Stream transcoding

The cases when transcoding is enabled

Video stream transcoding will be enabled automatically in one of the following cases:

1. Streamer and player codecs do not match by name.
For example, streamer publishes H.264 stream and player tries to play VP8.

2. H.264 codecs are differ by packetization-mode parameter
For example, streamer publishes stream with packetization-mode=1 (default value) and player explicitly sets packetization-mode=0.The situation is quite rare, because almost all players support packetization-mode=1

3. Player resolution is explicitly set.
Example:

```
session.createStream({name:"stream1", constraints:{audio:true, video:{width:640,height:480}}}).play();
```

If the player explicitly sets the resolution desired, transcoding will be enabled even when the player resolution exactly matches the publisher one. This is done because WebRTC browser can change video resolution while publishing stream. To adapt the stream to the resolution that is specified by player, the stream should be transcoded.

4. Player bitrate is explicitly set.

Example

```
session.createStream({name:"stream1", constraints:{audio:true, video:{bitrate:300}}}).play();
```

In this case transcoder will be enabled to encode the stream to the bitrate specified.

Besides, transcoding can be forcibly enabled on server using this parameter in flashphoner.properties file

```
disable_streaming_proxy=true
```

Transcoding dramatically increases the server resources consumption (CPU cores). Therefore, use it carefully!

Force transcoding disabling

Transcoding may be fully disabled on serverusing this parameter inflashphoner.propertiesfile

```
transcoding_disabled=true
```

If trascoding is forcefully disabled, in all four cases described above the TRANSCODING_REQUIRED_BUT_DISABLEDerror will be returned to client.

Transcoding disabling does not affects stream mixer, transcoding will be enabled automatically when mixer is used.

Transcoding management with REST API

REST query should be HTTP/HTTPS POST request as:

- HTTP:http://test.flashphoner.com:8081/rest-api/transcoder/startup
- HTTPS:https://test.flashphoner.com:8444/rest-api/transcoder/startup

Where:

- test.flashphoner.com is WCS server address
- 8081 is a standard REST / HTTP port of WCS server
- 8444 is a standardHTTPS port
- rest-api is mandatory URL prefix
- /transcoder/startup is REST query

REST queries and response states

REST query	Request example	Response example	Response states	Description

/transcoder /startup	<pre>{
	"uri": "transcoder://tcode1",
	
	"remoteStreamName": "test",
	
	"localStreamName": "testT",
	"encoder": {
	"width": 640,
	"height": 480,
	
	"keyFrameInterval": 30,
	"fps": 30
	}
	}</pre>
			409 - Conflict
			
			500 - Internal error
				Create transcoder with defined parameters for certain stream

/transcoder /find	<pre>{
	
	"remoteStreamName": "test"
	}</pre>
		<pre>[
		{
		"localMediaSessionId": "42a92132-bcd1-4436-a96f-3fec36b32b37",
		"localStreamName": "testT",
		"remoteStreamName": "test",
		"uri": "transcoder://tcode1",
		"status": "PROCESSED_LOCAL",
		"hasAudio": true,
		"hasVideo": true,
		"record": false,
		"encoder": {
		"width": 640,
		"height": 480,
		"keyFrameInterval": 30,
		"fps": 30
		}
		}
		]</pre>
			200 – Transcoders found
			
			404 – Transcoders not found
				Find the transcoder by certain criteria

/transcoder /find_all		<pre>[
		    {
		        "localMediaSessionId": "42a92132-bcd1-4436-a96f-3fec36b32b37",
		        "localStreamName": "testT",
		        "remoteStreamName": "test",
		        "uri": "transcoder://tcode1",
		        "status": "PROCESSED_LOCAL",
		        "hasAudio": true,
		        "hasVideo": true,
		        "record": false,
		        "encoder": {
		            "width": 640,
		            "height": 480,
		            "keyFrameInterval": 30,
		            "fps": 30
		        }
		    }
		]</pre>
			200 – Transcoders found
			
			404 – Transcoders not found
				Find all transcoders

/transcoder /terminate	<pre>{
	"uri":"
	transcoder://tco
	de1"
	}</pre>
			200 - Transcoders is terminated
			
