Taking a PNG snapshot of the stream

Overview

WCS provides a way to take a snapshot of the published stream using REST-queries as well as using JavaScript API.

Supported protocols

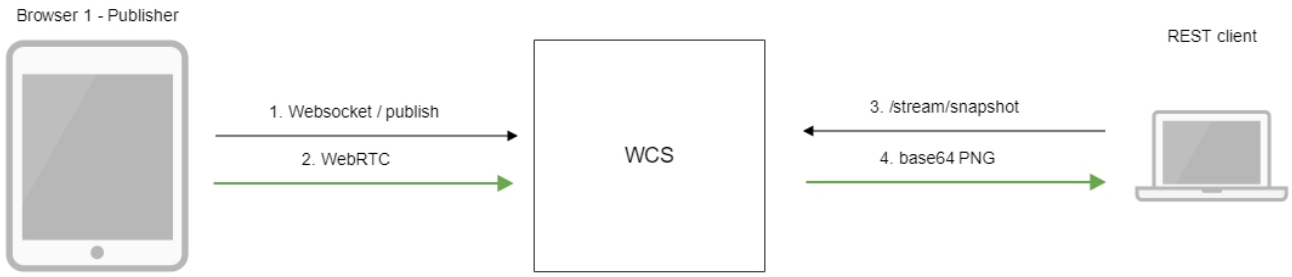
- WebRTC
- RTMP
- RTSP

Supported snapshot formats

- PNG

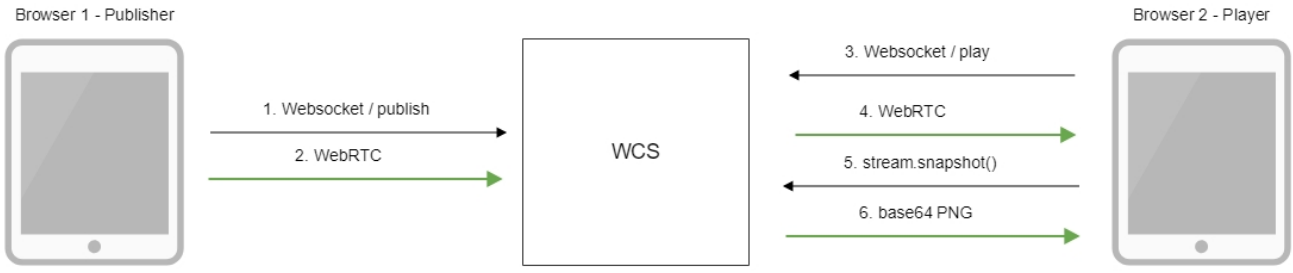
Operation flowchart

1: Using the REST query



1. The browser connects to the server via the Websocket protocol and sends the publish command.
2. The browser captures the microphone and the camera and sends the WebRTC stream to the server.
3. The REST client sends to the WCS the /stream/snapshot REST query.
4. The REST client receives a response with the base64-encoded snapshot of the stream.

2: Using JavaScript API



1. The browser connects to the server via the Websocket protocol and sends the publish command.
2. The browser captures the microphone and the camera and sends the WebRTC stream to the server.
3. The second browser establishes a connection also via Websocket and sends the play command.
4. The second browser receives the WebRTC stream and plays this stream on the page.
5. The second browser invokes stream.snapshot() to take a snapshot.
6. The second browser receives a response with the base64-encoded snapshot of the stream.

REST queries

WCS-server supports the/stream/snapshotREST method to take a snapshot:

A REST-query must be an HTTP/HTTPS POST request as follows:

- HTTP:http://streaming.flashphoner.com:8081/rest-api/stream/snapshot
- HTTPS:https://streaming.flashphoner.com:8444/rest-api/stream/snapshot

Here:

- streaming.flashphoner.com- is the address WCS server
- 8081 - is the standard REST / HTTP port of the WCS server
- 8444- is the standard HTTPS port
- rest-api- is the required part of the URL
- /stream/snapshot- is the REST method used

REST-methods and response statuses

<table>
<tr><th>REST-method</th><th>Example of the REST query</th><th>Example of the REST response body</th><th>Response statuses</th></tr>
<tr><td>/stream
/snapshot</td><td>{

