# Flash® Media Manifest(F4M) Format Specification Errata: May 2014

## Flash® Media Manifest(F4M) Format Specification Errata: May 2014

## Abstract

This document corrects errors and omissions in the "Flash® Media Manifest(F4M) Format Specification Version 3.0" document as published in August 2013.

# 1. Revised "Annex A. Manifest Examples (Informative)"

The following section replaces Annex A of the specification:

## Annex A. Manifest Examples (Informative)

## A.1. Recorded RTMP Stream

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
 <id>myvideo</id>
 <duration>253</duration>
 <media url="rtmp://example.com/myvideo"/>
</manifest>
```

## A.2. Recorded HDS Presentation with Multiple Bitrates and DRM

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
 <id>myvideo</id>
 <duration>253</duration>
 <mimeType>video/x-flv</mimeType>
 <streamType>recorded</streamType>
 <baseURL>http://example.com</baseURL>
 <drmAdditionalHeader
  url="http://mydrmserver.com/mydrmadditionalheader"/>
 <bootstrapInfo profile="named" url="/mybootstrapinfo"
               fragmentDuration="4"/>
 <media url="/myvideo/low" bitrate="408"  width="640"  height="480"/>
 <media url="/myvideo/med" bitrate="908"  width="800"  height="600"/>
 <media url="/myvideo/hi"  bitrate="1708" width="1920" height="1080"/>
</manifest>
```

## A.3. Live RTMFP Stream

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
 <id>myvideo</id>
 <streamType>live</streamType>
 <media url="rtmfp://example.com/myapp" groupspec="G:XYZXYZXYZ"
        multicastStreamName="mystream"/>
</manifest>
```

## A.4. Live RTMP Stream with DVR

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
 <id>myvideo</id>
 <streamType>live</streamType>
 <dvrInfo windowDuration="1800" offline="false" />
 <media url="rtmpe://example.com/myapp" />
</manifest>
```

## A.5. HDS Presentation with Alternative Audio Renditions

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
 <id>myvideo</id>
 <streamType>recorded</streamType>
 <duration>100</duration>
 <label>English</label>
 <lang>eng</lang>
 <mimeType>video/mp4</mimeType>
 <baseURL>http://example.com/</baseURL>
 <bootstrapInfo profile="named" id="boot1" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <bootstrapInfo profile="named" id="boot2" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <bootstrapInfo profile="named" id="boot3" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <media url="myvideo" bitrate="1300" bootstrapInfoId="boot1" />
 <media url="myvideo_audio1" bitrate="192" bootstrapInfoId="boot2"
        type="audio" label="German" lang="deu" alternate="true" />
 <media url="myvideo_audio2" bitrate="192" bootstrapInfoId="boot3"
        type="audio" label="Arabic" lang="ara" alternate="true" />
</manifest>
```

## A.6. HDS Presentation with Multiple Bitrates and Alternative Audio

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
 <id>myvideo</id>
 <label>English</label>
 <lang>en</lang>
 <streamType>recorded</streamType>
 <duration>100</duration>
 <mimeType>video/mp4</mimeType>
 <baseURL>http://example.com/</baseURL>
 <bootstrapInfo profile="named" id="boot1" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <bootstrapInfo profile="named" id="boot2" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <bootstrapInfo profile="named" id="boot3" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <bootstrapInfo profile="named" id="boot4" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <bootstrapInfo profile="named" id="boot5" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <media url="myvideo_250"    bitrate="250"  bootstrapInfoId="boot1" />
 <media url="myvideo_500"    bitrate="500"  bootstrapInfoId="boot1" />
 <media url="myvideo_900"    bitrate="900"  bootstrapInfoId="boot1" />
 <media url="myvideo_1300"   bitrate="1300" bootstrapInfoId="boot2" />
 <media url="myvideo_2100"   bitrate="2100" bootstrapInfoId="boot3" />
 <media url="myvideo_audio1" bitrate="192"  bootstrapInfoId="boot4"
       type="audio" label="Espanol" lang="es" alternate="true" />
 <media url="myvideo_audio2" bitrate="192"  bootstrapInfoId="boot5"
        type="audio" label="Chinese" lang="zh" alternate="true" />
</manifest>
```

## A.7. Multi-level Manifest

### A.7.1. Set-level Manifest

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
    <id>myVideo</id>
    <baseURL>http://www.example.com/myvideo/</baseURL>
    <streamType>live</streamType>
    <media href="stream250.f4m" bitrate="250" />
    <media href="stream500.f4m" bitrate="500" />
</manifest>
```

### A.7.2. Stream-level Manifest (stream250.f4m)

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
<id>myStream1</id>
<baseURL>http://www.example.com/data/</baseURL>
 <bootstrapInfo profile="named" id="boot1" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
<media url="stream250" bootstrapInfoId="boot1"/>
</manifest>
```

