series DVRs and NVRs

Example 1: FLV Codec (CIF)

This is better suited for busy websites.

VLC Stream Output String:

```
:sout=#transcode{vcodec=FLV1,vb=256,fps=7,scale=1,acodec=none}:std{access=http,dst=:8061/stream1.flv}
```

RTSP Connection	
Stream Type	Extra Stream (01)
QC Device Settings	
Encode	Extra Stream
Encode Size	CIF
Encode FPS	7
Encode Type	VBR
Encode Bitrate	256
Encode Quality	Highest
VLC Stream Output Settings	
Video Codec	FLV1
Video Bitrate	256
Video FPS	7
Video Scale	1.0 (none)
Video Size	352x240
Deinterlace	No
Audio	No
Player URL	http://mydomain.com:8061/stream1.flv

Example 2: FLV Codec (D1)

This is for websites that want higher quality.

VLC Stream Output String:

```
:sout=#transcode{vcodec=FLV1,vb=1024,fps=7,acodec=none}:std{access=http,dst=:8062/stream2.flv}
```

RTSP Connection	
Stream Type	Main Stream (00)
QC Device Settings	
Encode	Main Stream
Encode Size	D1
Encode FPS	7
Encode Type	VBR / CBR
Encode Bitrate	640 / 1024
VLC Stream Output Settings	
Video Codec	FLV1
Video Bitrate	640 / 1024
Video FPS	7
Video Scale	0.5 / No
Video Size	352x240 / 704x480
Deinterlace	No
Audio	No
Player URL	http://mydomain.com:8062/stream2.flv

Example 3: H.264 Codec (D1)

This is higher quality deinterlaced video.
The video can take longer to start.

VLC Stream Output String:

```
:sout=#transcode{vcodec=h264,vb=1024,fps=7,deinterlace,acodec=none}:std{access=http,dst=:8063/stream3.flv}
```

RTSP Connection	
Stream Type	Main Stream (00)
QC Device Settings	
Encode	Main Stream
Encode Size	D1
Encode FPS	7
Encode Type	CBR
Encode Bitrate	1024
VLC Stream Output Settings	
Video Codec	H264
Video Bitrate	1024
Video FPS	7
Video Scale	No
Video Size	704x480
Deinterlace	Yes
Audio	No
Player URL	http://mydomain.com:8063/stream3.flv

The above settings are just examples to show you how it works.
You will need to adjust this for your own device and application.

TIP - If you don't have a static IP or DDNS server or just want to use a domain name instead; purchase a domain name through a domain name registrar, sign up for a free account at FreeDNS.afraid.org, add the afraid.org name servers to your domain name registrar account, then download one of the FreeDNS update programs at afraid.org.

JW Player Sample Code ..

[Click here](#) for full details on embedding flash video with JW Player

```html
<html>
<head>
<title>JW Player Example</title>
<script src="jq-1.4.3.min.js"></script>
</head>
<body>
<!-- INTERNET EXPLORER -->
<object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000" width="352" height="264" id="player1" name="player1">
  <param name="movie" value="player.swf">
  <param name="allowfullscreen" value="true">
  <param name="allowscriptaccess" value="always">
  <param name="flashvars" value="file=http://mydomain.com:8061/stream1.flv&autostart=true&bufferlength=1">
  <!-- CHROME / FIREFOX / SAFARI -->
  <embed id="player1"
         name="player1"
         src="player.swf"
         width="352"
         height="264"
         allowscriptaccess="always"
         allowfullscreen="true"
         flashvars="file=http://mydomain.com:8061/stream1.flv&autostart=true&bufferlength=1"
  />
</object>
</body>
</html>
```

No Static IP? No Domain Name?

With VLC on your home PC streaming the video, schedule a script to hit a webpage on your remote server every 30 minutes or so to update the IP. That webpage saves your updated IP to a database or text file, the main video page on the remote server always grabs that latest IP.

Step 6: Auto start VLC streaming

Create a single VLC stream ..