"streamName" :
"64966f33"
}</td><td>{
"data":
"iVBORw0KGgoAAAANSUhEUgAAAUAAAADwCAYAAABxLb1rAAAACXBIWXMAAAAAAAAAAQCEeRdzAAAQAElE
QVR4nOzd95Pcd37feVjhrFKwXT6fr+r+gPvh6nx1V5bvLMt3liXbkiWtrF1v1O5qVxu4icucwUyABAMIA
gSIQOQcBzlnzAADDIDJuadzzjmH173f7+/302l6gO4GiCHIZtWjeqZnejAAu5
/9+XzD57tgwYIF6Ojo6PiSmvdfoKOjo2O+zPsv0NHR0TFf5v0X6Ojo6Jgv8
/4LdHR0dMyXef8FOjo6OubLvP8CHR0dHfNl3n+Bjo6Ojvky779AR0dHx3yZ91+go6OjY77M+y/Q0dHRMV
/m/Rfo6OjomC/z/gt0dHR0zJd5/wU6Ojo65su8
/wIdHR0d82Xef4GOjo6O+TLvv0BHR0fHfJn3X6Cjo6Njvsz7L9DR0dExX+b9F+jo6OiYL
/P+C3R0dHTMl3n/BTo6Ojrmy7z/Ah0dHR1t+Ue636rzGzr19Tv8jPn
/S3R0dHS04z4E8HfR0dHR8XD5DaGC94/rdALY0dHxBXafAlj/wI6OjofPb7foXh
//edcJYEfHl4gaCd0tDPXf0+rjHxbNT4F/6/fR0dHxkPsNnhb+DvnNO7zYf1P7nt/8vTYf/3nzj8hvk
/+B/GPt76DIfey3dHP8jN/8g/8JHR0dD7d/9Hv/Ixb87j/Hgt/5ZzSt+6dY8D/8Eyz47T+o4Pv4a/Q9v
/H7/6L1x3+e8O+m/134d/+tf/Iv8dv/9H/G7/zz/6Xs9/7ZvxS//8/+hfiDP/gD/P7v/z5+7/d+D7
/7u7+L3/md3xELVl6PoaOj4"
}</td><td>200 - Snapshot is taken

404 - Stream not found

500 - Snapshot taking error</td></tr>
</table>

Parameters

Parameter name	Description	Example
streamName	Unique stream name	64966f33
data	Snapshot file encoded to base64	iVBORw0KGgoAAAANSUhEUgAAAUAAAADwCAYAAABxLb1rAAAACXBIWXMAAAAAAAAAAQCEeRdzAAAQA

Sending the REST query to the WCS server

To send the REST query to the WCS server you need to use aREST-client.

Configuration

Since build 5.2.1116, a maximum snapshot taking duration, including a possible server disk I/O delay, may be configured when taking snapshot via REST API. By default, maximum duration is set to 3000 ms, and 30 checks if snapshot file is ready will be performed during this interval

```
snapshot_taking_interval_ms=3000
snapshot_taking_attempts=30
```

If the snapshot file is not ready, and the interval is expired, /stream/snapshot request will return the following error

```
{
  "exception": "com.flashphoner.rest.server.exception.InternalErrorException",
  "reason": "com.flashphoner.rest.server.exception.InternalErrorException, Internal Server Error, Snapshot
response timeout, ts: 1640836780816, path: /rest-api/stream/snapshot",
  "path": "/rest-api/stream/snapshot",
  "error": "Internal Server Error",
  "message": "Snapshot response timeout",
  "timestamp": 1640836780816,
  "status": 500
}
```

JavaScript API

The snapshot method of the Stream object in WebSDK is intended to take stream snapshots. Example of use of this method can be found in the Stream Snapshot web applications that publishes a stream and take a snapshot.

stream-snapshot.html

stream-snapshot.js

1. Creating a new stream from the published stream

code:

```
function snapshot(name) {
    setSnapshotStatus();
    var session = Flashphoner.getSessions()[0];
    session.createStream({name: name}).on(STREAM_STATUS.SNAPSHOT_COMPLETE, function(stream){
    ...
}
```

2. Invoking the snapshot() method

code:

```
function snapshot(name) {
    setSnapshotStatus();
    var session = Flashphoner.getSessions()[0];
    session.createStream({name: name}).on(STREAM_STATUS.SNAPSHOT_COMPLETE, function(stream){
        ...
    }).snapshot();
}
```