### A.7.3. Stream-level Manifest (stream500.f4m)

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
 <id>myStream1</id>
 <baseURL>http://www.example.com/data/</baseURL>
 <bootstrapInfo profile="named" id="boot1" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
<media url="stream500" bootstrapInfoId="boot1"/>
</manifest>
```

## A.8. Alternative Audio Codecs

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
 <id>myvideo</id>
 <streamType>recorded</streamType>
 <duration>100</duration>
 <label>English</label>
 <lang>en</lang>
 <mimeType>video/mp4</mimeType>
 <baseURL>http://example.com/</baseURL>
 <bootstrapInfo profile="named" id="boot1" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <bootstrapInfo profile="named" id="boot2" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <bootstrapInfo profile="named" id="boot3" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <media url="myvideo"        bitrate="1300" bootstrapInfoId="boot1" />
 <media url="myvideo_audio1" bitrate="192"  bootstrapInfoId="boot2"
       type="audio" audioCodec="ec-3" alternate="true" />
</manifest>
```

## A.9. Backups

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
<id>myVideo</id>
<streamType>live</streamType>
<media href="http://server1.example.com/stream250.f4m" bitrate="250"/>
<media href="http://server1.example.com/stream500.f4m" bitrate="500"/>
<adaptiveSet>
 <media href="http://server2.example.com/stream300.f4m" bitrate="300"/>
 <media href="http://server2.example.com/stream600.f4m" bitrate="600"/>
</adaptiveSet>
<adaptiveSet>
 <media href="http://server3.example.com/stream250.f4m" bitrate="250"/>
 <media href="http://server3.example.com/stream500.f4m" bitrate="500"/>
</adaptiveSet>
</manifest>
```

The primary audio+video content will be sourced from http://server1.example.com/stream250.f4m or http://server1.example.com/stream500.f4m.

If the primary audio+video content fails, the first backup will be sourced from http://server2.example.com/stream300.f4m or http://server2.example.com/stream600.f4m.

If that backup fails, the next backup will be sourced from http://server3.example.com/stream200.f4m or http://server3.example.com/stream500.f4m.

## A.10. Backups and Alternative Audio

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
<id>myVideo</id>
<streamType>live</streamType>
<media href="http://av1.example.com/stream250.f4m" bitrate="250"/>
<media href="http://av1.example.com/stream500.f4m" bitrate="500"/>
<media href="http://audio1.example.com/audio.f4m" type="audio"
        alternate="true" lang="es" label="spanish"/>
<adaptiveSet>
 <media href="http://av2.example.com/stream300.f4m" bitrate="300"/>
 <media href="http://av2.example.com/stream600.f4m" bitrate="600"/>
</adaptiveSet>
<adaptiveSet type="audio" alternate="true" lang="es" label="spanish">
 <media href="http://audio2.example.com/audio.f4m"/>
</adaptiveSet>
</manifest>
```

The primary audio+video content will be sourced from av1.example.com.

If the primary audio+video content fails, the first backup will be sourced from av2.example.com.

The spanish audio content will be sourced from audio1.example.com.

If the spanish audio content fails, the first backup will be sourced from audio2.example.com.

## A.11. Backups and &lt;baseURL&gt;

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
<media href="http://av1.example.com/stream250.f4m" bitrate="250"/>
```

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
 <id>myVideo</id>
 <streamType>live</streamType>
 <baseURL>http://server1.example.com/</baseURL>
 <media href="a.f4m"/>
 <adaptiveSet>
  <media href="b.f4m"/>
 </adaptiveSet>
</manifest>
```

*The primary audio+video content will be sourced from http://server1.example.com/a.f4m*

*If the primary audio+video content fails, the first backup will be sourced from http://server1.example.com/b.f4m*

## A.12. Presentation with No Implicit Adaptive Sets

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
 <id>myVideo</id>
 <streamType>live</streamType>
 <adaptiveSet>
  <media href="http://server1.example.com/stream.f4m"/>
 </adaptiveSet>
</manifest>
```

*The primary audio+video content will be sourced from http://server1.example.com/stream.f4m.*

## A.13. SMPTE Timecodes

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
 <id>myVideo</id>
 <mimeType> </mimeType>
 <streamType>live</streamType>
 <media url="livestream"  streamId="livestream"
             bootstrapInfoId="boot1" />
 <bootstrapInfo profile="named" id="boot1" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <smpteTimecodes>
  <smpteTimecode timestamp="61646.816" smpte="19:38:11:8"
                date="2013-04-01" timezone="-08:00" />
  <smpteTimecode timestamp="65246.879" smpte="20:38:11:23"/>
     <smpteTimecode timestamp="68846.942" smpte="21:38:12:7"/>
   </smpteTimecodes>
</manifest>
```