			404 - Transcoder not found
				Stop transcoder and its output stream

Parameters

Name	Description	Example
uri	Transcoder URL	`transcoder://tcode1`
localStreamName	Transcoder output stream name	`testT`
remoteStreamName	Stream name to transcode	`test`
localMediaSessionId	Transcoder media session Id	`42a92132-bcd1-4436-a96f-3fec36b32b37`
status	Transcoder state	`PROCESSED_LOCAL`
hasAudio	Output stream has audio	`true`
hasVideo	Output stream has video	`true`
record	Output stream is recorded	`false`
Параметры кодирования		
width	Picture width	`640`
height	Picture height	`480`
keyFrameInterval	Key frame generation interval (GOP)	`30`
fps	Frames per second	`30`

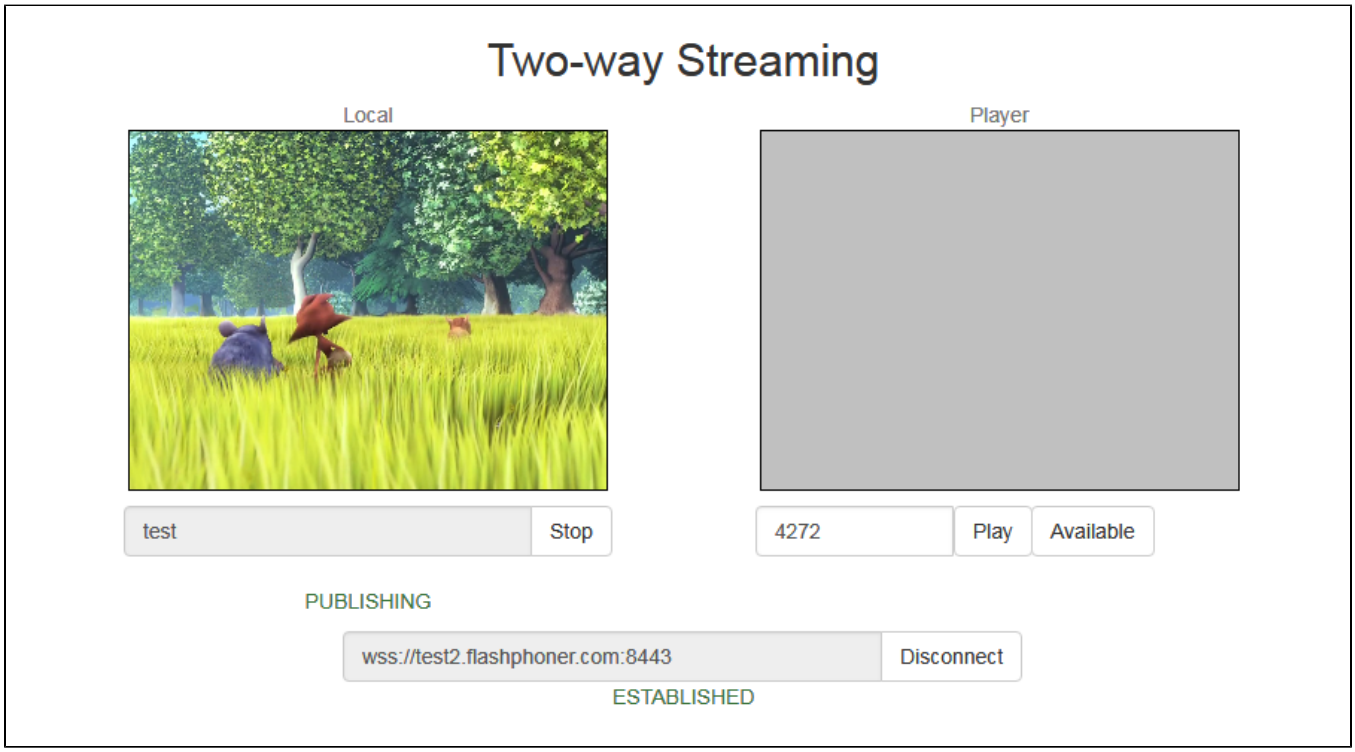
bitrate	Bitrate, in kbps	`500`
type	Codec	`OPENH264`