Example: create a new text document and name it Stream1.cmd
Right click "Edit" and enter the following then hit save.

```
@ECHO OFF

set vlc="%PROGRAMFILES%\VideoLAN\VLC\vlc.exe"
set
rtsp="rtsp://192.168.1.108:554/cam/realmonitor?channel=1&subtype=01&authbasic=YWRtaW46YWRta
W4="
set
sout=":sout=#transcode{vcodec=FLV1,vb=256,fps=7,scale=1,acodec=none}:std{access=http,dst=:8
061/stream1.flv}"

ECHO VLC LOADING ...

start "" %vlc% %rtsp% %sout%

exit
```

Track when the stream is open and closed ..

Before the batch file starts VLC, write the number "1" to a log file.
Start VLC and wait for it to exit by adding "/wait" in the start line.
Then when VLC exits write "0" to say the stream is offline.

Example based on the above code.
This example will wait until VLC exits before closing the command window.

```
@ECHO OFF

set vlc="%PROGRAMFILES%\VideoLAN\VLC\vlc.exe"
set
rtsp="rtsp://192.168.1.108:554/cam/realmonitor?channel=1&subtype=01&authbasic=YWRtaW46YWRta
W4="
set
sout=":sout=#transcode{vcodec=FLV1,vb=256,fps=7,acodec=none}:std{access=http,dst=:8061/stre
am1.flv}"
set log=c:\inetpub\wwwroot\logs\stream1.log

title VLC STREAM 1 ..

echo 1 >%log%

cls
ECHO.
ECHO ===================================================
ECHO VLC Streaming  ...
ECHO ---------------------------------------------------
ECHO INPUT  : 192.168.1.108, Port 554, Ch-1, Extra Stream
```

```
ECHO OUTPUT : FLV1, 256, 7fps, 8061, Stream1.flv

ECHO =======================================================

ECHO.


start "" /wait %vlc% %rtsp% %sout%


echo 0 >%log%


exit
```

You could then read that log file on your server to see if it is streaming or not.
It is not a 100% fail safe method but it should do the job.

Create multiple streams ..

You can create separate files for each channel using the above code.
However each one will run a separate instance of VLC.
Therefore you could instead create a configuration file and load that from the command line.
It would only be one instance of VLC for multiple channels.

*TIP - if you want to track whether each channel is online or offline,
separate files may be preferred*

Example: create a new text document and name it vlm.vlm
Right click "Edit" and enter the following then hit save.
Then copy this vlm file to the VLC path.

```
new channel1 broadcast enabled
setup channel1 input
rtsp://192.168.1.108:554/cam/realmonitor?channel=1&subtype=01&authbasic=YWRtaW46YWRtaW4=
setup channel1 output
#transcode{vcodec=FLV1,vb=256,fps=7,acodec=none}:std{access=http,dst=:8061/stream1.flv}

new channel2 broadcast enabled
setup channel2 input
rtsp://192.168.1.108:554/cam/realmonitor?channel=2&subtype=01&authbasic=YWRtaW46YWRtaW4=
setup channel2 output
#transcode{vcodec=FLV1,vb=256,fps=7,acodec=none}:std{access=http,dst=:8062/stream2.flv}

new channel3 broadcast enabled
setup channel3 input
rtsp://192.168.1.108:554/cam/realmonitor?channel=3&subtype=01&authbasic=YWRtaW46YWRtaW4=
setup channel3 output
#transcode{vcodec=FLV1,vb=256,fps=7,acodec=none}:std{access=http,dst=:8063/stream3.flv}

new channel4 broadcast enabled
setup channel4 input
rtsp://192.168.1.108:554/cam/realmonitor?channel=4&subtype=01&authbasic=YWRtaW46YWRtaW4=
setup channel4 output
#transcode{vcodec=FLV1,vb=256,fps=7,acodec=none}:std{access=http,dst=:8064/stream4.flv}
control channel1 play
control channel2 play
control channel3 play
control channel4 play
```

Next create another new text document and name it StreamAll.cmd
Edit and paste the following into it and hit save.

```
@ECHO OFF

ECHO VLC LOADING ...

start "" vlc --extraintf telnet --vlm-conf vlm.vlm

exit
```

Copy this cmd file to the VLC path and make a shortcut to your desktop.

When you run this it will start streaming all 4 channels.