

Raw WebSocket API

- Overview
- Command set for stream publishing and playback
 - connect
 - publish
 - unpublish
 - play
 - stop
- Publishing/playback stream metrics
- Stream availability checking

Overview

All WCS SDK: WebSDK, AndroidSDK, iOS SDK use WebSocket transport protocol to communicate with server. To exchange SDP between client and server and establish WebRTC mediasession, the custom command set is implemented over WebSocket.

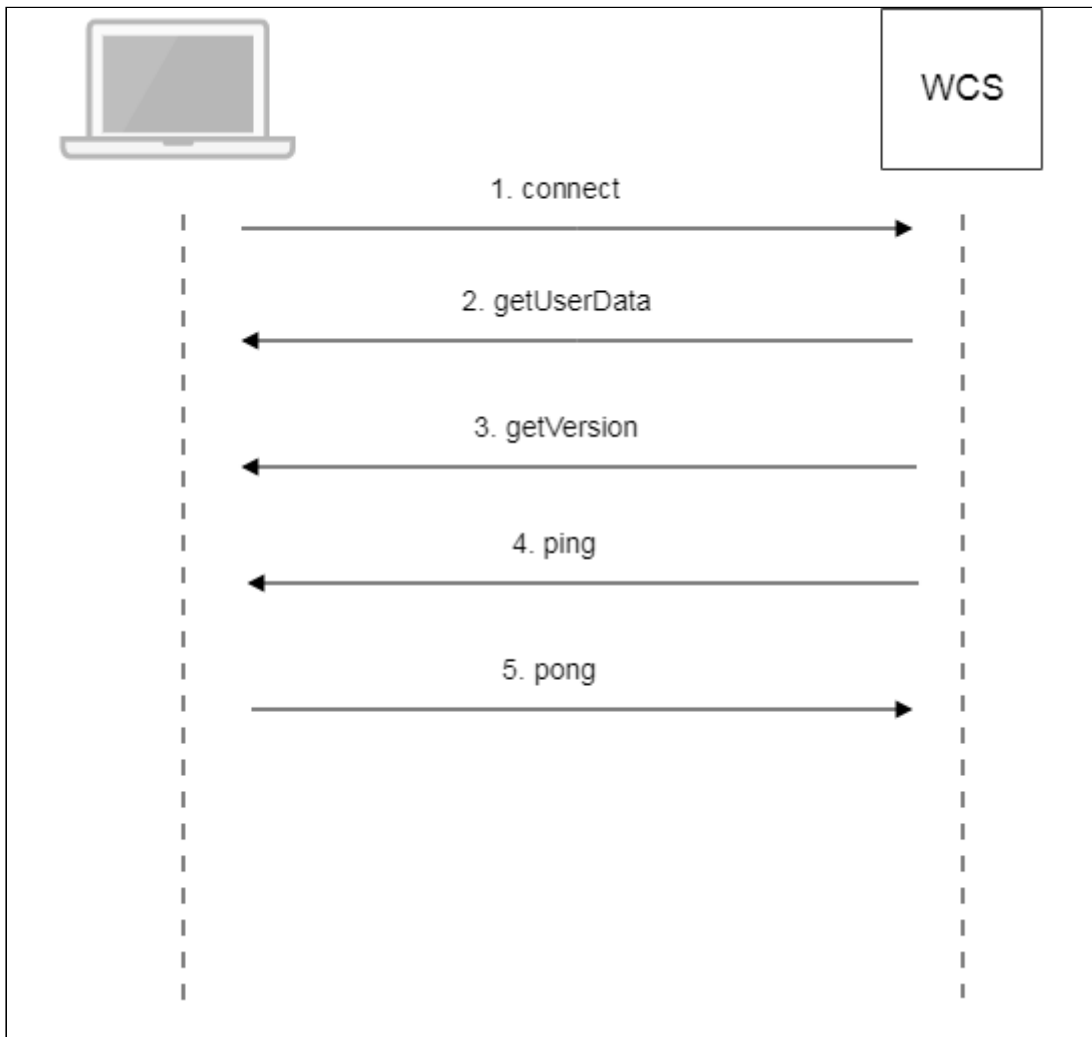
WebSocket messages exchange can be seen while WebSDK example application works in Chrome browser, [Two Way Streaming](#) for example. To do this open Developer tools by pressing F12 key, go to Network section, choose host name and got to Frames tab

The screenshot displays a web browser window with the URL `https://demo.flashphoner.com/client2/examples/demo/streaming/two_way_streaming/two_way_streaming.html`. The page content includes a video player titled "Two-way Streaming" with a "Local" video feed, a "PUBLISHING Player" section, and a "wss://demo.flashphoner.com:8443" connection status at the bottom. The developer tools network tab is open, showing a list of WebSocket messages. The messages include connection, getUseData, getExtension, publishStream, setRemoteSDP, notifyStreamStatusEvent, ping, and pong. The messages are organized into frames, with the first frame containing the connection and getUseData messages, and subsequent frames containing the remaining messages. The network tab also shows the timing of each message and the overall connection duration.

Command set for stream publishing and playback

connect

When establishing connection with server and creating a session, messages exchange flow as follows:



1. Client sends **connection** message

```
{
  "message": "connection",
  "data": [
    {
      "appKey": "defaultApp",
      "mediaProviders": ["WebRTC", "MSE", "WSPlayer"],
      "clientVersion": "0.5.28",
      "clientOSVersion": "5.0 (Windows NT 6.1; Win64; x64) AppleWebKit/537.36"
    }
  ]
}
```

```
(KHTML, like Gecko) Chrome/71.0.3578.80 Safari/537.36",
  "clientBrowserVersion":"Mozilla/5.0 (Windows NT 6.1; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/71.0.3578.80 Safari/537.36"
}
]
}
```

Message parameters

Parameter	Description
appKey	Server application key to communicate with backend server while session goes
mediaProviders	List of supported publication or playback technologies
clientVersion	Client SDK version
clientOSVersion	Client OS version
clientBrowserVersion	Client browser version

2. Server sends `getUserData` message

```
{
  "message":"getUserData",
  "data":
  [
    {
      "useWsTunnel":false,
      "useWsTunnelPacketization2":false,
      "useBase64BinaryEncoding":false,
      "mediaProviders":["WebRTC","MSE","WSPlayer"],
      "authToken":"/5.129.23.83:50066/188.40.244.249:8443",
      "status":"ESTABLISHED",
      "clientVersion":"0.5.28",
      "clientOSVersion":"5.0 (Windows NT 6.1; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/71.0.3578.80 Safari/537.36",
      "clientBrowserVersion":"Mozilla/5.0 (Windows NT 6.1; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/71.0.3578.80 Safari/537.36",
      "forceLogger":false,
      "keepAlive":false
    }
  ]
}
```

This message confirms successful WebSocket connection establishing and data receiving from client