## A.14. Ad signaling information

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns="http://ns.adobe.com/f4m/1.0" version="3.0">
 <id>myvideo</id>
 <bootstrapInfo profile="named" id="boot1" fragmentDuration="4">
  (BASE64 encoding of bootstrap information)
 </bootstrapInfo>
 <cueInfo id="mycueInfo">
  <cue type="spliceOut" id="1" time="266.061"
          duration="30.5" programId="2354" availNum="1"
          availsExpected="5"/>
     <cue type="spliceOut" id="2" time="300" duration="7"/>
 </cueInfo>
 <media streamId="mystream" url="mystream"
        bootstrapInfoId="boot1" cueInfoId="mycueInfo" />
</manifest>
```

## 2. Revised "Annex B. XML Schema (Informative)"

The following section replaces Annex B of the specification:

### Annex B. XML Schema (Informative)

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns="http://ns.adobe.com/f4m/1.0" xmlns:f4m="http://ns.adobe.com/f4m/1.0"
xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://ns.adobe.com/f4m/1.0"
elementFormDefault="qualified">
  <xs:element name="manifest" type="manifest">
    <xs:unique name="unique-drmAdditionalHeader-id">
      <xs:selector xpath="f4m:drmAdditionalHeader"/>
      <xs:field xpath="@id"/>
    </xs:unique>
    <xs:unique name="unique-drmAdditionalHeaderSet-id">
      <xs:selector xpath="f4m:drmAdditionalHeaderSet"/>
      <xs:field xpath="@id"/>
    </xs:unique>
    <xs:unique name="unique-bootstrapInfo-id">
      <xs:selector xpath="f4m:bootstrapInfo"/>
      <xs:field xpath="@id"/>
    </xs:unique>
  </xs:element>

  <xs:complexType name="adaptiveSet">
    <xs:sequence minOccurs="1" maxOccurs="unbounded">
      <xs:element name="media" type="media"/>
    </xs:sequence>
    <xs:attributeGroup ref="mediaAttributes"/>
  </xs:complexType>

  <xs:complexType name="bestEffortFetchInfo">
    <xs:attribute name="id" type="xs:string"/>
    <xs:attribute name="fragmentDuration" type="xs:decimal"/>
    <xs:attribute name="segmentDuration" type="xs:decimal"/>
  </xs:complexType>

  <xs:complexType name="bootstrapInfo">
    <xs:simpleContent>
      <xs:extension base="xs:base64Binary">
        <xs:attribute name="fragmentDuration" type="xs:decimal"/>
```

```xml
        <xs:attribute name="id" type="xs:string"/>
        <xs:attribute name="profile" type="xs:string" use="required"/>
        <xs:attribute name="url" type="xs:anyURI"/>
        <xs:attribute name="segmentDuration" type="xs:decimal"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>


  <xs:complexType name="cue">
    <xs:attribute name="availNum" type="xs:decimal"/>
    <xs:attribute name="availsExpected" type="xs:decimal"/>
    <xs:attribute name="duration" type="xs:decimal" use="required"/>
    <xs:attribute name="id" type="xs:string" use="required"/>
    <xs:attribute name="time" type="xs:decimal"/>
    <xs:attribute name="type" type="xs:string" use="required"/>
    <xs:attribute name="programId" type="xs:decimal"/>
  </xs:complexType>

  <xs:complexType name="cueInfo">
    <xs:sequence minOccurs="0" maxOccurs="unbounded">
      <xs:element name="cue" type="cue"/>
    </xs:sequence>
    <xs:attribute name="id" type="xs:string" use="required"/>
  </xs:complexType>

  <xs:simpleType name="deliveryType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="streaming"/>
      <xs:enumeration value="progressive"/>
    </xs:restriction>
  </xs:simpleType>

  <xs:complexType name="drmAdditionalHeader">
    <xs:simpleContent>
      <xs:extension base="xs:base64Binary">
        <xs:attribute name="id" type="xs:string"/>
        <xs:attribute name="prefetchDeadline" type="xs:decimal"/>
        <xs:attribute name="url" type="xs:anyURI"/>
        <xs:attribute name="startTimestamp" type="xs:decimal"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>

  <xs:complexType name="drmAdditionalHeaderSet">
    <xs:sequence minOccurs="0" maxOccurs="unbounded">
      <xs:element name="drmAdditionalHeader" type="drmAdditionalHeader" minOccurs="0"
maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="id" type="xs:string"/>
  </xs:complexType>

  <xs:complexType name="dvrInfo">
    <xs:attribute name="offline" type="xs:boolean" default="false"/>