Quick manual for testing

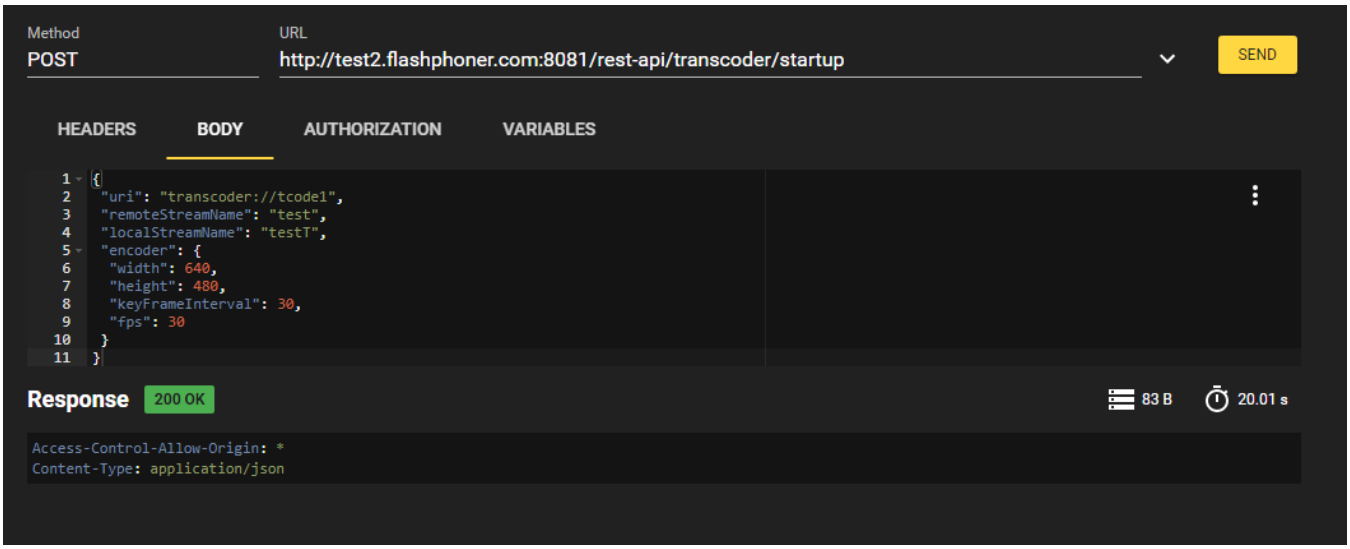
1. For test we use

- WCS server;
- Two Way Streamingweb application to publish a stream;
- Player web application to play an output stream;
- Chrome browser withREST clientto send REST queries to server