Message parameters

Parameter	Description
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Parameter	Description
useWSTunnel	WS tunnel is used
useWsTunnelPacketization2	WS tunnel packetization is used
useBase64BinaryEncoding	Base64 encoding is used
mediaProviders	List of supported publication or playback technologies
authToken	Authentication token, the same as session Id formed with client and server IP address and port
status	WebSocket session status
clientVersion	Client SDK version
clientOSVersion	Client OS version
clientBrowserVersion	Client browser version
forceLogger	Logger is forced
keepAlive	Keep Alive is used

3. Server `sends getVersion` message

```
{
  "message": "getVersion",
  "data": [
    "5.1.3674-9b5b684ac81a1c7e62d7a38e0c3a2c2433faacf9"
  ]
}
```

Message contains WCS version

4. If there are no other messages received from client, server periodically sends `ping`

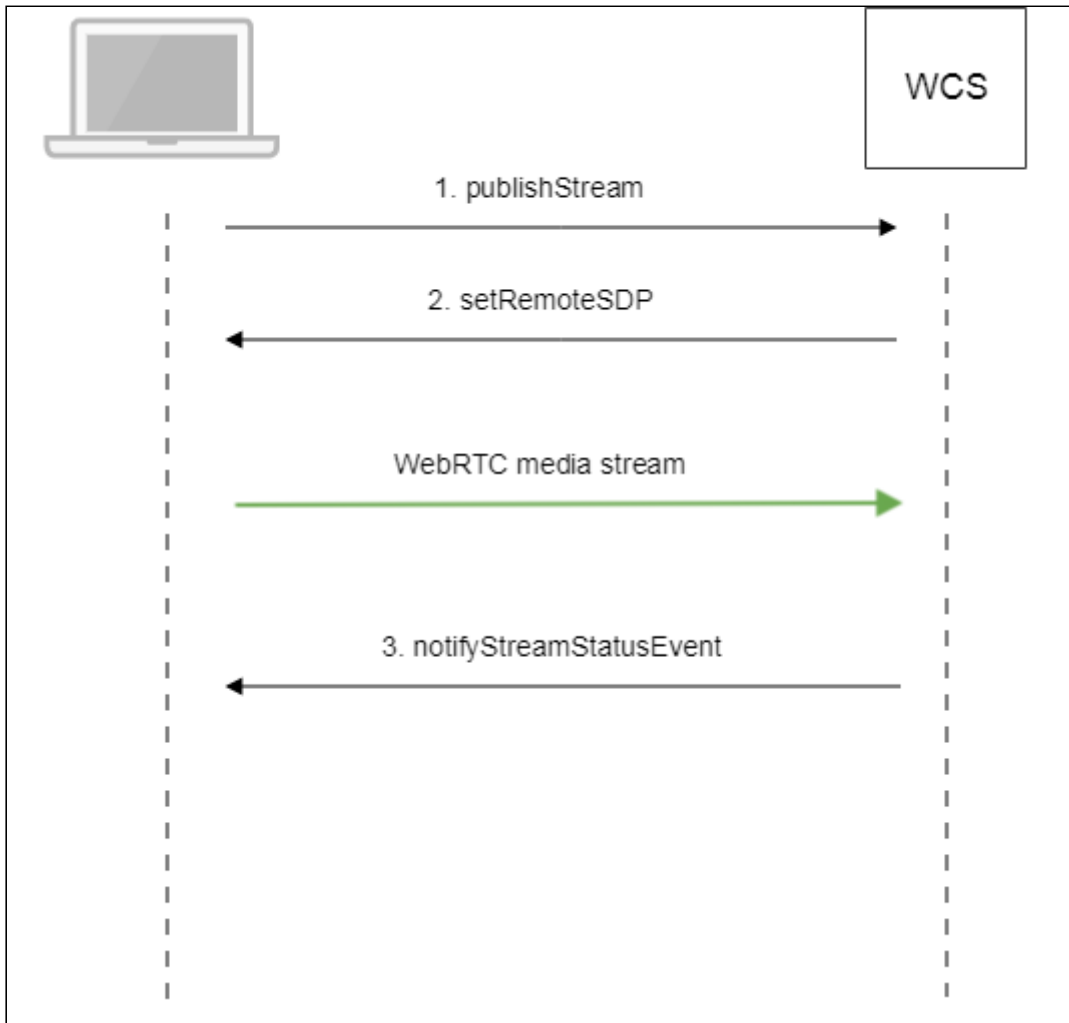
```
{
  "message": "ping",
  "data": []
}
```

on which client must respond with `pong`

```
{
  "message": "pong",
  "data": [null]
}
```

publish

When publishing a stream, messages exchange flow as follows:



1. Client sends `publishStream` message

```
{
  "message": "publishStream",
  "data": [
    {
      "mediaSessionId": "90e14ad0-fdb2-11e8-bce2-a3f72476fb49",
      "name": "test",
      "published": true,
      "hasVideo": true,
      "hasAudio": true,
      "status": "PENDING",
      "record": false,
      "mediaProvider": "WebRTC",
      "sdp": "v=0\r\no=- 1712288193115840199 2 IN IP4 127.0.0.1\r\ns=-\r\n\nt=0 0\r\na=group:BUNDLE audio video\r\na=msid-semantic: WMS EZ5Uy6UkPtEoSckWkyAcP5rabBY6buERZjQpH\r\nm=audio 9 UDP/TLS/RTP/SAVPF 111 103 104 9 0 8 106 105 13 110 112 113 126\r\nnc=IN IP4 0.0.0.0\r\na=rtpcp:9 IN IP4
```