3. Upon receiving the SNAPSHOT_COMPLETE event, the stream.getInfo() function returns the base64 encoded snapshot

code:

```
function snapshot(name) {
    setSnapshotStatus();
    var session = Flashphoner.getSessions()[0];
    session.createStream({name: name}).on(STREAM_STATUS.SNAPSHOT_COMPLETE, function(stream){
        console.log("Snapshot complete");
        setSnapshotStatus(STREAM_STATUS.SNAPSHOT_COMPLETE);
        snapshotImg.src = ""+stream.getInfo();
        ...
}
```

4. The stream stops

code:

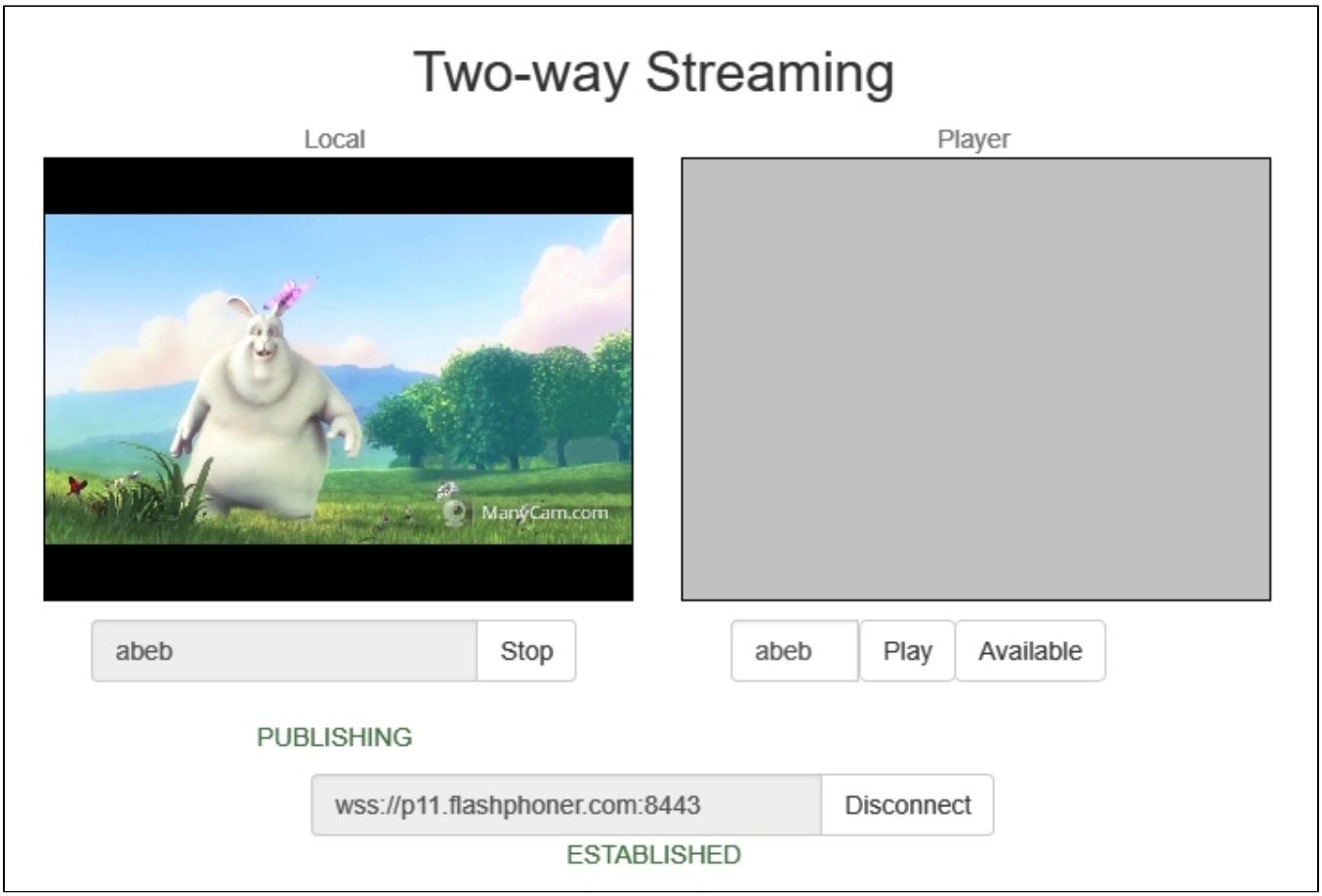
```
function snapshot(name) {
    setSnapshotStatus();
    var session = Flashphoner.getSessions()[0];
    session.createStream({name: name}).on(STREAM_STATUS.SNAPSHOT_COMPLETE, function(stream){
        ...
        stream.stop();
    }).on(STREAM_STATUS.FAILED, function(stream){
        setSnapshotStatus(STREAM_STATUS.FAILED);
        console.log("Snapshot failed, info: " + stream.getInfo());
    }).snapshot();
}
```

