



IPTC Standards



Quick Start Guide to Conveying Video

Public Release

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International Press Telecommunications Council
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Quick Start: Video

Introduction

Now that streamed media is part of everyone's day-to-day experience on the Web, organisations with little or no tradition of "broadcast media" production need to be able to process audio and video.

NewsML-G2 allows all media organisations, whether traditional broadcasters or not, to access and exchange audio and video in a professional workflow, by providing features and Extension Points that enable proprietary formats to be "mapped" to Newsml-G2 to achieve freedom of exchange amongst a wider circle of information partners.

This Quick Start guide is split into two parts:

- ❖ Part I deals with a video that is available in multiple different renditions and the example focuses on expressing the technical characteristics of each rendition of the content.
- ❖ Part II shows an example of video content has been assembled from multiple sources, each with distinct metadata.



We recommend reading the Quick Start Guide to G2 Basics before this Quick Start Guide.

Part I – Multiple Renditions of a Single Video

The following example is based on a sample NewsML-G2 video item from Agence France Presse (but is not a guide to processing AFP's G2 news services).

Code Listing: Multiple Renditions of a Video in NewsML-G2

All Scheme Aliases used in listing below indicate IPTC NewsCodes vocabularies, except for *afpdescRole*,

Each wrapper element is highlighted using a different background colour to aid identification. A logical diagram of this structure is shown in the QuickStart Guide to NewsML-G2 Basics.

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<newsItem xmlns="http://iptc.org/std/nar/2006-10-01/"
  guid="urn:newsml:afp.com:20160131:CNG.3424d3807bc.391@video_1359566"
  version="9"
  standard="NewsML-G2"
  standardversion="2.23"
  conformance="power"
  xml:lang="en-US">
  <catalogRef
    href="http://www.iptc.org/std/catalog/catalog.IPTC-G2-Standards_29.xml" />
  <catalogRef href="http://cv.afp.com/std/catalog/catalog.AFP-IPTC-G2_3.xml" />
  <itemMeta>
    <itemClass qcode="ni:nat:video" />
    <provider qcode="nprov:AFP" />
    <versionCreated>2016-01-31T11:37:23+01:00</versionCreated>
    <firstCreated>2016-01-30T13:29:38+00:00</firstCreated>
    <pubStatus qcode="stat:usable" />
  </itemMeta>
  <contentMeta>
    <icon contenttype="image/jpeg" height="62"
      href="http://spar-iris-p-sco-http-int-vip.afp.com/components/9601ac3"
      rendition="rnd:thumbnail" width="110" />
    <creditline>AFP</creditline>
    <description role="afpdescRole:synthe">- Amir Hussein Abdullahian, Iranian
      foreign ministry's undersecretary for Arab and African affairs -
      Panos Moutzis (man), UNHCR regional coordinator for Syrian refugees
    </description>
    <description role="afpdescRole:script">SHOTLIST: KUWAIT. JANUARY 30,
      2016. SOURCE: AFPTV -VAR inside the conference room -VAR of Ban
      Ki-moon -MS of King Abdullah II of Jordan -MS of Michel Sleiman,
      president of Lebanon -MS of Tunisian president Moncef Marzouki
      SOUNDBITE 1 - Amir Hussein Abdullahian (man), Iranian foreign
      ministry's undersecretary for Arab and African affairs (Farsi, 10
      sec): "Those who send arms to Syria are behind the daily killings
      there." SOUNDBITE 2 - Amir Hussein Abdullahian (man), Iranian foreign
      ministry's undersecretary for Arab and African affairs (Farsi, 9
      sec): "We regret that some countries, such as the United States, have
```



created a very high level of extremism in Syria." SOUNDBITE 3 - Panos Moutzis (man), UNHCR regional coordinator for Syrian refugees (Arabic, 12 sec): "The United Nations is providing humanitarian assistance to more than four million people inside Syria, two million of them displaced." SOUNDBITE 4 - Panos Moutzis (man), UNHCR regional coordinator for Syrian refugees (Arabic, 17 sec): "The funding will first go to UN relief organizations, who are working inside Syria and in neighbouring countries."

