

Brightcove Streaming Reference

The Sony Pictures Television Networks internet video system of record is Brightcove, which we license as a Platform as a Service. Their service provides the ingest, transcode, and hosting capabilities for the video assets. They also offer content management (metadata entry/updates, thumbnails, creating playlists), scheduling, DRM, geo-filtering, analytics, advertising, and content delivery network (CDN) integrations as well. Finally, their service provides the software development kit (BEML) to build our video players and APIs to integrate the player and playlisting capabilities into our websites. Brightcove players have the capability of rendering in Flash or HTML5 for playback on non-Flash capable devices (iOS).

1) What file format would we need the long-form content to be delivered in so that it is ready for Brightcove ingestion?

Note, Brightcove will not accept Pro Res encoding. Also, if files will be edited by a third-party after delivery, they should ultimately be saved in this format prior to upload into Brightcove.

- Brightcove Mezzanine file recommendations (Please refer to this URL for full details and specs)
<http://support.brightcove.com/en/docs/video-source-file-specifications-and-recommendations#vp6>

* H.264 MPEG 4

- Encoding: 2-pass H.264
- Resolution: 640x480 4:3; 640x360 16:9
- Bit rate can safely go as low as 2132 kbps in almost all cases.
- Audio 16-bit AAC audio at a sampling frequency of 44.1kHz and a bit rate of 192 kbps.
- Keyframe: at least every 6 seconds.

On2 VP6 (Flash)

- Encoding: 2-Pass VBR
- Resolution: 480x360 4:3; 480x270 16:9
- Maintain Aspect Ratio: Off (The above resolution settings will provide the correct aspect ratio.)
- Frame Rate: Same as source
- Video Data Rate: 464 kbps
- Audio Data Rate: 48 kbps
- Total Data Rate: 512 kbps
- Keyframe: At least every 6 seconds

2) What metadata would we need to include? Content and format.

Here is the video metadata information. This can be entered in the Brightcove CMS per-video or batch uploaded within a Manifest XML file (here is the specification: <http://support.brightcove.com/en/docs/sample-xml-manifest-batch-provisioning>)

- Video Name (usually the title of a given episode)
- Season number
- Episode Number

 - Long Description (short description is usually left blank)

- Thumbnails are automatically generated on upload but there is a means of overriding.
- Content windowing information
- Geofiltering info (e.g., only play to licensed regions)

3) Where would those files have to be delivered and to whom? FTP, WPF, Brightcove?

The mezzanine files (see item 1 above) would be delivered to Brightcove using one of the following means:

- FTP (easiest to set up, uses batch transactions of up to 500 videos per batch, requires Manifest.xml file with metadata info and transcoding instructions (I will explain below).
- Aspera (extremely high-performance file transfer. Requires a stand-alone Aspera client that will connect to Brightcove's servers). Sony's Digital Media Group (Ben Masek) can consult.
- Upload directly into Brightcove's CMS via a web browser (can use either HTTP post or Brightcove's free Aspera plug-in which is what most of us use).

4) Some info on post-upload video encoding.

Once videos are delivered to Brightcove, there are 3 possibilities for re-transcoding based on rules set up per-account:

- No processing. Upon upload, the mezzanine video is hosted without further transcoding. This is NOT recommended. This is only used when there are problems with Brightcove's encoding for a given mezzanine file. This use case is very rare.
- Single-bitrate encoding. Upon upload, Brightcove will transcode the mezzanine file into a lower bitrate file suitable for streaming.

- Multi-bitrate encoding. Upon upload, Brightcove will transcode the mezzanine file into several lower bitrate files of varying bitrates referred to as *renditions*. Their player technology will request the appropriate stream based on their bandwidth calculation algorithms (or upon the user selecting a desired level of quality in a player---if that player has been modified). This is our most common use case. The transcoding settings for rendition output is configured per-account for both bitrate and output format (e.g., Flash streaming or iOS streaming). It's possible to upload a single mezzanine file and have all the renditions generated for both Flash *_and_* iOS streaming in one transaction.

- Refer to this Brightcove reference for more info on encoding the renditions. <http://support.brightcove.com/en/docs/video-source-file-specifications-and-recommendations#vp6>

5) Some info on the mezzanine file.

- Once a video is uploaded, the mezzanine (also known as the source, or master video file) is stored in Brightcove's systems. We have *_no_* access to these files (we cannot download them for re-use, ever). They are used in the case where we wish to do a batch re-transcoding of a set of videos. Since these mezzanine files are already stored in Brightcove, only the Manifest XML file with new transcoding instructions needs to be uploaded.

- Sometimes, it is necessary to have an accounting of mezzanine files. The current workaround is, upon upload, to have use the option: "Source file as a Rendition." This will generate a duplicate of the master file as a rendition (and the system will even try to stream it if someone has enough bandwidth). Once this video is a rendition, it can be re-downloaded if the original is lost. This comes at a significant increase in storage and could incur additional storage costs.