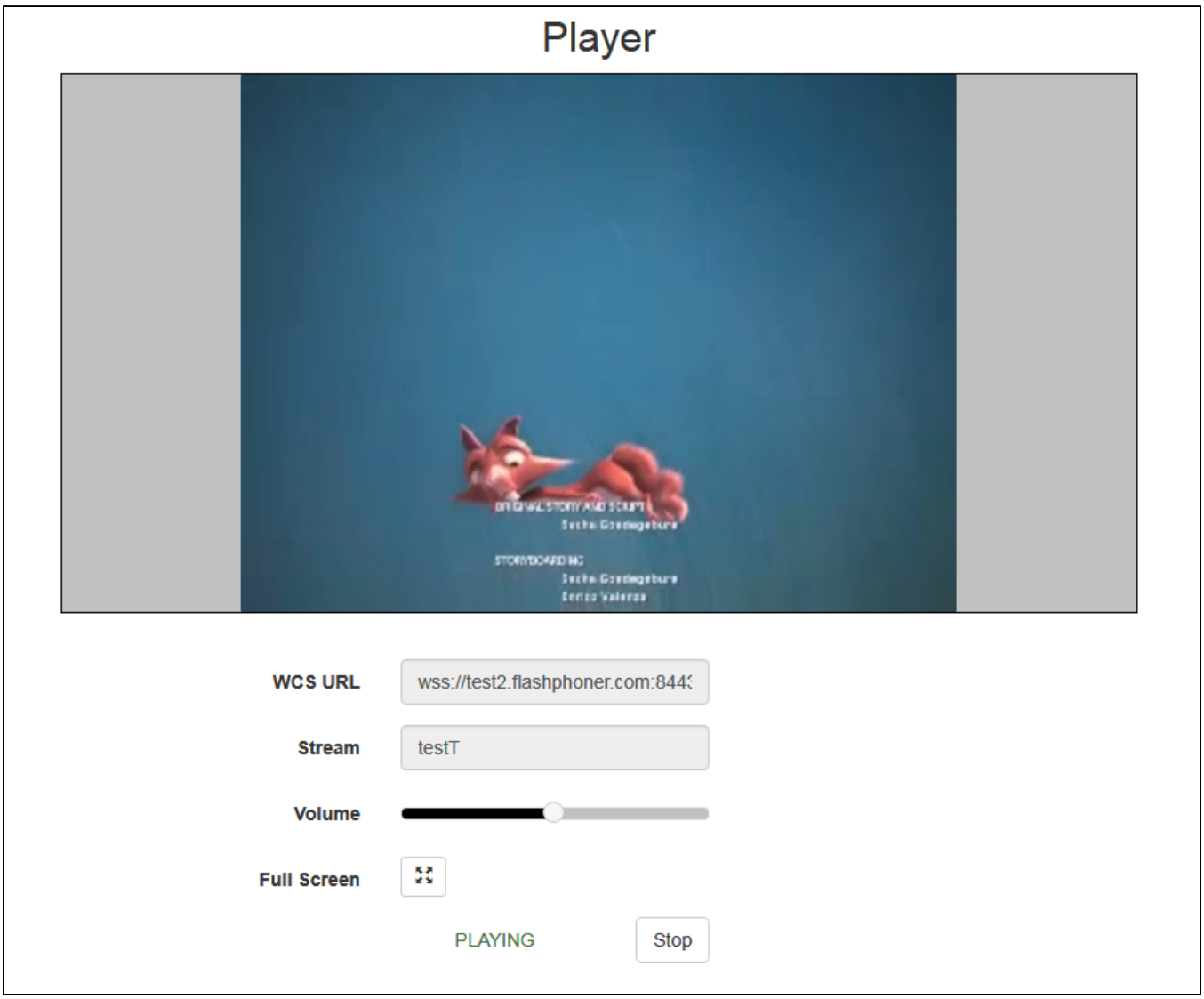
2. Open Two Way Streaming application and publish stream named test



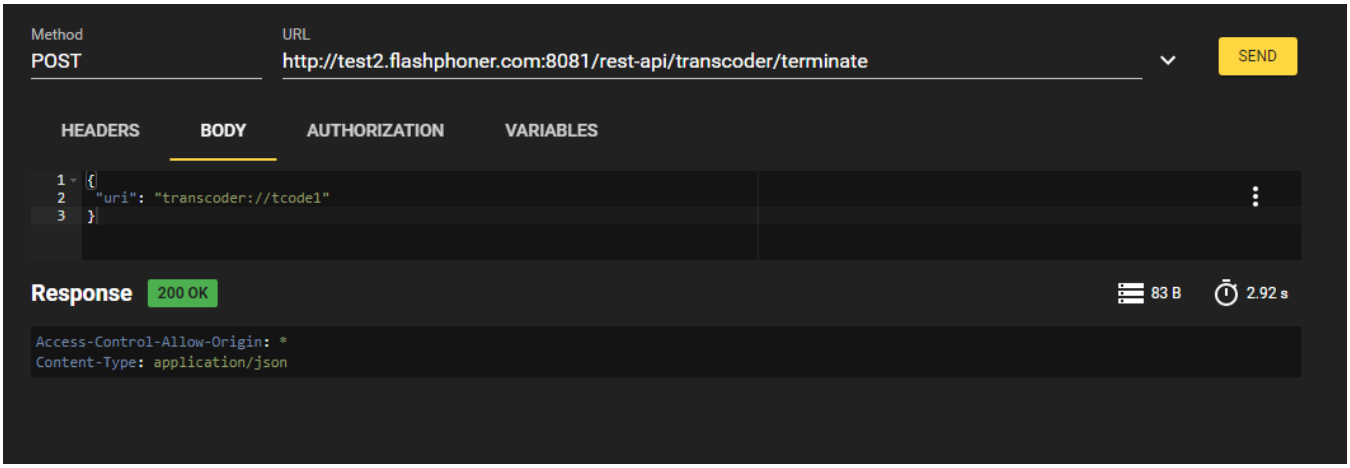
3. Open REST client and send REST query /transcoder/startup