```
</description>
<language tag="en" />
</contentMeta>
<contentSet>
  <remoteContent contentType="video/mpeg-2"
    href="http://components.afp.com/ab652af034e.mpg"
    rendition="vdrnd:dvd"
    size="54593540"
    width="720" height="576"
    duration="69"
    durationunit="timeunit:seconds"
    videoCodec="vdc:c015"
    videoFrameRate="25"
    videoDefinition="videodef:sd"
    colorIndicator="colin:colour"
    videoAspectRatio="4:3"
    videoScaling="sov:letterboxed" />
  <remoteContent contentType="video/mp4-1920x1080"
    href="http://components.afp.com/3e353716caa.1920x1080.mp4"
    rendition="vdrnd:HD1080"
    size="87591736"
    width="1920" height="1080"
    duration="69"
    durationunit="timeunit:seconds"
    videoCodec="vdc:c041"
    videoFrameRate="25"
    videoDefinition="videodef:hd"
    colorIndicator="colin:colour"
    videoAspectRatio="16:9"
    videoScaling="sov:unscal ed" />
  <remoteContent contentType="video/mp4-1280x720"
    href="http://components.afp.com/5ba0d14a64f.1280x720.mp4"
    rendition="vdrnd:HD720"
    size="71010540"
    width="1280" height="720"
    duration="69"
    durationunit="timeunit:seconds"
    videoCodec="vdc:c041"
    videoFrameRate="25"
    videoDefinition="videodef:hd"
    colorIndicator="colin:colour"
    videoAspectRatio="16:9"
    videoScaling="sov:unscal ed" />
</contentSet>
</newsItem>
```

Document structure

The building blocks of the G2 Item are the <newsItem> root element, with additional wrapping elements for metadata about the News Item (itemMeta), metadata about the content (contentMeta) and the content itself (contentSet).

The root <newsItem> attributes are:

```
<newsItem xmlns="http://iptc.org/std/nar/2006-10-01/"
  guid="urn:newsml:afp.com:20160131:CNG.3424d3807bc.391@video_1359566"
  version="9"
  standard="NewsML-G2"
  standardversion="2.23"
  conformance="power"
  xml:lang="en-US">
```

This is followed by Catalog references:

```
<catalogRef href="http://www.iptc.org/std/catalog/catalog.IPTC-G2-Standards_29.xml" />
<catalogRef href="http://cv.afp.com/std/catalog/catalog.AFP-IPTC-G2_3.xml" />
```



Item Metadata <itemMeta>

The <itemClass> property uses a QCode from the IPTC News Item Nature NewsCodes to denote that the Item conveys a picture. Note that <provider> uses the recommended IPTC Provider NewsCodes, a controlled vocabulary of providers registered with the IPTC, recommended scheme alias "nprov":

```
<itemMeta>
  <itemClass qcode="ni nat: video" />
  <provider qcode="nprov: AFP" />
  <versionCreated>2016-01-31T11:37:23+01:00</versionCreated>
  <firstCreated>2016-01-30T13:29:38+00:00</firstCreated>
  <pubStatus qcode="stat: usable" />
</itemMeta>
```

Content Metadata <contentMeta>

The <icon> element tells receivers how to retrieve an image to use as an iconic image for the content, for example a still image extracted from the video. It's possible to have multiple icons to suit different applications, each qualified by @rendition.

Two <description> elements are qualified by @role: first a summary, second a more detailed shotlist:

```
<contentMeta>
  <icon contentType="image/jpeg" height="62"
    href="http://spar-iris-p-sco-http-int-vip.afp.com/components/9601ac3"
    rendition="rnd: thumbnail" width="110" />
  <creditle>AFP</creditle>
  <description role="afpdescRole: synthe">- Amir Hussein Abdullahian, Iranian
    foreign ministry's undersecretary for Arab and African affairs -
    Panos Moutzis (man), UNHCR regional coordinator for Syrian refugees
  </description>
  <description role="afpdescRole: script">SHOTLIST: KUWAIT. JANUARY 30,
    2016. SOURCE: AFPTV -VAR inside the conference room -VAR of Ban
    Ki-moon -MS of King Abdullah II of Jordan -MS of Michel Sleiman,
    president of Lebanon -MS of Tunisian president Moncef Marzouki
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    ministry's undersecretary for Arab and African affairs (Farsi, 10
    sec): "Those who send arms to Syria are behind the daily killings
    there." SOUNDBITE 2 - Amir Hussein Abdullahian (man), Iranian foreign
    ministry's undersecretary for Arab and African affairs (Farsi, 9
    sec): "We regret that some countries, such as the United States, have
    created a very high level of extremism in Syria." SOUNDBITE 3 - Panos
    Moutzis (man), UNHCR regional coordinator for Syrian refugees
    (Arabic, 12 sec): "The United Nations is providing humanitarian
    assistance to more than four million people inside Syria, two million
    of them displaced." SOUNDBITE 4 - Panos Moutzis (man), UNHCR
    regional coordinator for Syrian refugees (Arabic, 17 sec): "The
    funding will first go to UN relief organizations, who are working
    inside Syria and in neighbouring countries. "
  </description>
  <language tag="en" />
</contentMeta>
```

Video Content

Video is conveyed within the NewsML-G2 <contentSet> using the <remoteContent> element; where there are multiple alternate renditions of SAME content, <remoteContent> can be repeated for each rendition within the same Item.

The <remoteContent> element references binary objects that exist independently of the current NewsML-G2 document. In this example there is an instance of <remoteContent> for each of three renditions of the video.

Each remote content instance contains attributes that can conceptually be split into three groups:

- ❖ **Target resource attributes** enable the receiver to accurately identify the remote resource, its content type and size;
- ❖ **Content attributes** enable the processor to distinguish the different business purposes of the content using @rendition;
- ❖ **Content Characteristics** contain technical metadata such as dimensions, duration and format.



Frequently used attributes from these groups are described below, but note that the NewsML-G2 XML structure that delimits the groups may not be visible in all XML editors. For a detailed description of these attribute groups, see the NewsML-G2 Specification (This can be downloaded by visiting www.newsml-g2.org/spec and following the link to NewsML-G2.)

Target Resource Attributes

This group of attributes express administrative metadata, such as identification and versioning, for the referenced content, which could be a file on a mounted file system, a Web resource, or an object within a content management system. G2 flexibly supports alternative methods of identifying and locating the externally-stored content.

The two attributes of <remoteContent> that identify and optionally locate the content are Hyperlink (@href) and Resource Identifier Reference (@residref). Either one MUST be used to identify the target resource. They MAY optionally be used together.

Although @href and @residref are superficially similar, their intended use is:

- ❖ @href *locates* any resource, using an IRI.
- ❖ @residref *identifies* a *managed* resource, using an identifier that may be globally unique. It is up to the provider to specify how @residref may be resolved to retrieve the actual content.

Hyperlink (@href)

An IRI, for example:

```
<remoteContent  
  href="http://components.afp.com/ab652af034e5f7acc131f8f122b274a5ef8ee37e.mpg"
```

Resource Identifier Reference (@residref)

An XML Schema string e.g.

```
<remoteContent residref="tag:example.com,2008:PIX:F0020081220098658"
```

Version

An XML Schema positive integer denoting the version of the target resource. In the absence of this attribute, recipients should assume that the target is the latest available version

```
version="8"
```

Content Type

The MIME type of the target resource

```
contenttype="video/3gpp"
```

Format

A refinement of a Content Type using a value from a controlled vocabulary:

```
format="fmt:video"
```

Content Type Variant (@contenttypevariant)

A refinement of a Content Type using a string:

```
contenttype="video/3gpp"  
contenttypevariant="MPEG-4 Simple Profile"
```

Size

Indicates the size of the target resource in bytes.

```
size="54593540"
```



News Content Attributes

This group of attributes of <remoteContent> enables a processor or human operator to distinguish between different components; in this case the alternative resolutions of the video.

Rendition

The rendition attribute MUST use a QCode. Providers may have their own schemes, or use the IPTC NewsCodes for rendition, which has a Scheme URI of <http://cv.iptc.org/newscodes/rendition/> and recommended Scheme Alias of "rnd". This example uses a provider-specific scheme with a Scheme Alias of "vidrnd":

```
<remoteContent rendition="vidrnd:dvd">
```

To avoid processing ambiguity, each specific rendition value should be used only once per News Item, except when the same rendition is available from multiple remote locations. In this case, the same value of rendition may be given to several Remote Content elements.

News Content Characteristics

This third a group of attributes of <remoteContent> is provided to enable further efficiencies in processing and describes physical characteristics of the referenced object specific its media type. Text, for example, may use @wordcount; Audio and video are provided with attributes appropriate to streamed media, such as @audiobitrate, @videoframerate. The appropriate attributes for video are described below.

Duration (@duration and @durationunit)

Indicates the duration of the content in seconds by default, but can be expressed by some other measure of temporal reference (e.g. frames) when using the optional @durationunit. From NewsML-G2 2.14, the data-type of @duration is a string; earlier versions use non-negative integer. The reason for the change is that video duration is often expressed using non-integer values.

For example, expressing duration as an SMPTE time code requires the following NewsML-G2:

```
duration="00:06:32:12" durationunit="timeunit:timeCode"
```

The recommended CV for @durationunit is the IPTC Time Unit NewsCodes whose URI is <http://cv.iptc.org/newscodes/timeunit/>. The recommended alias for the scheme is "timeunit".

Video Codec (@videocodec)

A QCode value indicating the encoding of the video – for example one of the encodings used in this example is MPEG-2 Video Simple Profile. This is indicated by the IPTC Video Codec NewsCodes with a recommended Scheme Alias "vcdc", and the corresponding code is "c015".

