

# Introducing Streamhub Player Log Tester SDK

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v1.0.0

## Overview

The Streamhub Player Log Tester is an SDK tool that allows you to validate player logs collected from your video player plugins. The tool is implemented as a set of rules with each rule validating a specific aspect of the logs. For example, one rule could be "all logs should contain property 'X'".

The tool reads a text file with one HTTP request per line, and validates each line against the set of rules. If a line fails to satisfy one or more rules, an error message is printed to the console. If all lines pass validation, a success message is printed.

The tool also print a summary analysis of the player logs to the console with general metrics and corresponding value.

Below is a screenshot showing a (truncated) view of the console output.

```
Metric      Value
-----
Number of Logs      19
Number of Sessions  1
Sessions            86E28439-4C9F-4353-8E40-CF985EC0A07D
Ad Breaks per Session
Events per Session  86E28439-4C9F-4353-8E40-CF985EC0A07D: ('media_loaded', 1)
                   86E28439-4C9F-4353-8E40-CF985EC0A07D: ('prebuffering', 1)
                   86E28439-4C9F-4353-8E40-CF985EC0A07D: ('player_start', 1)
                   86E28439-4C9F-4353-8E40-CF985EC0A07D: ('media_metadata', 1)
                   86E28439-4C9F-4353-8E40-CF985EC0A07D: ('completion', 2)
                   86E28439-4C9F-4353-8E40-CF985EC0A07D: ('buffering', 5)

Executing rules in order

1) check that the publicId, partnerId, analyticsId, advertisingId, agent are never empty.
🔥

2) checking correctness of `startTime`.
Within the first minute of playback, the startTime should be a multiple of 5.0/60.0 (0, 0.08333333333, ...).
After the first minute of playback, the startTime should be a natural number (1, 2, ...)
❌ ERROR: if start_time is less than 1, it should be a multiple of 5 when multiplied by 60 (value: 0.40 | multiplied by 60: 24) at line 19

3) checking correctness of `completionRate`.
The values can be one of {1, 25, 50, 75, 95}
🔥

4) checking correctness of `percentile` for the advertisement API.
The percentile values can be one of {0, 25, 50, 75, 100}
🔥
```

# Installation

For customers and third-party integrators, we provide a Docker image available on the public AWS ECR registry at <https://gallery.ecr.aws/t2b0e0k4/streamhub-log-tester>. You can pull the image using the following command:

```
docker pull public.ecr.aws/t2b0e0k4/streamhub-log-tester
```

## Usage

First, you need to collect the logs that requires validation into a text file. The file should contain 1 log per line. Below is an example of such a file

```
https://stats.streamhub.io/api/playerevent/?publicId=X&startTime=0.0&sessionId=XY&partnerId=kaltura&bitrate=&isLive=false&&playerId=B&agent=&refUrl=&locationUrl=&randomSessionKey=YD&analyticsId=impresa-test-analytics-id&userId=ABC&advertisingId=0000&event=media_loaded
https://stats.streamhub.io/api/advertisement/?userId=ABC&randomSessionKey=YD&event=completion&parentPublicId=X&percentile=0&partnerId=kaltura&advertisingId=0000&playerId=B&agent=AAAA&publicId=697203496&analyticsId=impresa-test-analytics-id&sessionId=XY
```

Then, to validate player logs using the Docker image, run the following command using the correct path to your player logs.

```
docker run -v ./samples/some-customer.prod.log:/logs
streamhub-log-tester:latest /logs
```

With the `-v` argument, you can mount a local file and make it available to the app running inside the Docker container.

From the directory you are in, provide the path to the log file that contains your streamhub requests. In our example, we want to validate the logs contained in `./samples/some-customer.prod.log` and make them available to the app within Docker at the virtual path `/logs` so the argument is `./samples/some-customer.prod.log:/logs` (note the `:` that separates the physical local path and the virtual one)

Please note that, on some machines, an absolute path will be required for the `-v` argument. If that's the case, executing the above command will print an error

... includes invalid characters for a local volume name, only "[a-zA-Z0-9][a-zA-Z0-9\_.-]" are allowed. If you intended to pass a host directory, use absolute path.

If that happens, just do as suggested and pass the absolute path to the log file instead of the relative one.

```
.
├── ...
├── ...
├── ...
├── samples
│   ├── some-customer.prod.log
│   └── other-customer
│       ├── android.log
│       └── ios.log
```

## Rules

There are 13 rules implemented for validation. They execute in order.

The table below present each rule.

1	check that the publicId, partnerId, analyticsId, advertisingId, agent are never empty.
2	checking correctness of `startTime`. Within the first minute of playback, the startTime should be a multiple of 5.0/60.0 (0, 0.08333333333, ...). After the first minute of playback, the startTime should be a natural number (1, 2, ...)
3	checking correctness of `completionRate`. The values can be one of {1, 25, 50, 75, 95}
4	checking correctness of `percentile` for the advertisement API. The percentile values can be one of {0, 25, 50, 75, 100}
5	a playevent log should contain an `event` parameter. The event should be one of 'media_metadata', 'media_loaded', 'prebuffering', 'player_start', 'buffering', 'player_play_completed', 'completion'.
6	`bufferingTime` can not be a negative number.
7	checking correctness of the endpoint url.
8	checking correctness of the `isLive` parameter. It should be a boolean value.

