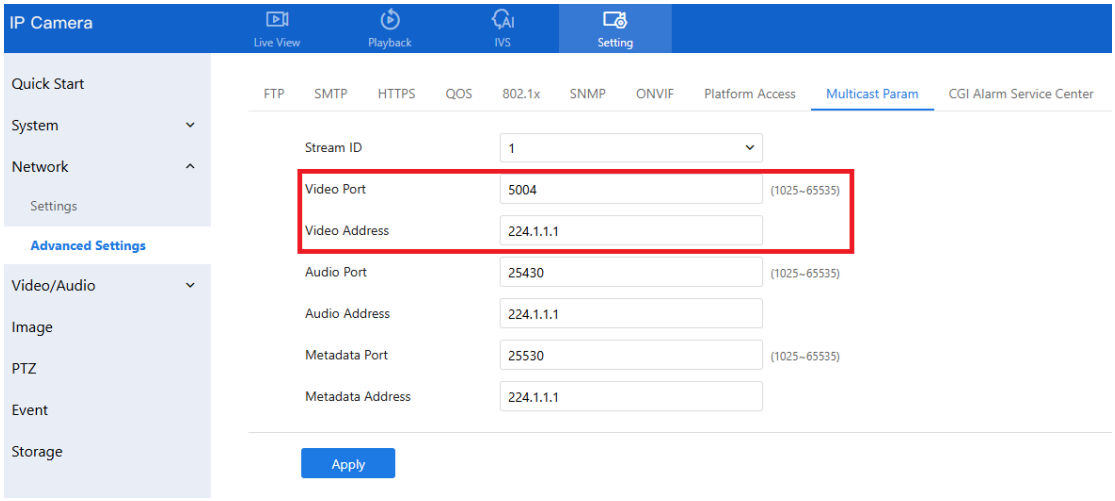
How to get camera video stream through Multicast

Due to hardware limitations, a camera can only support a maximum of 8 Unicast RTSP streams. If the user requires more streams, it may be necessary to use Multicast.

1. Configure the camera Multicast IP and Port by going to Setting > Network > Advanced Settings > Multicast Parameter.



Stream ID: you can configure different multicast address for different streams.
Video Port: the port used to receive video stream
Video Address: The address should be multicast address, range from 224.1.1.1 to 239.255.255.255

It is recommended to configure the same multicast IP address for Video, Audio and Metadata.

2. By default, the camera will not send video streaming to any multicast addresses. It will begin to broadcast streaming data to the multicast address only after a client has established an RTSP session with the camera.

3. Use the correct RTSP URL to start an RTSP session and allow the camera to transmit streaming data to a multicast address.

   URL Format: *rtsp://ip: rtsp port/snl/multicastlive/1/streamID?multicast=true*
   For example: *rtsp://192.168.2.134: 554/snl/multicastlive/1/2?multicast=true*