```
videocodec="vcdc:c015"
```

Video Frame Rate (@videoframerate)

A decimal value indicating the rate, in frames per second [fps] at which the video should be played out to achieve the correct visual effect. Common values (in fps) are 25, 50, 60 and 29.97 (drop-frame rate):

```
videoframerate="25"
```

Video Aspect Ratio (@videoaspectratio)

A string value, e.g. 4:3, 16:9

```
videoaspectratio="4:3"
```

Video Scaling (@videoscaling)

The @videoscaling attribute describes how the aspect ratio of a video has been changed from the original in order to accommodate a different display dimension:

```
videoscaling="sov:letterboxed"
```



The value of the property is a QCode; the recommended CV is the IPTC Video Scaling NewsCodes (Scheme URI: <http://cv.iptc.org/newscodes/videoscaling/>)

The recommended Scheme Alias is “sov”, and the codes and their definitions are as follows:

Code	Definition
unscaled	no scaling applied
mixed	two or more different aspect ratios are used in the video over the timeline
pillarboxed	bars to the left and right
letterboxed	bars to the top and bottom
windowboxed	pillar boxed plus letter boxed
zoomed	scaling to avoid any borders

Video Definition (@videodefinition)

Editors may need to know whether video content is HD or SD, as this may not be obvious from the technical specification (“HD”, for example, is an umbrella term covering many different sets of technical characteristics). The @videodefinition attribute carries this information:

```
videodefinition="videodef:sd"
```

The value of the property can be either “hd” or “sd”, as defined by the Video Definition NewsCodes CV. The Scheme URI is <http://cv.iptc.org/newscodes/videodefinition/> and the recommended scheme alias is “videodef”.

Colour Indicator <colourindicator>

Indicates whether the still or moving image is coloured or black and white (note the UK spelling of colour). The recommended vocabulary is the IPTC Colour Indicator NewsCodes (Scheme URI: <http://cv.iptc.org/newscodes/colourindicator/>) with a recommended Scheme Alias of “colin”. The value of the property is “bw” or “colour”:

```
colourindicator="colin:colour"
```

The completed Remote Content wrapper will be:

```
<remoteContent contentType="video/mpeg-2"
href="http://components.afp.com/ab652af034e5f7acc131f8f122b274a5ef8ee37e.mpg"
rendition="vdrnd:dvd"
size="54593540"
width="720" height="576"
duration="69"
durationunit="timeunit:seconds"
videocodec="vcdc:c015"
videoframerate="25"
videodefinition="videodef:sd"
colourindicator="colin:colour"
videoaspectratio="4:3"
videoscaling="sov:letterboxed" />
```

Audio metadata

There are specific properties for describing the technical characteristics of audio, for example:

Audio Bit Rate (@audiobitrate)

A positive integer indicating kilobits per second (Kbps)

```
audiobitrate="32"
```



Audio Sample Rate (@audiosamplerate)

A positive integer indicating the sample rate in Hertz (Hz)

```
audi osampl erate="44100"
```

For a detailed description of all of the News Content Characteristics for Video and Audio content, see section *News Content Characteristics* in the NewsML-G2 Specification Document

Part 2 – Multi-part video



We recommend reading the Quick Start Guide to G2 Basics and the preceding Part 1 of this guide to video before reading Part 2.

Introduction

Audio and video, including animation, have a temporal dimension: the nature of the content is expected to change over its duration: in this example a single piece of video has been created from a number of shots – shorter segments of content – from several different creators that were combined during an editing process.¹ Each segment of streamed content has its own metadata, in addition to the metadata that applies to the content as a whole.

In addition to metadata structures that apply to the whole content, NewsML-G2 can express metadata about separate identifiable parts of content using <partMeta>.

The example video is about a retrospective exhibition in Berlin of works by the German humourist and animator Vicco von Bülow. It consists of a number of shots, so provides a shotlist summarising the visual content of each shot, and a dopesheet, giving an editorial summary of the video's content.

The document structure and the G2 properties included in the example have been previously described, except for the <partMeta> wrapper, which is described in detail below. A full code listing for the example is included at the end.

The example is based on a sample NewsML-G2 video item from the European Broadcasting Union (EBU). The News Item references a multi-part broadcast video and contains separate metadata for each segment of the content, including a keyframe, and additionally describes the technical characteristics of the video.

Please note that it may resemble but does NOT represent the EBU's NewsML-G2 implementation.

Code Listing: Multi-part Video in NewsML-G2

All Scheme Aliases used in the listing below indicate IPTC NewsCodes vocabularies, except for the following values: *addressType*, *codeorigin*, *codesource*, *cptype*, *descrole*, *geo*, *ISOCountryCode*, *langusecode*, *prov*, *providercode*, *rolecode*, *servicecode*.

