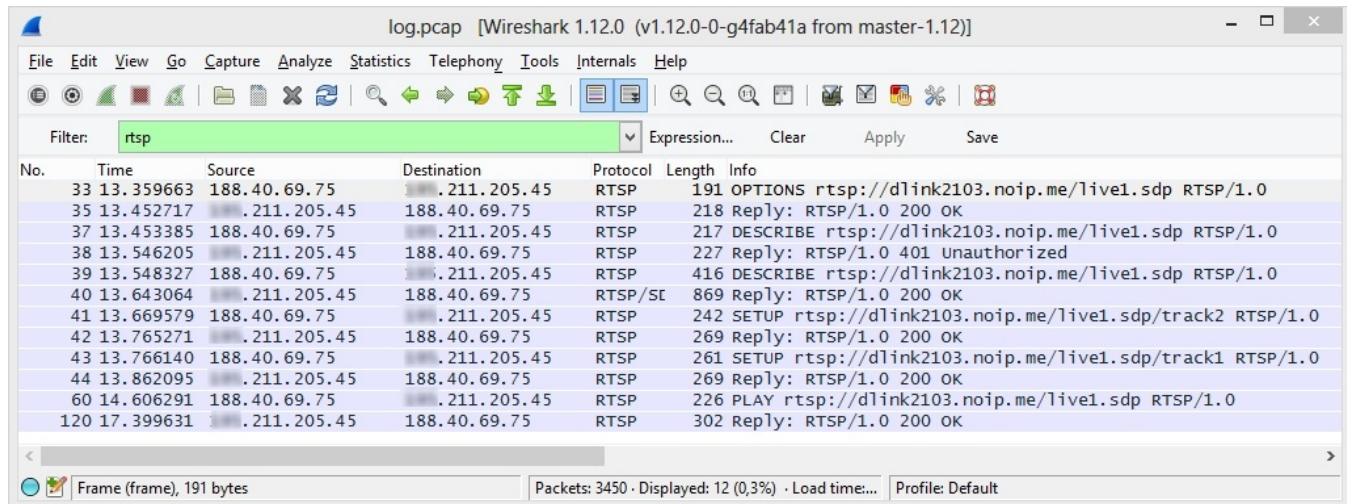


# RTSP / RTP

## RTSP traffic analysis when capturing a stream from the IP camera

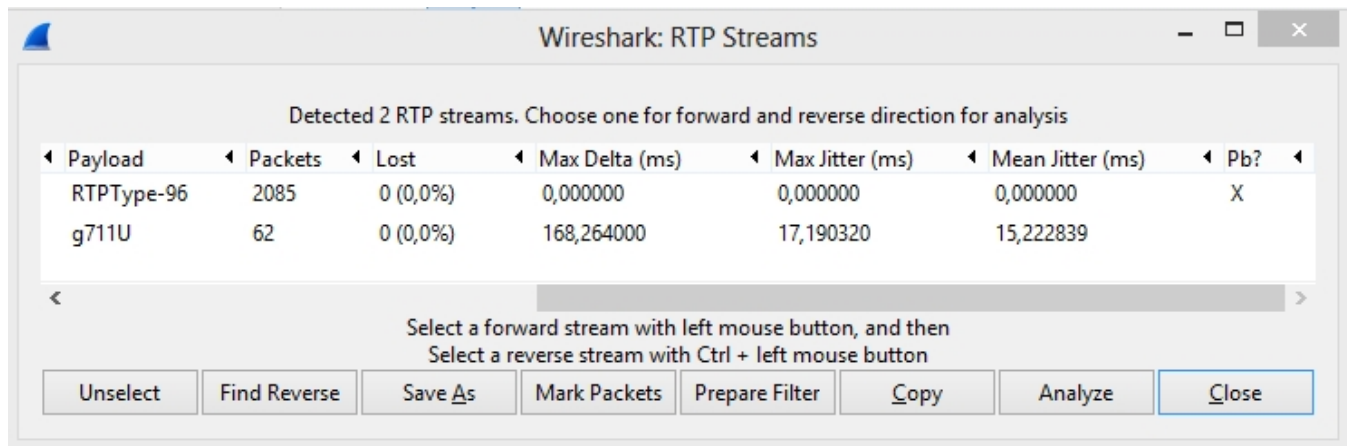
We use the 'rtsp' filter to see RTSP traffic between WCS and the IP camera.



