Adobe® Primetime

Features Validated by the Validation Service

Contents

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Adobe partners may use proprietary SDKs or tools to produce HTTP Dynamic Streaming (HDS) and HTTP Live Streaming (HLS) content. The content generated by these third party software development kits (SDKs) or tools may not comply with Adobe standards. As a result, the content streams may not be completely compatible with Adobe players, tools or ecosystems. To help partners generate standards-compliant content, Adobe provides services to validate/certify various content features for compliance.

HDS features validated

• **Manifest validation**

Reports the parsing errors and validates the elements and attributes of manifest based on their version (1.0, 2.0 and 3.0) and type (Multi/Single Level).

• **Bootstrap validation**

Reports the parsing errors, validates contents of Segment Run Table(SRT) and Fragment Run Table(FRT), and the suitability of stream for HLS JIT conversion.

• **Fragment validation**

Validates the basic structure of fragments, reports parse failures, presence of boxes and sequence errors, unrecognized media messages, presence of video key frames at appropriate places, media messages as per bootstrap, media messages sequences based on timestamps, consistency of delta and master bootstraps, presence of encrypted messages in encrypted stream and vice versa, and presence of encryption headers in encryption messages.

• **MBR validation**

Validates the consistency of start timestamps, duration, associated segment number and keyframes for a fragment across MBR streams. Reports any missing fragment(s) from a primary stream otherwise present in other primary stream(s). Validates the consistency of cue information, codec information, keyframes and DRM information across primary/trick play streams.

• **Stream validation**

Validates basic stream properties (for example video codec and stream bit rates), bootstrap information, stream content including fragments and media messages, digital rights management (DRM) information.

• **Live stream validation**

Verifies whether fragments are generated between manifest refreshes. Monitors the continuous fetching of updated bootstrap data and manifest (if required) in case of Live/Linear streaming. Checks the consistency of the currently fetched bootstrap data and cue information with previously fetched data for a pre-configured overlapping limit.

• **DRM metadata validation**

Reports parsing errors. Checks for expired license server/transport certificates and ensures that license server is accessible.

• **CueInfo validation**

Parses and validates SCTE-35 data and reports overlapping cue information.

• **Caption validation**

Reports errors that may occur during the parsing of caption information (which is the part of onCaptionInfo messages), including empty ID and captionData fields.

• **Trick play stream validation**

Ensures that only single keyframe media message and no other Audio or Video message is present per fragment and appropriate required values have been set in the fields of decoder configuration messages of the stream.

• **Alternate audio stream validation**

Reports the presence of non-audio messages in alternate audio stream.

• **Miscellaneous validations**

Validates stream roll-over scenarios. Validates response headers. Generates warnings for timestamp discontinuities in the stream. Validates the bandwidth latency for fragments and manifests. Generates error for unsupported codec in the stream and in cases where codec changes in the middle of stream.

HLS features validated

• **Playlist validation**

Reports the parsing errors and validates the tags and attributes of media and master playlist till version 5.0.

• **Media validation**

Validates data as per type mentioned (Audio, Audio+Video, Map, Keyframe only). Checks for existence of at least one Keyframe in each media file. Generates warnings for discontinuous data within a media file. Verifies correctness of timestamp, SPS/PPS and ADTS headers. Validates bitrate of stream as mentioned.

• **MBR validation**

Validates tags in master playlist for correctness of MBR information. Validates the consistency of start timestamps, duration, keyframes, discontinuities, encryption, stream times and types across MBR streams. Reports out of sync renditions. Validates sync between failover, Iframe only and primary streams. Ensures that MBR streams have at least one audio-only stream.

• **Live stream validation**

Verifies whether media files are generated between playlist refreshes. Monitors the continuous fetching of media playlist(if required) in case of Live/Linear streaming. Checks the consistency of timestamps, continuity of sequence numbers, timeline, cue information and other user tags. Verifies the integrity of DVR data if specified.

• **Single sliding window validation**

Validates the integrity of sliding windows. Monitors frequent and drastic changes in the size of sliding windows. Verifies whether TargetDuration, Version, Playlist type and sequence number tags are present in each snapshot.

• **VOD stream validation**

Generates warnings for the presence of additional tags after the end list.

• **DRM encryption validation**

Validates key and DRM tags in a media playlist.

• **CueInfo validation**

Validates simple and SCTE modes as per DPI specification. Checks for overlapping cue tags and the validity of the values of elapsed time, start time and duration for SCTE and simple mode.

- **Trick play validation**

  Validates media and master playlists for required tags. Ensures that only single keyframe media message and no other Audio or Video message is present per media file.

- **Alternate streams validation**

  Validates master playlist for correctness of alternate rendition groups. Validates sync of alternate audio and video renditions with primary streams. Checks stream attributes and ensures that audio and video streams have only audio and video respectively.

- **Miscellaneous validation**

  Verifies HTTP error codes, caching headers and content types. Checks for correctness of Byte Range information in playlist, byte range response and data from server.

Features not validated

- License rotation and blackout
- Failover and backup stream validations
- HLS ID3 tag validation
- Codec specific validations
- Multiple device capabilities
- Advanced segment validation indicating possible artifact or frame drops
- DRM, including local/remote key serving, key rotation, HTTP requests, sliding window, master playlist, content encryption, and tags such as EXT-X-FAXS-PACKAGINGCERT, EXT-X-FAXS-SIGNATURE.
- Legacy DPI tags

Known issues

The following are some known issues associated with Adobe validation tools and services:

- 3708282: Errors that get reported for a stream after rollover will log the progressive timestamp rather than the actual message timestamp.