0.0.0.0\r\na=ice-frag:qg0t\r\na=ice-pwd:KEfomSLSL4Pxj78N6T3/HAMY\r\na=ice-
options:trickle\r\na=fingerprint:sha-256
EE:BC:55:18:45:6C:B4:5C:28:6F:5D:F9:42:63:1B:A2:99:8D:7A:0B:19:C3:F5:62:12:63:82
urn:ietf:params:rtp-hdext:ssrc-audio-level\r\na=sendonly\r\na=rtcp-
mux\r\na=rtmpmap:111 opus/48000/2\r\na=rtcp-fb:111 transport-cc\r\na=fmtp:111
minptime=10;useinbandfec=1\r\na=rtmpmap:103 ISAC/16000\r\na=rtmpmap:104
ISAC/32000\r\na=rtmpmap:9 G722/8000\r\na=rtmpmap:0 PCMU/8000\r\na=rtmpmap:8
PCMA/8000\r\na=rtmpmap:106 CN/32000\r\na=rtmpmap:105 CN/16000\r\na=rtmpmap:13
CN/8000\r\na=rtmpmap:110 telephone-event/48000\r\na=rtmpmap:112 telephone-
event/32000\r\na=rtmpmap:113 telephone-event/16000\r\na=rtmpmap:126 telephone-
event/8000\r\na=ssrc:3498121776 cname:Ft3gt16szZ3kA110\r\na=ssrc:3498121776
msid:EZ5Uy6UkPtEoScWkyAcP5rabBY6buERZjQpH 55944815-d49b-4ab2-bc19-
3ecdca00b4a2\r\na=ssrc:3498121776
mslabel:EZ5Uy6UkPtEoScWkyAcP5rabBY6buERZjQpH\r\na=ssrc:3498121776
label:55944815-d49b-4ab2-bc19-3ecdca00b4a2\r\nnm=video 9 UDP/TLS/RTP/SAVPF 96
97 98 99 100 101 102 123 127 122 125 107 108 109 124\r\nnc=IN IP4
0.0.0.0\r\na=rtcp:9 IN IP4 0.0.0.0\r\na=ice-frag:qg0t\r\na=ice-
pwd:KEfomSLSL4Pxj78N6T3/HAMY\r\na=ice-options:trickle\r\na=fingerprint:sha-
256
EE:BC:55:18:45:6C:B4:5C:28:6F:5D:F9:42:63:1B:A2:99:8D:7A:0B:19:C3:F5:62:12:63:82
urn:ietf:params:rtp-hdext:toffset\r\na=extmap:3
http://www.webrtc.org/experiments/rtp-hdext/abs-send-time\r\na=extmap:4
urn:3gpp:video-orientation\r\na=extmap:5 http://www.ietf.org/id/draft-holmer-
rmdat-transport-wide-cc-extensions-01\r\na=extmap:6
http://www.webrtc.org/experiments/rtp-hdext/payout-delay\r\na=extmap:7
http://www.webrtc.org/experiments/rtp-hdext/video-content-type\r\na=extmap:8
http://www.webrtc.org/experiments/rtp-hdext/video-timing\r\na=extmap:10
http://tools.ietf.org/html/draft-ietf-avtext-framemarking-
07\r\na=sendonly\r\na=rtcp-mux\r\na=rtcp-rsize\r\na=rtmpmap:96
VP8/90000\r\na=rtcp-fb:96 goog-remb\r\na=rtcp-fb:96 transport-cc\r\na=rtcp-
fb:96 ccm fir\r\na=rtcp-fb:96 nack\r\na=rtcp-fb:96 nack pli\r\na=rtmpmap:97
rtx/90000\r\na=fmtp:97 apt=96\r\na=rtmpmap:98 VP9/90000\r\na=rtcp-fb:98 goog-
remb\r\na=rtcp-fb:98 transport-cc\r\na=rtcp-fb:98 ccm fir\r\na=rtcp-fb:98
nack\r\na=rtcp-fb:98 nack pli\r\na=fmtp:98 profile-id=0\r\na=rtmpmap:99
rtx/90000\r\na=fmtp:99 apt=98\r\na=rtmpmap:100 H264/90000\r\na=rtcp-fb:100
goog-remb\r\na=rtcp-fb:100 transport-cc\r\na=rtcp-fb:100 ccm fir\r\na=rtcp-
fb:100 nack\r\na=rtcp-fb:100 nack pli\r\na=fmtp:100 level-asymmetry-
allowed=1;packetization-mode=1;profile-level-id=42001f\r\na=rtmpmap:101
rtx/90000\r\na=fmtp:101 apt=100\r\na=rtmpmap:102 H264/90000\r\na=rtcp-fb:102
goog-remb\r\na=rtcp-fb:102 transport-cc\r\na=rtcp-fb:102 ccm fir\r\na=rtcp-
fb:102 nack\r\na=rtcp-fb:102 nack pli\r\na=fmtp:102 level-asymmetry-
allowed=1;packetization-mode=0;profile-level-id=42001f\r\na=rtmpmap:123
rtx/90000\r\na=fmtp:123 apt=102\r\na=rtmpmap:127 H264/90000\r\na=rtcp-fb:127
goog-remb\r\na=rtcp-fb:127 transport-cc\r\na=rtcp-fb:127 ccm fir\r\na=rtcp-
fb:127 nack\r\na=rtcp-fb:127 nack pli\r\na=fmtp:127 level-asymmetry-
allowed=1;packetization-mode=1;profile-level-id=42e01f\r\na=rtmpmap:122
rtx/90000\r\na=fmtp:122 apt=127\r\na=rtmpmap:125 H264/90000\r\na=rtcp-fb:125
goog-remb\r\na=rtcp-fb:125 transport-cc\r\na=rtcp-fb:125 ccm fir\r\na=rtcp-
fb:125 nack\r\na=rtcp-fb:125 nack pli\r\na=fmtp:125 level-asymmetry-
allowed=1;packetization-mode=0;profile-level-id=42e01f\r\na=rtmpmap:107
rtx/90000\r\na=fmtp:107 apt=125\r\na=rtmpmap:108 red/90000\r\na=rtmpmap:109
rtx/90000\r\na=fmtp:109 apt=108\r\na=rtmpmap:124 ulpfec/90000\r\na=ssrc-
group:FID 3064307282 2143201641\r\na=ssrc:3064307282
cname:Ft3gt16szZ3kA110\r\na=ssrc:3064307282
msid:EZ5Uy6UkPtEoScWkyAcP5rabBY6buERZjQpH 77c7bd16-9a65-4f62-9d01-
6ecdd3e58f8a\r\na=ssrc:3064307282
mslabel:EZ5Uy6UkPtEoScWkyAcP5rabBY6buERZjQpH\r\na=ssrc:3064307282
label:77c7bd16-9a65-4f62-9d01-6ecdd3e58f8a\r\na=ssrc:2143201641

```

cname:Ft3gt16szZ3kA110\r\na=ssrc:2143201641
msid:EZ5Uy6UkPtEoScWkyAcP5rabBY6buERZjQpH 77c7bd16-9a65-4f62-9d01-
6ecdd3e58f8a\r\na=ssrc:2143201641
mslabel:EZ5Uy6UkPtEoScWkyAcP5rabBY6buERZjQpH\r\na=ssrc:2143201641
label:77c7bd16-9a65-4f62-9d01-6ecdd3e58f8a\r\n",
    "bitrate":0,
    "minBitrate":0,
    "maxBitrate":0
  }
]
}

```

Message parameters

Parameter	Description
mediaSessionId	WebRTC media session Id
name	Published stream name
hasVideo	Stream has video
hasAudio	Stream has audio
status	Stream status
record	Stream should be recorded on server
mediaProvider	List of supported publication or playback technologies
sdp	Client SDP
bitrate	Bitrate (will set while publishing if 0)
minBitrate	Minimum bitrate (no limits if 0)
maxBitrate	Maximum bitrate (no limits if 0)

2. Server sends `setRemoteSDP` message

```

{
  "message": "setRemoteSDP",
  "data": [
    "90e14ad0-fdb2-11e8-bce2-a3f72476fb49",
    "v=0\r\no=Flashphoner 0 1544579813187 IN IP4
188.40.244.249\r\ns=Flashphoner/1.0\r\nnc=IN IP4 188.40.244.249\r\nnt=0
0\r\nnm=audio 31686 RTP/SAVPF 111 8 9\r\nnc=IN IP4
188.40.244.249\r\na=mid:audio\r\na=rtpmap:111 opus/48000/2\r\na=rtpmap:8
PCMA/8000\r\na=rtpmap:9 G722/8000\r\na=ptime:20\r\na=ice-
pwd:40u9aoieitv0u62tol3pr1g3h4\r\na=ice-ufrag:90e14ad0-fdb2-11e8-bce2-
a3f72476fb49cfmkh1cug233q2\r\na=fingerprint:SHA-256
33:7A:40:CF:1C:42:03:20:EE:E9:F9:95:24:2A:95:85:D6:25:A9:68:C6:CF:40:09:82:74:B4
1 udp 2130706431 188.40.244.249 31686 typ host\r\na=candidate:1 2 udp