Quick manual on testing

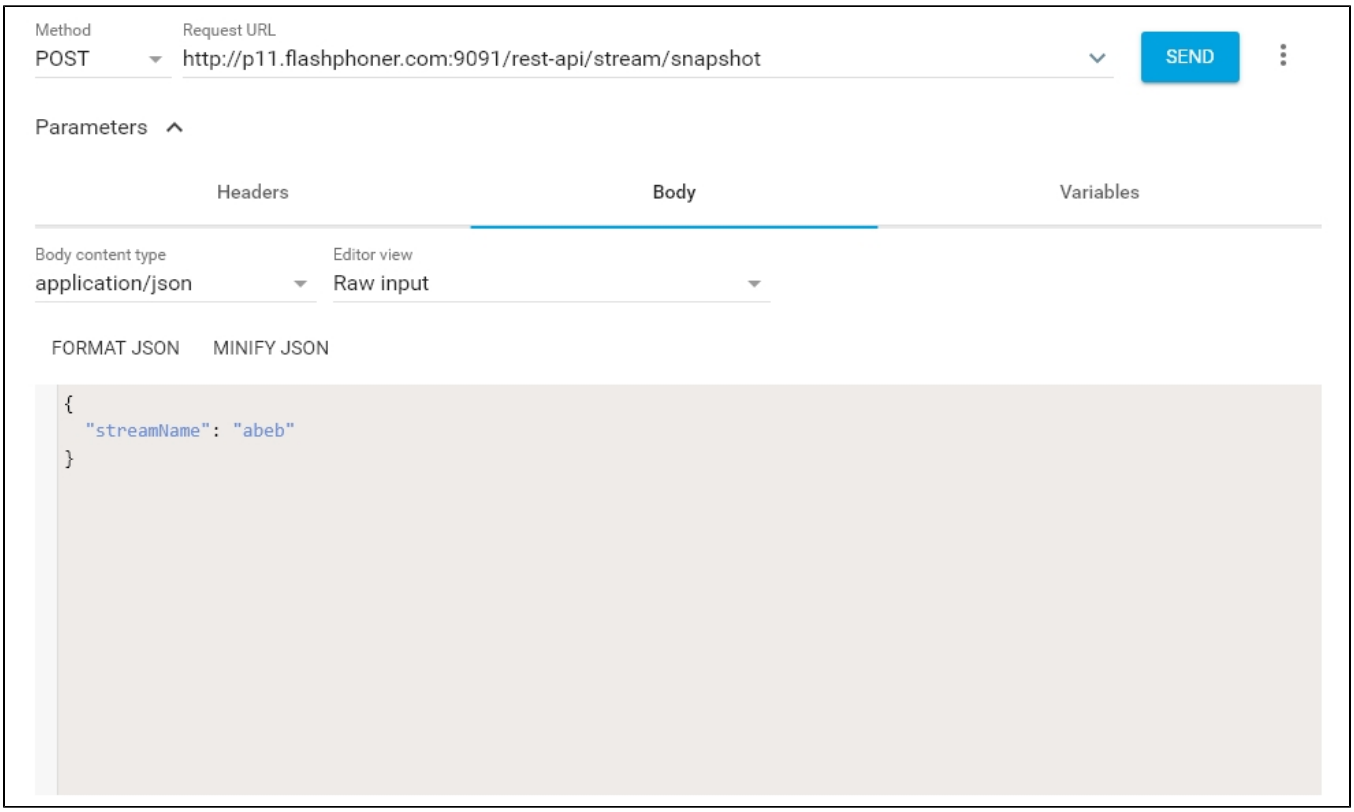
1. For the test we use:

- the demo server at demo.flashphoner.com;
- the Chrome browser and theREST-clientto send queries to the server;
- theTwo Way Streamingweb application to publish the stream;
- thehttps://www.motobit.com/util/base64-decoder-encoder.aspservice to decode the snapshot.