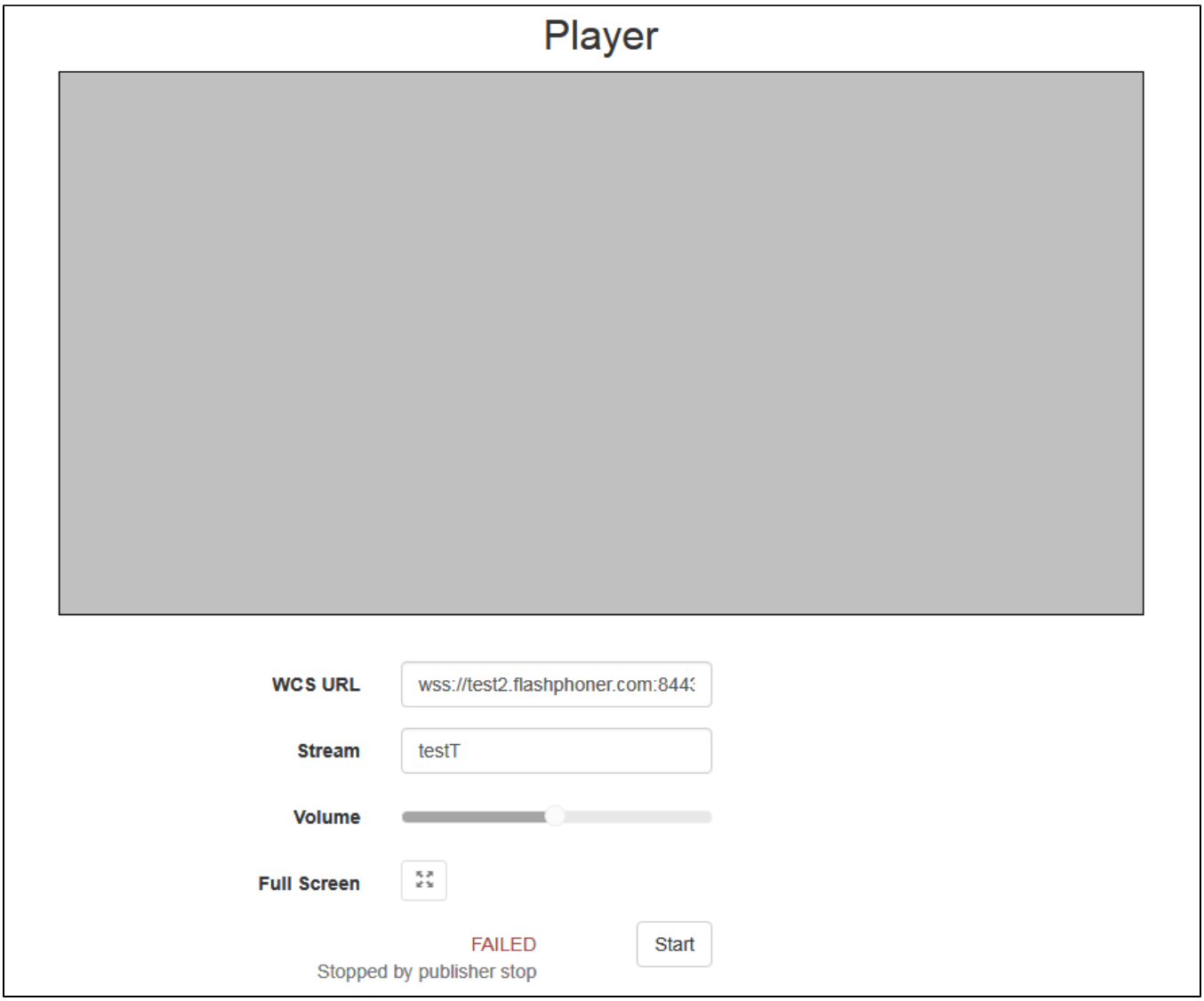
4. Open Player application, set testT to Stream field and click Start



5.Open REST client adn send REST query /transcoder/terminate



6. Playback will be stopped due to transcoder stop


Player
WCS URL
wss://test2.flashphoner.com:844
Stream
testT
Volume
Full Screen
FAILED
Stopped by publisher stop
Start