```

```

2130706431 188.40.244.249 31686 typ host\r\na=end-of-candidates\r\na=rtcp-
mux\r\na=rtcp:31686 IN IP4 188.40.244.249\r\na=recvonly\r\nm=video 31920
RTP/SAVPF 100 127 102 125 96\r\nnc=IN IP4
188.40.244.249\r\na=mid:video\r\na=rtpmap:100 H264/90000\r\na=fmtp:100 level-
asymmetry-allowed=1;packetization-mode=1;profile-level-
id=42001f\r\na=rtpmap:127 H264/90000\r\na=fmtp:127 level-asymmetry-
allowed=1;packetization-mode=1;profile-level-id=42e01f\r\na=rtpmap:102
H264/90000\r\na=fmtp:102 level-asymmetry-allowed=1;packetization-
mode=0;profile-level-id=42001f\r\na=rtpmap:125 H264/90000\r\na=fmtp:125
level-asymmetry-allowed=1;packetization-mode=0;profile-level-
id=42e01f\r\na=rtpmap:96 VP8/90000\r\na=rtcp-fb:* ccm fir\r\na=rtcp-fb:*
nack\r\na=rtcp-fb:* nack pli\r\na=rtcp-fb:* goog-remb\r\na=ice-
pwd:40u9aoieitv0u62tol3pr1g3h4\r\na=ice-ufrag:90e14ad0-fdb2-11e8-bce2-
a3f72476fb49cfmKh1cug233q2\r\na=fingerprint:SHA-256
33:7A:40:CF:1C:42:03:20:EE:E9:F9:95:24:2A:95:85:D6:25:A9:68:C6:CF:40:09:82:74:B4
1 udp 2130706431 188.40.244.249 31920 typ host\r\na=candidate:1 2 udp
2130706431 188.40.244.249 31920 typ host\r\na=end-of-candidates\r\na=rtcp-
mux\r\na=rtcp:31920 IN IP4 188.40.244.249\r\na=recvonly\r\n",
true
]
}

```

Message contains:

- Media session Id
- Server SDP

3. When stream is published, server sends `notifyStreamStatusEvent` message

```

{
  "message": "notifyStreamStatusEvent",
  "data": [
    {
      "mediaSessionId": "90e14ad0-fdb2-11e8-bce2-a3f72476fb49",
      "name": "test",
      "published": true,
      "hasVideo": true,
      "hasAudio": true,
      "status": "PUBLISHING",
      "audioCodec": "opus",
      "videoCodec": "H264",
      "record": false,
      "width": 0,
      "height": 0,
      "bitrate": 0,
      "minBitrate": 0,
      "maxBitrate": 0,
      "quality": 0,
      "createDate": 1544579813186,
      "streamInfo": {
        "nodeId": null,
        "appKey": null,
        "sessionId": null,
        "mediaSessionId": "90e14ad0-fdb2-11e8-bce2-a3f72476fb49",

```



```

        "name": "test",
        "samplingTime": null,
        "recordTimestamp": null,
        "recordStarted": false
    },
    "mediaProvider": "WebRTC"
}
]
}

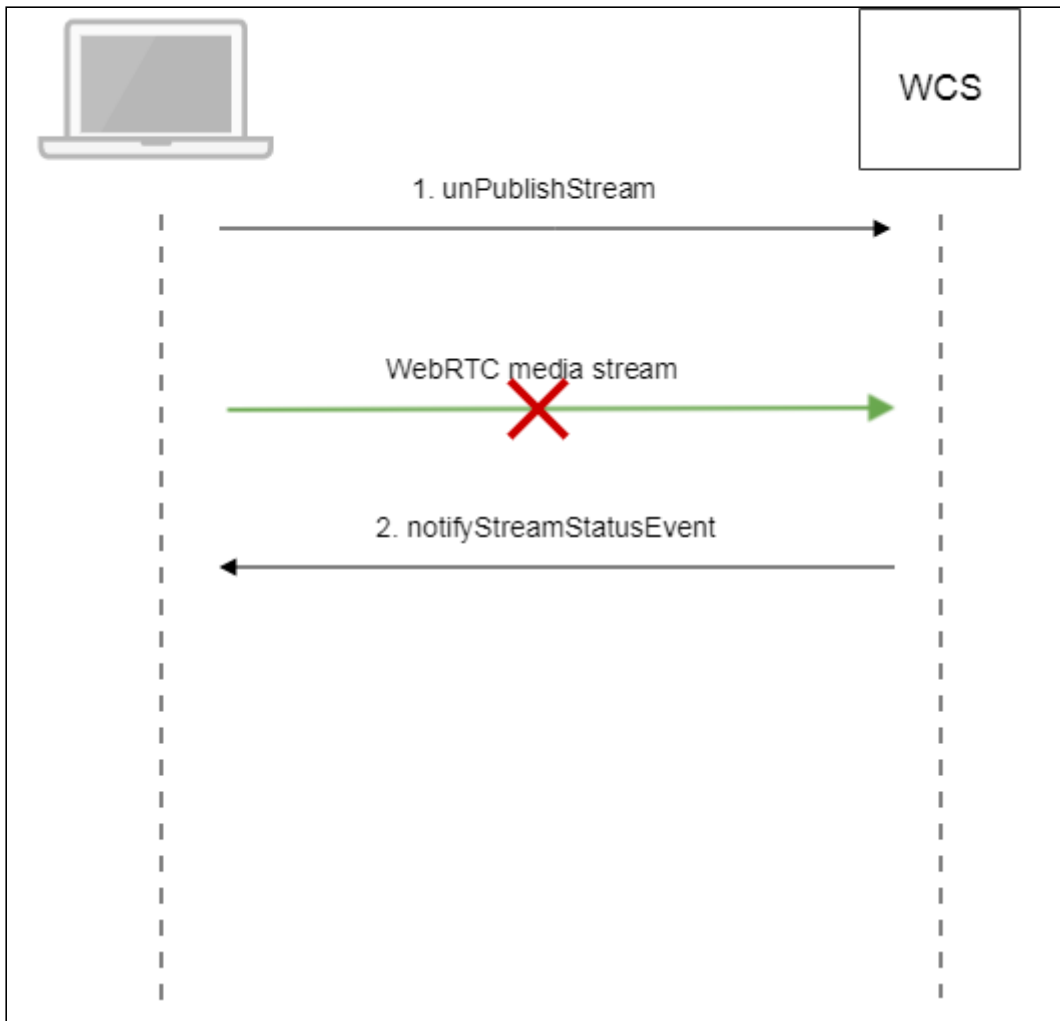
```