When you use the URL above to request RTSP streaming using VLC player, the camera will respond (RTSP SETUP) with the multicast address and port information. If you use Wireshark to record the network packet, you may view the interaction information as follows:

```
DESCRIBE rtsp://192.168.2.134:554/snl/multicastlive/1/1?multicast=true RTSP/1.0
CSeq: 4
Authorization: Digest username="admin", realm="ONVIF To 2008E7", nonce="a502345c243c2eba87693bf75b87c6de", uri="rtsp://192.168.2.134:554/snl/multicastlive/1/1?multicast=true", response="899721f06b3632d93ca9d2f7cc19b331"
User-Agent: LibVLC/3.0.21 (LIVE555 Streaming Media v2016.11.28)
Accept: application/sdp


RTSP/1.0 200 OK
CSeq: 4
User-Agent: NVT
Content-Type: application/sdp
Content-Length: 633
Content-Base: rtsp://192.168.2.134/snl/multicastlive/1/1/

v=0
o=admin 7574 7575 IN IP4 192.168.2.134
s=NVT
i=From NVT
c=IN IP4 224.1.1.1/60
t=0 0
a=control:rtsp://192.168.2.134/snl/multicastlive/1/1/
m=video 5004 RTP/AVP 96
b=AS:4096
a=rtpmap:96 H264/90000
a=fmtp:96 packetization-mode=1;profile-level-id=420033;sprop-parameter-sets=Z0IAM4mJUBRAX5NkAAAPoAADawAQ,aM48gA==
a=framesize:96 2592-1520
a=framerate:28.0
a=control:trackID=0
a=recvonly
m=audio 25430 RTP/AVP 8
a=rtpmap:8 PCMA/8000
a=fmtp:8 octet-align=1;decode_buf=400
a=control:trackID=1
a=recvonly
m=application 25530 RTP/AVP 98
b=AS:10
a=rtpmap:98 vnd.onvif.metadata/90000
a=control:trackID=10
a=recvonly

SETUP rtsp://192.168.2.134/snl/multicastlive/1/1/trackID=0 RTSP/1.0
CSeq: 5
Authorization: Digest username="admin", realm="ONVIF To 2008E7", nonce="a502345c243c2eba87693bf75b87c6de", uri="rtsp://192.168.2.134/snl/multicastlive/1/1/", response="8061f0a6a174a5d401ed351de49df21f"
User-Agent: LibVLC/3.0.21 (LIVE555 Streaming Media v2016.11.28)
Transport: RTP/AVP;multicast;port=5004-5005

RTSP/1.0 200 OK
CSeq: 5
Date: Mon, Jul 14 2025 10:08:41 GMT
User-Agent: NVT
Session: 2145357549;timeout=60
Transport: RTP/AVP;multicast;destination=224.1.1.1;port=5004-5005;ssrc=ee6f0c90;mode=play
```

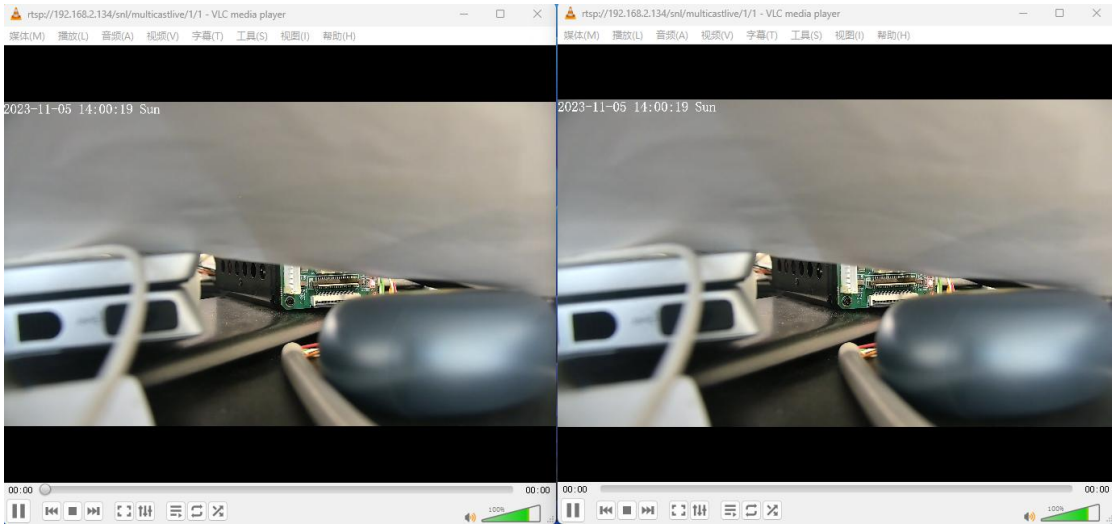
Camera starts to send video data to multicast address 224.1.1.1