2. Open the page of the Two Way Streaming application. Click "Connect", then click "Publish" to publish the stream:



3. Open the REST-client. Send the /stream/snapshot query and pass the name of the published stream in parameters:



4. Make sure the response is received:

5. Open the online decoder and copy the response content to the form, then click "Convert the source data":

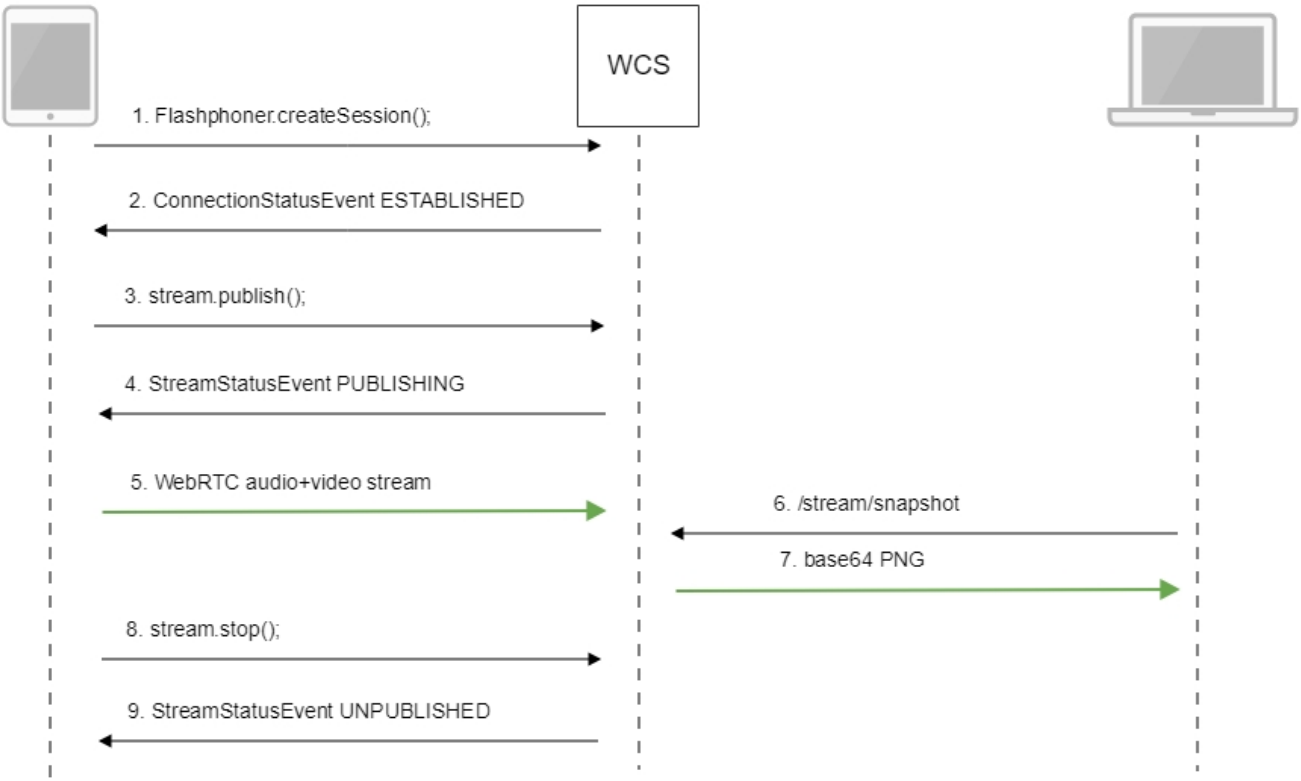
6. Here is the snapshot we have received:

Call flow

Below is the call flow when using the Stream Snapshot example to publish the stream and take a snapshot

stream-snapshot.html

stream-snapshot.js



1. Establishing a connection to the server.

Flashphoner.createSession();code

```
        Flashphoner.createSession({urlServer: url}).on(SESSION_STATUS.ESTABLISHED, function(session){
            ...
        });
```