Message parameters

Parameter	Description
mediaSessionId	WebRTC media session Id
name	Published stream name
published	Stream is published
hasVideo	Stream has video
hasAudio	Stream has audio
status	Stream status
audioCodec	Audio codec
videoCodec	Video codec
record	Stream is recorded on server
width	Picture width (set while publishing if 0)
height	Picture height (set while publishing if 0)
bitrate	Bitrate (will set while publishing if 0)
minBitrate	Minimum bitrate (no limits if 0)
maxBitrate	Maximum bitrate (no limits if 0)
quality	Stream quality
createDate	Creation date as integer
streamInfo	Additional stream information
mediaProvider	Publishing technology

unpublish

When stopping a stream publishing, messages exchange flow as follows:



1. Client sends unPublishStream message

```

{
  "message": "unPublishStream",
  "data": [
    {
      "mediaSessionId": "1d91ae20-fdb3-11e8-bddf-9b115426f01b",
      "name": "test",
      "published": true,
      "hasVideo": true,
      "hasAudio": true,
      "status": "PUBLISHING",
      "record": false
    }
  ]
}
  
```

Message parameters

Parameter	Description

Parameter	Description
mediaSessionId	WebRTC media session Id
name	Published stream name
published	Stream is published
hasVideo	Stream has video
hasAudio	Stream has audio
status	Stream status
record	Stream is recorded on server

2. Server stops publishing and sends `notifyStreamStatusEvent` message

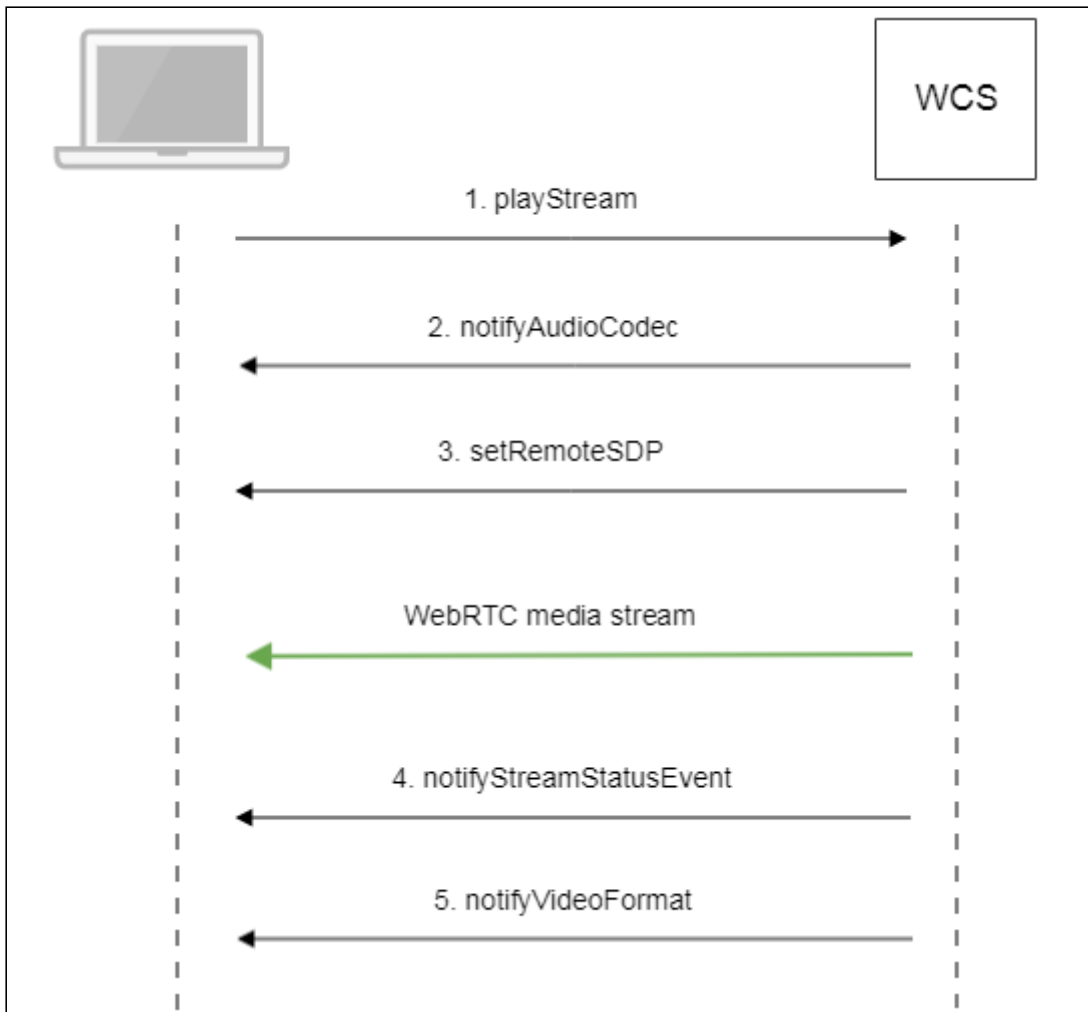
```
{
  "message": "notifyStreamStatusEvent",
  "data": [
    {
      "mediaSessionId": "1d91ae20-fdb3-11e8-bddf-9b115426f01b",
      "name": "test",
      "published": true,
      "hasVideo": true,
      "hasAudio": true,
      "status": "UNPUBLISHED",
      "audioCodec": "opus",
      "videoCodec": "H264",
      "info": "Stopped by publisher stop",
      "record": false,
      "width": 320,
      "height": 240,
      "bitrate": 0,
      "minBitrate": 0,
      "maxBitrate": 0,
      "quality": 0,
      "createDate": 1544580045898,
      "streamInfo": {
        "nodeId": null,
        "appKey": null,
        "sessionId": null,
        "mediaSessionId": "1d91ae20-fdb3-11e8-bddf-9b115426f01b",
        "name": "test",
        "samplingTime": null,
        "recordTimestamp": null,
        "recordStarted": false
      },
      "mediaProvider": "WebRTC"
    }
  ]
}
```

Message parameters

Parameter	Description
mediaSessionId	WebRTC media session Id
name	Published stream name
published	Stream is published
hasVideo	Stream has video
hasAudio	Stream has audio
status	Stream status
audioCodec	Audio codec
videoCodec	Video codec
record	Stream is recorded on server
width	Picture width (set while publishing if 0)
height	Picture height (set while publishing if 0)
bitrate	Bitrate (will set while publishing if 0)
minBitrate	Minimum bitrate (no limits if 0)
maxBitrate	Maximum bitrate (no limits if 0)
quality	Stream quality
createDate	Creation date as integer
streamInfo	Additional stream information
mediaProvider	Publishing technology

play

When playing a stream, messages exchange flow as follows:



1. Client sends `playStream` message

```

{
  "message": "playStream",
  "data": [
    {
      "mediaSessionId": "22588500-fdb3-11e8-bddf-9b115426f01b",
      "name": "test",
      "published": false,
      "hasVideo": true,
      "hasAudio": true,
      "status": "PENDING",
      "record": false,
      "width": 0,
      "height": 0,
      "mediaProvider": "WebRTC",
      "sdp": "v=0\r\no=- 6636414462219466101 2 IN IP4 127.0.0.1\r\ns=-\r\nnt=0 0\r\na=group:BUNDLE audio video\r\na=msid-semantic: WMS\r\nm=audio 9 UDP/TLS/RTP/SAVPF 111 103 104 9 0 8 106 105 13 110 112 113 126\r\nnc=IN IP4 0.0.0.0\r\na=rtcp:9 IN IP4 0.0.0.0\r\na=ice-ufrag:33IG\r\na=ice-pwd:R78vJJetyP2WeWpU6QWKGbJA\r\na=ice-options:trickle\r\na=fingerprint:sha-256 72:67:0A:92:8B:C2:CB:13:4E:7F:66:BB:AF:99:4A:0C:D9:C3:C1:3E:B9:B8:24:EB:2E:64:39
    }
  ]
}
  
```

```

urn:ietf:params:rtp-hdext:ssrc-audio-level\r\na=recvonly\r\na=rtcp-
mux\r\na=rtpmap:111 opus/48000/2\r\na=rtcp-fb:111 transport-cc\r\na=fmtp:111
minptime=10;useinbandfec=1\r\na=rtpmap:103 ISAC/16000\r\na=rtpmap:104
ISAC/32000\r\na=rtpmap:9 G722/8000\r\na=rtpmap:0 PCMU/8000\r\na=rtpmap:8
PCMA/8000\r\na=rtpmap:106 CN/32000\r\na=rtpmap:105 CN/16000\r\na=rtpmap:13
CN/8000\r\na=rtpmap:110 telephone-event/48000\r\na=rtpmap:112 telephone-
event/32000\r\na=rtpmap:113 telephone-event/16000\r\na=rtpmap:126 telephone-
event/8000\r\nnm=video 9 UDP/TLS/RTP/SAVPF 96 97 98 99 100 101 102 123 127 122
125 107 108 109 124\r\nnc=IN IP4 0.0.0.0\r\na=rtcp:9 IN IP4 0.0.0.0\r\na=ice-
ufrag:33IG\r\na=ice-pwd:R78vJJetyP2WeWpU6QWKGbJA\r\na=ice-
options:trickle\r\na=fingerprint:sha-256
72:67:0A:92:8B:C2:CB:13:4E:7F:66:BB:AF:99:4A:0C:D9:C3:C1:3E:B9:B8:24:EB:2E:64:39
urn:ietf:params:rtp-hdext:toffset\r\na=extmap:3
http://www.webrtc.org/experiments/rtp-hdext/abs-send-time\r\na=extmap:4
urn:3gpp:video-orientation\r\na=extmap:5 http://www.ietf.org/id/draft-holmer-
rmdat-transport-wide-cc-extensions-01\r\na=extmap:6
http://www.webrtc.org/experiments/rtp-hdext/payout-delay\r\na=extmap:7
http://www.webrtc.org/experiments/rtp-hdext/video-content-type\r\na=extmap:8
http://www.webrtc.org/experiments/rtp-hdext/video-timing\r\na=extmap:10
http://tools.ietf.org/html/draft-ietf-avtext-framemarking-
07\r\na=recvonly\r\na=rtcp-mux\r\na=rtcp-rsize\r\na=rtpmap:96
VP8/90000\r\na=rtcp-fb:96 goog-remb\r\na=rtcp-fb:96 transport-cc\r\na=rtcp-
fb:96 ccm fir\r\na=rtcp-fb:96 nack\r\na=rtcp-fb:96 nack pli\r\na=rtpmap:97
rtx/90000\r\na=fmtp:97 apt=96\r\na=rtpmap:98 VP9/90000\r\na=rtcp-fb:98 goog-
remb\r\na=rtcp-fb:98 transport-cc\r\na=rtcp-fb:98 ccm fir\r\na=rtcp-fb:98
nack\r\na=rtcp-fb:98 nack pli\r\na=fmtp:98 profile-id=0\r\na=rtpmap:99
rtx/90000\r\na=fmtp:99 apt=98\r\na=rtpmap:100 H264/90000\r\na=rtcp-fb:100
goog-remb\r\na=rtcp-fb:100 transport-cc\r\na=rtcp-fb:100 ccm fir\r\na=rtcp-
fb:100 nack\r\na=rtcp-fb:100 nack pli\r\na=fmtp:100 level-asymmetry-
allowed=1;packetization-mode=1;profile-level-id=42001f\r\na=rtpmap:101
rtx/90000\r\na=fmtp:101 apt=100\r\na=rtpmap:102 H264/90000\r\na=rtcp-fb:102
goog-remb\r\na=rtcp-fb:102 transport-cc\r\na=rtcp-fb:102 ccm fir\r\na=rtcp-
fb:102 nack\r\na=rtcp-fb:102 nack pli\r\na=fmtp:102 level-asymmetry-
allowed=1;packetization-mode=0;profile-level-id=42001f\r\na=rtpmap:123
rtx/90000\r\na=fmtp:123 apt=102\r\na=rtpmap:127 H264/90000\r\na=rtcp-fb:127
goog-remb\r\na=rtcp-fb:127 transport-cc\r\na=rtcp-fb:127 ccm fir\r\na=rtcp-
fb:127 nack\r\na=rtcp-fb:127 nack pli\r\na=fmtp:127 level-asymmetry-
allowed=1;packetization-mode=1;profile-level-id=42e01f\r\na=rtpmap:122
rtx/90000\r\na=fmtp:122 apt=127\r\na=rtpmap:125 H264/90000\r\na=rtcp-fb:125
goog-remb\r\na=rtcp-fb:125 transport-cc\r\na=rtcp-fb:125 ccm fir\r\na=rtcp-
fb:125 nack\r\na=rtcp-fb:125 nack pli\r\na=fmtp:125 level-asymmetry-
allowed=1;packetization-mode=0;profile-level-id=42e01f\r\na=rtpmap:107
rtx/90000\r\na=fmtp:107 apt=125\r\na=rtpmap:108 red/90000\r\na=rtpmap:109
rtx/90000\r\na=fmtp:109 apt=108\r\na=rtpmap:124 ulpfec/90000\r\n",
    "bitrate":0,
    "minBitrate":0,
    "maxBitrate":0,
    "quality":0
  }
]
}

```

Message parameters

Parameter	Description
-----------	-------------

Parameter	Description
mediaSessionId	WebRTC media session Id
name	Published stream name
published	Stream is published (ignored)
hasVideo	Stream has video
hasAudio	Stream has audio
status	Stream status
record	Stream is recorded on server (ignoring)
width	Picture width (play as published if 0)
height	Picture height (play as published if 0)
mediaProvider	Playback technology
sdp	Client SDP
bitrate	Bitrate (will set while playing if 0)
minBitrate	Minimum bitrate (no limits if 0)
maxBitrate	Maximum bitrate (no limits if 0)
quality	Stream quality (play as published if 0)

2. Server sends `notifyAudioCodec` message

```
{
  "message": "notifyAudioCodec",
  "data": [
    "22588500-fdb3-11e8-bddf-9b115426f01b",
    {
      "name": "opus"
    }
  ]
}
```