43	7.030808	192.168.2.134	192.168.2.223	RTSP/SDP	843 Reply: RTSP/1.0 200 OK
45	7.034230	192.168.2.223	192.168.2.134	RTSP	447 SETUP rtsp://192.168.2.134/snl/multicastlive/1/1/trackID=0 RTSP/1.0
47	7.040189	192.168.2.134	192.168.2.223	RTSP	259 Reply: RTSP/1.0 200 OK
48	7.040639	192.168.2.223	192.168.2.134	RTSP	470 SETUP rtsp://192.168.2.134/snl/multicastlive/1/1/trackID=1 RTSP/1.0
49	7.042911	192.168.2.134	192.168.2.223	RTSP	261 Reply: RTSP/1.0 200 OK
58	7.043502	192.168.2.223	192.168.2.134	RTSP	432 PLAY rtsp://192.168.2.134/snl/multicastlive/1/1/ RTSP/1.0
59	7.045153	192.168.2.134	192.168.2.223	RTSP	299 Reply: RTSP/1.0 200 OK
61	7.058266	192.168.2.134	192.168.2.223	TCP	60 554 → 2601 [ACK] Seq=336 Ack=340 Win=64128 Len=0
62	7.068287	192.168.2.134	224.0.0.22	IGMPv3	60 Membership Report / Join group 224.1.1.1 for any sources
63	7.086022	192.168.2.223	192.168.2.134	TCP	54 2602 → 554 [ACK] Seq=1591 Ack=1447 Win=64000 Len=0
64	7.198269	192.168.2.134	224.0.0.22	IGMPv3	60 Membership Report / Join group 224.1.1.1 for any sources
67	7.608368	192.168.2.134	224.1.1.1	RTCP	82 Sender Report Source description
68	7.608368	192.168.2.134	224.1.1.1	RTCP	82 Sender Report Source description
69	7.608685	192.168.2.134	224.1.1.1	H.264	75 PT=H264, SSRC=0xEE6F0C90, Seq=26110, Time=1397394716 SPS
70	7.608685	192.168.2.134	224.1.1.1	H.264	60 PT=H264, SSRC=0xEE6F0C90, Seq=26111, Time=1397394716 PPS
71	7.608990	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26112, Time=1397394716 FU-A Start:IDR-Slice
72	7.608990	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26113, Time=1397394716 FU-A
73	7.609098	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26114, Time=1397394716 FU-A
74	7.609156	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26115, Time=1397394716 FU-A
75	7.609483	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26116, Time=1397394716 FU-A
76	7.609483	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26117, Time=1397394716 FU-A
77	7.609599	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26118, Time=1397394716 FU-A
78	7.609626	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26119, Time=1397394716 FU-A
79	7.610917	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26120, Time=1397394716 FU-A
80	7.610917	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26121, Time=1397394716 FU-A
81	7.610917	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26122, Time=1397394716 FU-A
82	7.610917	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26123, Time=1397394716 FU-A
83	7.610917	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26124, Time=1397394716 FU-A
84	7.610917	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26125, Time=1397394716 FU-A
85	7.611440	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26126, Time=1397394716 FU-A
86	7.611440	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26127, Time=1397394716 FU-A
87	7.611440	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26128, Time=1397394716 FU-A
88	7.611914	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26129, Time=1397394716 FU-A
89	7.611914	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26130, Time=1397394716 FU-A
90	7.611914	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26131, Time=1397394716 FU-A
91	7.611914	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26132, Time=1397394716 FU-A
92	7.611914	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26133, Time=1397394716 FU-A
93	7.611914	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26134, Time=1397394716 FU-A
94	7.611914	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26135, Time=1397394716 FU-A
95	7.611914	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26136, Time=1397394716 FU-A
96	7.611914	192.168.2.134	224.1.1.1	H.264	1478 PT=H264, SSRC=0xEE6F0C90, Seq=26137, Time=1397394716 FU-A

4. Use VLC player to display multiple streams from multicast address.

Method1: Create multiple RTSP session

You can use the URL [rtsp://ip:RTSPport/snl/multicastlive/1/streamID?multicast=true]. To request several RTSP streams, specify [multicast=true]. Each time you request a stream with this URL, it will start a new RTSP session, but the camera will only transmit one stream to the multicast IP. The RTSP sessions allow you to start and stop each video stream separately, but they all use the same stream data from the same multicast address. The camera will stop broadcasting streams to multicast addresses only once all RTSP sessions have been ended.