No.	Time	Source	Destination	Protocol	Length	Info
33	13.359663	188.40.69.75	211.205.45	RTSP	191	OPTIONS rtsp://dlink2103.noip.me/live1.sdp RTSP/1.0
35	13.452717	211.205.45	188.40.69.75	RTSP	218	Reply: RTSP/1.0 200 OK
37	13.453385	188.40.69.75	211.205.45	RTSP	217	DESCRIBE rtsp://dlink2103.noip.me/live1.sdp RTSP/1.0
38	13.546205	211.205.45	188.40.69.75	RTSP	227	Reply: RTSP/1.0 401 Unauthorized
39	13.548327	188.40.69.75	211.205.45	RTSP	416	DESCRIBE rtsp://dlink2103.noip.me/live1.sdp RTSP/1.0
40	13.643064	211.205.45	188.40.69.75	RTSP/SE	869	Reply: RTSP/1.0 200 OK
41	13.669579	188.40.69.75	211.205.45	RTSP	242	SETUP rtsp://dlink2103.noip.me/live1.sdp/track2 RTSP/1.0
42	13.765271	211.205.45	188.40.69.75	RTSP	269	Reply: RTSP/1.0 200 OK
43	13.766140	188.40.69.75	211.205.45	RTSP	261	SETUP rtsp://dlink2103.noip.me/live1.sdp/track1 RTSP/1.0
44	13.862095	211.205.45	188.40.69.75	RTSP	269	Reply: RTSP/1.0 200 OK
60	14.606291	188.40.69.75	211.205.45	RTSP	226	PLAY rtsp://dlink2103.noip.me/live1.sdp RTSP/1.0
120	17.399631	211.205.45	188.40.69.75	RTSP	302	Reply: RTSP/1.0 200 OK

## RTP traffic from the RTSP IP camera

After a connection is established via RTSP, usual RTP traffic starts coming from the IP camera.



Payload	Packets	Lost	Max Delta (ms)	Max Jitter (ms)	Mean Jitter (ms)	Pb?
RTPTYPE-96	2085	0 (0,0%)	0,000000	0,000000	0,000000	X
g711U	62	0 (0,0%)	168,264000	17,190320	15,222839	

If we filter the same dump by UDP and follow the instructions from the [SRTP traffic analysis](#) section, we can find that there is SRTP traffic flowing from the WCS server to the browser. This being said, if you see video in your browser this means RTP traffic from the IP camera comes to the WCS server via the successfully established RTSP connection, and further converts to WebRTC / SRTP traffic to display in a browser.

## Possible problems

If RTSP and RTP traffic will not flow between the WCS server and the IP camera, video from the camera will not be displayed in the browser. Most likely, you will see just the dark screen.

## Troubleshooting

Typically, cameras are set behind NAT, so to connect to the IP camera via RTSP without hassle, you should ass two NAT rules on your router the IP camera is connected to. For example, on the Zyxel router these settings will look as follows:

**Security**
**Address translation Rules (NAT)**

## Access Rules

## SkyDNS

## Yandex.DNS

**Address translation Rules (NAT)**

Create static network address and port translation rules, if you want to redirect incoming Internet connections to the hosts of your Home network.

Interface	Translate From	Translate Ports	Translate To	Comment
Broadband connection (ISP)		rtsp	192.168.1.41 554	rtsp
Broadband connection (ISP)		http	192.168.1.41 80	http

Add Rule

Here, 192.168.1.41 is the IP address of the camera in the local network. The router says it will redirect RTSP queries sent to the corresponding ports to the IP camera.

Then, if you know your external IP address, if you query this address, for instance, rtsp://9.9.9.9:554 you will end up in the RTSP port of your camera. If something goes wrong, contact your internet provider. If you have dynamic IP address, you can use the dynamic DNS service. Then, you will be able to address using the host name, so IP address tracking is not necessary. Example: rtsp://myhost.noip.com:554.

If all traffic goes through, but video still does not play and logs contain many packet lost errors, check MTU. Some IP cameras send large enough UDP packets containing video that might be cut off by the MTU of the router. Use this command: ping -f -l 1460 8.8.8.8. Replace 8.8.8.8 with any external host that responds to pinging. If packets do not pass through, perform the same test with the router: ping -f -l 1460 192.168.1.1, where 192.168.1.1 is the address of the router. If packets do reach the router and do not reach the external host, this means the MTU of the router is not large enough. Use the router settings to increase its value to standard 1500. For example, for Zyxel you can set MTU in the console:

```
telnet 192.168.1.1

>show interface ISP
>interface ISP ip mtu 1500
>system config-save
```

```
Telnet 192.168.1.1

<config>> show interface ISP

      mac: ec:43:f6:01:c1:e5
      id: Switch0/VLAN2
      index: 2
      type: VLAN
description: Broadband connection
      state: up
      link: up
      connected: yes
      mtu: 1500
      tx-queue: 1000
      address: 192.168.1.1
      mask: 255.255.255.240
      broadcast: 192.168.1.255
      global: yes
      defaultgw: yes
      priority: 700
security-level: public
auth-type: none

Core::Configurator: done.
```

In this case 'ISP' is a network interface on the router the internet cable of the provider is connected to.

Finally, if after executing the command `ping -f -l 1460 192.168.1.1` packets do not reach even the router, check the MTU value in your operating system. For instance, on Windows you can set MTU in the system registry.