Message contains:

- WebRTC media session Id
- Stream audio codec name

3. Server sends `setRemoteSDP` message

```

{
  "message": "setRemoteSDP",
  "data":
  [
    "22588500-fdb3-11e8-bddf-9b115426f01b",
    "v=0\r\no=Flashphoner 0 1544580053583 IN IP4
188.40.244.249\r\ns=Flashphoner/1.0\r\nc=IN IP4 188.40.244.249\r\nt=0
0\r\nm=audio 31354 RTP/SAVPF 111 8 9\r\nc=IN IP4
188.40.244.249\r\na=mid:audio\r\na=rtpmap:111 opus/48000/2\r\na=rtpmap:8
PCMA/8000\r\na=rtpmap:9 G722/8000\r\na=ptime:20\r\na=ice-
pwd:1lbnmj56an4qr2airc0adreiede\r\na=ice-ufrag:22588500-fdb3-11e8-bddf-
9b115426f01bv7m1cug2aei5\r\na=fingerprint:SHA-256
33:7A:40:CF:1C:42:03:20:EE:E9:F9:95:24:2A:95:85:D6:25:A9:68:C6:CF:40:09:82:74:B4
1 udp 2130706431 188.40.244.249 31354 typ host\r\na=candidate:1 2 udp
2130706431 188.40.244.249 31354 typ host\r\na=end-of-candidates\r\na=rtcp-
mux\r\na=rtcp:31354 IN IP4 188.40.244.249\r\na=sendonly\r\na=ssrc:1734923542
cname:rtp/audio/22588500-fdb3-11e8-bddf-9b115426f01b\r\nm=video 31248
RTP/SAVPF 100 127 102 125 96\r\nc=IN IP4
188.40.244.249\r\na=mid:video\r\na=rtpmap:100 H264/90000\r\na=fmtp:100 level-
asymmetry-allowed=1;packetization-mode=1;profile-level-
id=42001f\r\na=rtpmap:127 H264/90000\r\na=fmtp:127 level-asymmetry-
allowed=1;packetization-mode=1;profile-level-id=42e01f\r\na=rtpmap:102
H264/90000\r\na=fmtp:102 level-asymmetry-allowed=1;packetization-
mode=0;profile-level-id=42001f\r\na=rtpmap:125 H264/90000\r\na=fmtp:125
level-asymmetry-allowed=1;packetization-mode=0;profile-level-
id=42e01f\r\na=rtpmap:96 VP8/90000\r\na=rtcp-fb:* ccm fir\r\na=rtcp-fb:*
nack\r\na=rtcp-fb:* nack pli\r\na=rtcp-fb:* goog-remb\r\na=ice-
pwd:1lbnmj56an4qr2airc0adreiede\r\na=ice-ufrag:22588500-fdb3-11e8-bddf-
9b115426f01bv7m1cug2aei5\r\na=fingerprint:SHA-256
33:7A:40:CF:1C:42:03:20:EE:E9:F9:95:24:2A:95:85:D6:25:A9:68:C6:CF:40:09:82:74:B4
1 udp 2130706431 188.40.244.249 31248 typ host\r\na=candidate:1 2 udp
2130706431 188.40.244.249 31248 typ host\r\na=end-of-candidates\r\na=rtcp-
mux\r\na=rtcp:31248 IN IP4 188.40.244.249\r\na=sendonly\r\na=ssrc:1329233369
cname:rtp/video/22588500-fdb3-11e8-bddf-9b115426f01b\r\n",
    true
  ]
}

```

Message contains:

- Media session Id
- Server SDP

3. When media data transmission is started, server sends `notifyStreamStatusEvent` message

```

{
  "message": "notifyStreamStatusEvent",
  "data":
  [
    {
      "mediaSessionId": "22588500-fdb3-11e8-bddf-9b115426f01b",
      "name": "test",
      "published": false,
      "hasVideo": true,
    }
  ]
}

```



```

    "hasAudio":true,
    "status":"PLAYING",
    "audioCodec":"opus",
    "videoCodec":"H264",
    "record":false,
    "width":0,
    "height":0,
    "bitrate":0,
    "minBitrate":0,
    "maxBitrate":0,
    "quality":0,
    "createDate":1544580053573,
    "streamInfo":
    {
        "nodeId":null,
        "appKey":null,
        "sessionId":null,
        "mediaSessionId":"22588500-fdb3-11e8-bddf-9b115426f01b",
        "name":"test",
        "samplingTime":null,
        "recordTimestamp":null,
        "recordStarted":false
    },
    "mediaProvider":"WebRTC"
}
]
}

```

Message parameters

Parameter	Description
mediaSessionId	WebRTC media session Id
name	Stream name to play
published	Stream is published
hasVideo	Stream has video
hasAudio	Stream has audio
status	Stream status
audioCodec	Audio codec
videoCodec	Video codec
record	Stream is recorded on server
width	Picture width (set while playing if 0)
height	Picture height (set while playing if 0)
bitrate	Bitrate (will set while playing if 0)

Parameter	Description
minBitrate	Minimum bitrate (no limits if 0)
maxBitrate	Maximum bitrate (no limits if 0)
quality	Stream quality
createDate	Creation date as integer
streamInfo	Additional stream information
mediaProvider	Publishing technology