9	checking the value for the `partnerId` parameter is registered in our system.
10	a `media_metadata` playevent log should contain `title` and `duration` properties.
11	a `buffering` or `prebuffering` playevent log should contain a `bufferingTime` property.
12	a `completion` playevent log should contain a `completionRate` property.
13	checking intra-session consistency.

To illustrate, let's consider the following log file

```

https://stats.streamhub.io/api/playerevent/?publicId=X&startTime=0.0&sessionId=XY&partnerId=kaltura&bitrate=&isLive=false&&playerId=B&agent=&refUrl=&locationUrl=&randomSessionKey=YD&analyticsId=impresa-test-analytics-id&userId=ABC&advertisingId=0000&event=media_loaded
https://stats.streamhub.io/api/advertisement/?userId=ABC&randomSessionKey=YD&event=completion&parentPublicId=X&percentile=0&partnerId=kaltura&advertisingId=0000&playerId=B&agent=AAAA&publicId=697203496&analyticsId=impresa-test-analytics-id&sessionId=XY
https://stats.streamhub.io/api/playerevent/?advertisingId=0000&bufferingTime=0&analyticsId=impresa-test-analytics-id&publicId=X&playerId=B&randomSessionKey=YD&agent=AAAA&bitrate=&isLive=false&startTime=0.0&sessionId=XY&userId=ABC&partnerId=kaltura&&locationUrl=&event=prebuffering&refUrl=https://stats.streamhub.io/api/advertisement/?event=completion&partnerId=kaltura&playerId=B&userId=ABC&publicId=697203496&advertisingId=0000&parentPublicId=X&agent=AAAA&analyticsId=impresa-test-analytics-id&randomSessionKey=YD&sessionId=XY&percentile=25
https://stats.streamhub.io/api/advertisement/?userId=ABC&sessionId=XY&advertisingId=0000&percentile=50&randomSessionKey=YD&agent=AAAA&publicId=697203496&playerId=B&parentPublicId=X&event=completion&partnerId=kaltura&analyticsId=impresa-test-analytics-id
https://stats.streamhub.io/api/advertisement/?publicId=697203496&event=completion&partnerId=kaltura&percentile=75&advertisingId=0000&randomSessionKey=YD&sessionId=XY&analyticsId=impresa-test-analytics-id&agent=AAAA&userId=ABC&parentPublicId=X&playerId=B
https://stats.streamhub.io/api/advertisement/?sessionId=XY&advertisingId=0000&parentPublicId=X&playerId=B&userId=ABC&partnerId=kaltura&agent=AAAA&publicId=697203496&randomSessionKey=YD&percentile=100&analyticsId=impresa-test-analytics-id&event=completion
https://stats.streamhub.io/api/player/?refUrl=&partnerId=kaltura&advertisingId=0000&locationUrl=&analyticsId=impresa-test-analytics-id&bitrate=&startTime=0.40&publicId=X&isLive=false&playerId=B&agent=AAAA&sessionId=XY&userId=ABC&&randomSessionKey=YD

```

In the example above, the logs list contains 7 log lines. The last log line does not satisfy the condition for a player log and contains an invalid `startTime` property. Therefore, the rule 2 function generates an error message for the 7th log line and returns that error message.

```
2) checking correctness of `startTime`.
Within the first minute of playback, the startTime should be a
multiple of 5.0/60.0 (0, 0.08333333333, ...).
After the first minute of playback, the startTime should be a natural
number (1, 2, ...)
```

```
✘ ERROR: if start_time is less than 1, it should be a multiple of 5
when multiplied by 60 (value: 0.40 | multiplied by 60: 24) at line 19
```

## Stats

The SDK tool also provides a summary of several important metrics that can be used to gain insights into the logs. The metrics include:

- The number of logs
- The number of sessions
- The identifiers of the sessions
- The number of ad breaks per session
- The name and cardinality of player events per session

By looking at these metrics, users can identify potential issues in their video player plugins.

Metric	Value
Number of Logs	19
Number of Sessions	1
Sessions	86E28439-4C9F-4353-8E40-CF985EC0A07D
Ad Breaks per Session	
Events per Session	86E28439-4C9F-4353-8E40-CF985EC0A07D: ('media_loaded', 1) 86E28439-4C9F-4353-8E40-CF985EC0A07D: ('prebuffering', 1) 86E28439-4C9F-4353-8E40-CF985EC0A07D: ('player_start', 1) 86E28439-4C9F-4353-8E40-CF985EC0A07D: ('media_metadata', 1) 86E28439-4C9F-4353-8E40-CF985EC0A07D: ('completion', 2) 86E28439-4C9F-4353-8E40-CF985EC0A07D: ('buffering', 5)

That's it!

Happy validating and should you have any questions, feel free to contact us at [engineering@streamhub.co.uk](mailto:engineering@streamhub.co.uk)