2. Receiving from the server and event confirming successful connection.

ConnectionStatusEvent ESTABLISHEDcode

```
        Flashphoner.createSession({urlServer: url}).on(SESSION_STATUS.ESTABLISHED, function(session){
            //session connected, start streaming
            startStreaming(session);
        }).on(SESSION_STATUS.DISCONNECTED, function(){
            ...
        }).on(SESSION_STATUS.FAILED, function(){
            ...
        });
```

3. Publishing the stream.

stream.publish();code

```
    session.createStream({
        name: streamName,
        display: localVideo,
        cacheLocalResources: true,
        receiveVideo: false,
        receiveAudio: false
        ...
    }).publish();
```

4. Receiving from the server an event confirming successful publishing of the stream.

StreamStatusEvent, status PUBLISHINGcode

```
     session.createStream({
        name: streamName,
        display: localVideo,
        cacheLocalResources: true,
        receiveVideo: false,
        receiveAudio: false
    }).on(STREAM_STATUS.PUBLISHING, function(publishStream){
        setStatus(STREAM_STATUS.PUBLISHING);
        onPublishing(publishStream);
    }).on(STREAM_STATUS.UNPUBLISHED, function(){
        ...
    }).on(STREAM_STATUS.FAILED, function(stream){
        ...
    }).publish();
```

5. Sending the audio and video stream via WebRTC

6. Taking a snapshot of the broadcast. A new stream is created from the published one specially to take a snapshot.

stream.snapshot();code

```
function snapshot(name) {
    setSnapshotStatus();
    var session = Flashphoner.getSessions()[0];
    session.createStream({name: name}).on(STREAM_STATUS.SNAPSHOT_COMPLETE, function(stream){
        console.log("Snapshot complete");
        setSnapshotStatus(STREAM_STATUS.SNAPSHOT_COMPLETE);
        snapshotImg.src = ""+stream.getInfo();
        //remove failed callback
        stream.on(STREAM_STATUS.FAILED, function(){});
        //release stream object
        stream.stop();
    }).on(STREAM_STATUS.FAILED, function(stream){
        setSnapshotStatus(STREAM_STATUS.FAILED);
        console.log("Snapshot failed, info: " + stream.getInfo());
    }).snapshot();
}
```

7. Stopping publishing the stream.

stream.stop();code

```
function onPublishing(stream) {
    $("#publishBtn").text("Stop").off('click').click(function(){
        $(this).prop('disabled', true);
        stream.stop();
    }).prop('disabled', false);
    ...
}
```

8. Receiving from the server an event confirming unpublishing the stream.

StreamStatusEvent, status UNPUBLISHEDcode

```
     session.createStream({
        name: streamName,
        display: localVideo,
        cacheLocalResources: true,
        receiveVideo: false,
        receiveAudio: false
    }).on(STREAM_STATUS.PUBLISHING, function(publishStream){
        ...
    }).on(STREAM_STATUS.UNPUBLISHED, function(){
        setStatus(STREAM_STATUS.UNPUBLISHED);
        //enable start button
        onUnpublished();
    }).on(STREAM_STATUS.FAILED, function(stream){
        ...
    }).publish();
```

Automatic stream snapshot taking

If necessary, snapshots for every stream published of supported format can be taken automatically. This feature can be enabled with the following parameter inflashphoner.propertiesfile

```
snapshot_auto_enabled=true
```

Snapshot pictures placement can be set with the following parameter

```
snapshot_auto_dir=/usr/local/FlashphonerWebCallServer/snapshots
```

In this folder, subfolder will be created for every stream. The subfolders name is formed from stream mediasession identifier (by default_

```
snapshot_auto_naming=mediaSessionId
```

or stream name

```
snapshot_auto_naming=streamName
```

Snapshot pictures areconsistently numbered and are created periodically with the following setting

```
snapshot_auto_rate=30
```

In this case, snapshot will be created from every 30 frame.

To save disk space, snspshot pictures amount can be limited using the following parameter

```
snapshot_auto_retention=20
```

In this case, last 20 snapshot pictures will be stored in stream subfolder.

Snapshot pictures numeration will be continued if stream with same name is published.