    <xs:attribute name="url" type="xs:anyURI"/>
    <xs:attribute name="windowDuration" type="xs:decimal"/>
  </xs:complexType>

  <xs:complexType name="manifest">
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element name="adaptiveSet" type="adaptiveSet"/>
```

```xml
        <xs:element name="baseURL" type="xs:anyURI"/>
        <xs:element name="bestEffortFetchInfo" type="bestEffortFetchInfo"/>
        <xs:element name="bootstrapInfo" type="bootstrapInfo"/>
        <xs:element name="cueInfo" type="cueInfo"/>
        <xs:element name="deliveryType" type="deliveryType"/>
        <xs:element name="dvrInfo" type="dvrInfo"/>
        <xs:element name="drmAdditionalHeader" type="drmAdditionalHeader"/>
        <xs:element name="drmAdditionalHeaderSet" type="drmAdditionalHeader"/>
        <xs:element name="duration" type="xs:decimal"/>
        <xs:element name="id" type="xs:string"/>
        <xs:element name="label" type="xs:string"/>
        <xs:element name="lang" type="xs:string"/>
        <xs:element name="media" type="media"/>
        <xs:element name="mimeType" type="xs:string"/>
        <xs:element name="smpteTimecodes" type="smpteTimecodes"/>
        <xs:element name="startTime" type="xs:dateTime"/>
        <xs:element name="streamType" type="streamType" default="liveOrRecorded"/>
    </xs:choice>
    <xs:attribute name="version" default="1.0">
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:enumeration value="1.0"/>
          <xs:enumeration value="2.0"/>
          <xs:enumeration value="3.0"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:attribute>
    <xs:attribute name="profile" type="xs:string" default="urn://porfile.adobe.com/F4F"/>
</xs:complexType>

<xs:complexType name="media">
    <xs:all>
      <xs:element name="metadata" type="xs:base64Binary" minOccurs="0"/>
    </xs:all>
    <xs:attribute name="bitrate" type="xs:positiveInteger"/>
    <xs:attribute name="bestEffortFetchInfoId" type="xs:string"/>
    <xs:attribute name="bootstrapInfoId" type="xs:string"/>
    <xs:attribute name="cueInfoId" type="xs:string"/>
    <xs:attribute name="drmAdditionalHeaderId" type="xs:string"/>
    <xs:attribute name="drmAdditionalHeaderSetId" type="xs:string"/>
    <xs:attribute name="groupspec" type="xs:string"/>
    <xs:attribute name="height" type="xs:decimal"/>
    <xs:attribute name="href" type="xs:anyURI"/>
    <xs:attribute name="multicastStreamName" type="xs:string"/>
    <xs:attribute name="url" type="xs:anyURI"/>
    <xs:attribute name="streamId" type="xs:string"/>
    <xs:attribute name="videoCodec " type="xs:string"/>
    <xs:attribute name="width" type="xs:decimal"/>
    <xs:attributeGroup ref="mediaAttributes"/>
</xs:complexType>

<xs:attributeGroup name="mediaAttributes">
    <xs:attribute name="alternate" type="xs:boolean" default="false"/>
    <xs:attribute name="audioCodec" type="xs:string"/>
    <xs:attribute name="type" default="audio+video">
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:enumeration value="audio"/>
          <xs:enumeration value="audio+video"/>
          <xs:enumeration value="data"/>
          <xs:enumeration value="text"/>
```

```
          <xs:enumeration value="video"/>
          <xs:enumeration value="video-keyframe-only"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:attribute>
    <xs:attribute name="label" type="xs:string"/>
    <xs:attribute name="lang" type="xs:string"/>
</xs:attributeGroup>

<xs:complexType name="smpteTimecode">
    <xs:attribute name="smpte" type="xs:string"/>
    <xs:attribute name="timestamp" type="xs:decimal"/>
    <xs:attribute name="date" type="xs:date"/>
    <xs:attribute name="timezone" type="xs:string"/>
</xs:complexType>

<xs:complexType name="smpteTimecodes">
    <xs:sequence minOccurs="0" maxOccurs="unbounded">
      <xs:element name="smpteTimecode" type="smpteTimecode"/>
    </xs:sequence>
</xs:complexType>

<xs:simpleType name="streamType">
    <xs:restriction base="xs:string">
      <xs:enumeration value="live"/>
      <xs:enumeration value="recorded"/>
      <xs:enumeration value="liveOrRecorded"/>
    </xs:restriction>
```

```
    </xs:simpleType>
  </xs:schema>
```