4. Server sends `notifyVideoFormat` message

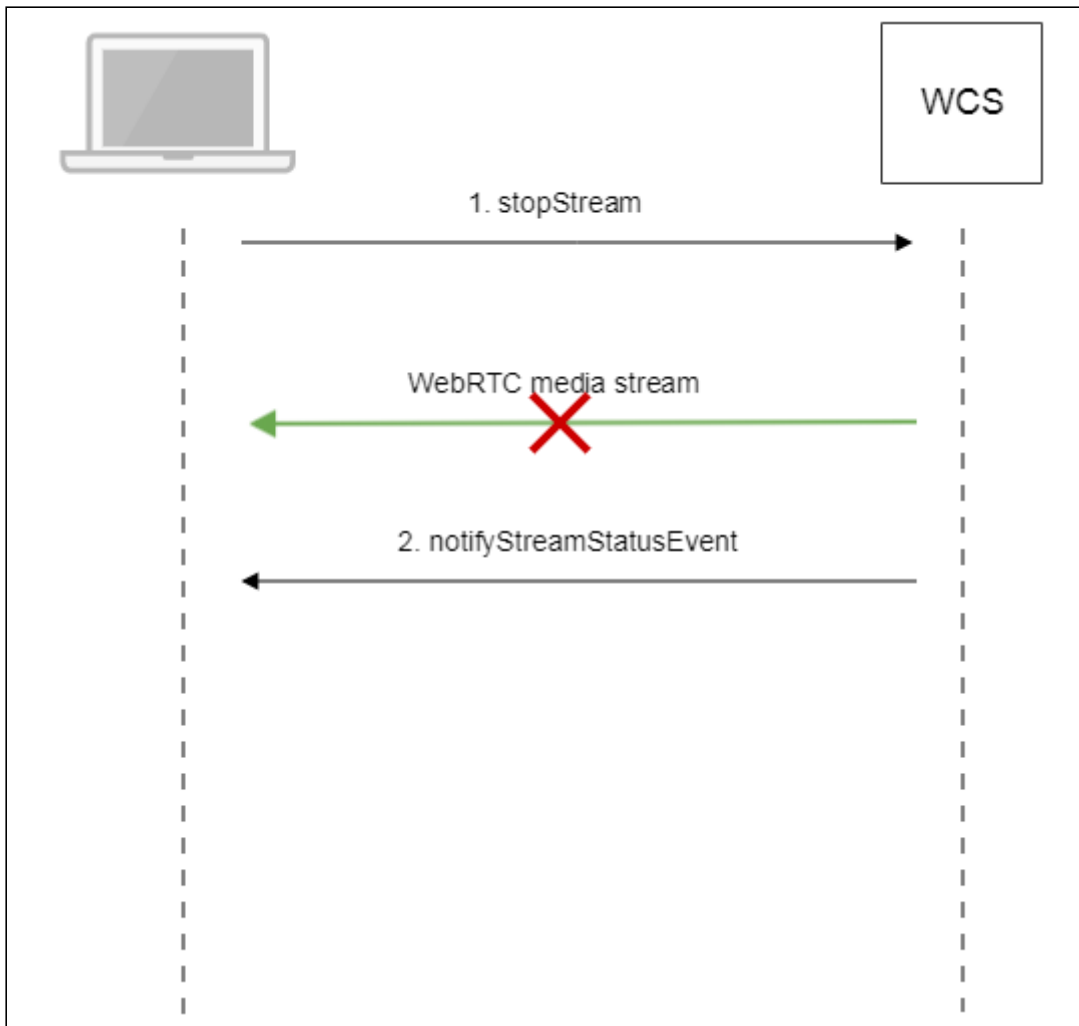
```
{
  "message": "notifyVideoFormat",
  "data": [
    {
      "streamerVideoWidth": 320,
      "streamerVideoHeight": 240,
      "mediaSessionId": "22588500-fdb3-11e8-bddf-9b115426f01b",
      "status": "RESIZE"
    }
  ]
}
```

Message parameters

Parameter	Description
streamerVideoWidth	Streamer picture width
streamerVideoHeight	Streamer picture height
mediaSessionId	WebRTC media session Id
status	Stream video status

stop

When stopping a stream playback, messages exchange flow as follows:



1. Client sends `stopStream` message

```

{
  "message": "stopStream",
  "data": [
    {
      "mediaSessionId": "22588500-fdb3-11e8-bddf-9b115426f01b",
      "name": "test",
      "published": false,
      "hasVideo": true,
      "hasAudio": true,
      "status": "PLAYING",
      "record": false
    }
  ]
}
  
```

Message parameters

Parameters	Description

Parameters	Description
mediaSessionId	WebRTC media session Id
name	Published stream name
published	Stream is published
hasVideo	Stream has video
hasAudio	Stream has audio
status	Stream status
record	Stream is recorded on server

2. Server stops playback and sends `notifyStreamStatusEvent` message

```
{
  "message": "notifyStreamStatusEvent",
  "data": [
    {
      "mediaSessionId": "22588500-fdb3-11e8-bddf-9b115426f01b",
      "name": "test",
      "published": false,
      "hasVideo": true,
      "hasAudio": true,
      "status": "STOPPED",
      "audioCodec": "opus",
      "videoCodec": "H264",
      "info": "Stopped by user",
      "record": false,
      "width": 320,
      "height": 240,
      "bitrate": 0,
      "minBitrate": 0,
      "maxBitrate": 0,
      "quality": 0,
      "createDate": 1544580053573,
      "streamInfo": {
        "nodeId": null,
        "appKey": null,
        "sessionId": null,
        "mediaSessionId": "22588500-fdb3-11e8-bddf-9b115426f01b",
        "name": "test",
        "samplingTime": null,
        "recordTimestamp": null,
        "recordStarted": false
      },
      "mediaProvider": "WebRTC"
    }
  ]
}
```

Messages parameters

Parameter	Description
mediaSessionId	WebRTC media session Id
name	Stream name to play
published	Stream is published
hasVideo	Stream has video
hasAudio	Stream has audio
status	Stream status
audioCodec	Audio codec
videoCodec	Video codec
info	Stream status text description
record	Stream is recorded on server
width	Picture width (set while playing if 0)
height	Picture height (set while playing if 0)
bitrate	Bitrate (will set while playing if 0)
minBitrate	Minimum bitrate (no limits if 0)
maxBitrate	Maximum bitrate (no limits if 0)
quality	Stream quality
createDate	Creation date as integer
streamInfo	Additional stream information
mediaProvider	Publishing technology

Publishing/playback stream metrics

Since build [5.2.576](#), main publishing/playback stream metrics were added to messages `inboundVideoRate`, `outboundVideoRate`, which are intended to [control publishing/playback channel quality](#):

```
{  
  "message": "inboundVideoRate",  
  "data":
```

```

[
  {
    "mediaSessionId": "a12145d0-7eee-11ea-9833-9da59e0cc100",
    "videoRate": 704856,
    "fps": 31,
    "nack": 0,
    "pli": 0,
    "lostPackets": 0,
    "width": 640,
    "height": 360
  }
]
}
{
  "message": "outboundVideoRate",
  "data":
  [
    {
      "mediaSessionId": "0040ed40-7eef-11ea-9833-9da59e0cc100",
      "videoRate": 685256,
      "fps": 30,
      "nack": 0,
      "pli": 13,
      "lostPackets": 0,
      "width": 640,
      "height": 360
    }
  ]
}

```

Messages parameters

Parameter	Description
mediaSessionId	WebRTC media session Id
videoRate	Video bitrate, bps
fps	FPS
nack	NACK packets count
pli	PLI queries count
lostPackets	Lost packets count
width	Picture width
height	Picture height

Stream availability checking

To check if a stream is available on the server, client should send `availableStream` message

```
[
  {
    "mediaSessionId": "2f693140-7d54-11eb-91fe-1fd0fb28f180",
    "name": "test"
  }
]
```

Message parameters

Parameter	Description
mediaSessionId	WebRTC media session Id
name	Stream name

The server will respond with `availableStream` message

```
[
  {
    "status": "false",
    "info": "Restricted access",
    "id": "2f693140-7d54-11eb-91fe-1fd0fb28f180"
  }
]
```

Message parameters

Parameter	Description
status	true if stream is available false if stream is not available
info	The unavailability reason phrase
id	WebRTC media session Id

The unavailability reason phrase is supported since build [5.2.911](#)

Attachments:

- [raw_websocket_api-stop.png](#) (image/png)
- [raw_websocket_api-play.png](#) (image/png)
- [raw_websocket_api-unpublish.png](#) (image/png)
- [raw_websocket_api-connect.png](#) (image/png)
- [raw_websocket_api-publish.png](#) (image/png)
- [ws_frames-browser.png](#) (image/png)