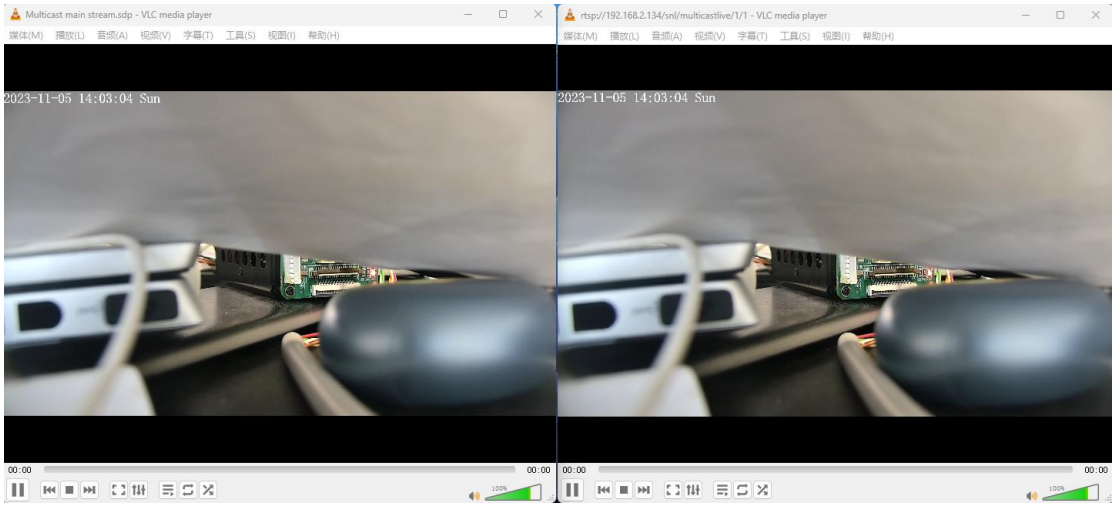
Method 2: Create 1 RTSP session
You could utilize the URL [rtsp://ip:RTSPport/snl/multicastlive/1/streamID?multicast=true] to request a single stream first; once the RTSP session is established, the camera will begin to send stream data to the multicast address; you can then retrieve video data directly from the multicast address without requesting another RTSP session from the camera.

Use the VLC player as an example:
VLC player can display stream data if you provide the correct multicast address, listening port, and video encoder information, which can be specified in a .sdp file.

For example, you can create a .txt file and enter the information shown below, then rename the file to .sdp and display it using VLC player.

```
v=0
c=IN IP4 238.255.255.255/60
t=0 0
m=video 5004 RTP/AVP 96
a=rtpmap:96 H264/90000
a=fmtp:96 packetization-mode=1;profile-level-id=420033;sprop-parameter-
sets=Z0IAM4mJUFgek2QAAA+gAAOpgBA=,aM48gA==
a=framesize:96 704-480
a=framerate:30.0
a=control:trackID=0
a=recvonly
```

Explanation of the parameters:
v: protocol version
c: connection information. VLC player will get data from IP (238.255.255.255) defined in this parameter.
t: session timeout time. 0 0 means no timeout limitation
m: media information. VLC player will get data from the listening port (5004) defined in this parameter
a: encode information including encode type (H264), resolution, frame rate, etc. VLC player will try to decode data use the encode information defined in this parameter



In Method 2, when you use a .sdp file to display a video stream, there is only one RTSP session and if that RTSP session is ended, the camera will stop delivering data to the multicast address, and all of the players' video streaming will stop.