```
<?xml version="1.0" encoding="ISO-8859-1" standalone="yes"?>
<newsItem xmlns="http://iptc.org/std/nar/2006-10-01/"
  guid="tag:example.com,2008:407624"
  version="9"
  standard="NewsML-G2"
  standardversion="2.23"
  conformance="power"
  xml:lang="en">
  <catalogRef
    href="http://www.iptc.org/std/catalog/catalog.IPTC-G2-Standards_29.xml" />
  <catalogRef
    href="http://www.example.com/metadata/newsml-g2/catalog.NewsML-G2.xml" />
  <rightsInfo>
    <usageTerms>
      Access only for Eurovision Members and EVN / EVS Sub-Licensees.
    <br />
      Coverage cannot be used by a national competitor of the contributing
      broadcaster.
    </usageTerms>
  </rightsInfo>
</newsItem>
```

¹ Note that this complies with the basic NewsML-G2 rule that "one piece of content = one newsItem". Although the video may be composed of material from many sources, it remains a single piece of journalistic content created by the video editor. This is analogous to a text story that is compiled by a single reporter or editor from several different reports.



```

</rightsInfo>
<itemMeta>
  <itemClass qcode="ni nat: video" />
  <provider qcode="providercode: EBU">
    <name>European Broadcasting Union - EVN</name>
    <organizationDetails>
      <contactInfo>
        <web>http://www.eurovision.net</web>
        <phone>+41 22 717 2869</phone>
        <email>features@eurovision.net</email>
        <address role="AddressType: Office">
          <line>Eurovision Sports News Exchanges</line>
          <line>L Ancienne Route 17 A</line>
          <line>CH- 1218</line>
          <locality>
            <name>Grand- Saconnex</name>
          </locality>
          <country qcode="ISOCountryCode: ch">
            <name xml:lang="en">Switzerland</name>
          </country>
        </address>
      </contactInfo>
    </organizationDetails>
  </provider>
  <versionCreated>2016- 11- 08T10: 54: 04Z</versionCreated>
  <firstCreated>2008- 11- 06T10: 22: 28Z</firstCreated>
  <pubStatus qcode="stat: usable" />
  <service qcode="servicecode: EUROVISION">
    <name>Eurovision services</name>
  </service>
  <edNote>Originally broadcast in Germany</edNote>
  <link rel="irel: associatedWith"
    href="http://www.example.com/video/407624/index.html"/>
</itemMeta>
<contentMeta>
  <contentCreated> 2008- 11- 05T19: 04: 00- 08: 00</contentCreated>
  <located type="cptype: city" qcode="city: 345678">
    <name>Berlin</name>
    <broader type="cptype: statprov" qcode="state: 2365">
      <name>Berlin</name>
    </broader>
    <broader type="cptype: country" qcode="iso3166- 1a2: DE">
      <name>Germany</name>
    </broader>
  </located>
  <creator qcode="codesource: DEZDF">
    <name>Zweites Deutsches Fernsehen</name>
    <organizationDetails>
      <location>
        <name>MAINZ</name>
      </location>
    </organizationDetails>
  </creator>
  <contributor qcode="codeorigin: DEZDF" role="rolecode: Technical Origin">
    <name>Zweites Deutsches Fernsehen</name>
  </contributor>
  <creator qcode="codesource: GBRTV">
    <name>Reuters Television Ltd</name>
  </creator>
  <language tag="en" role="langusecode: Voiceover">
    <name>English</name>
  </language>
  <genre qcode="genre: biog">
    <name xml:lang="en- GB">Bi ography</name>
    <name xml:lang="fr">bi ographi e</name>
  </genre>
  <subject type="cpnat: abstract" qcode="medtop: 01000000">
    <name xml:lang="en- GB">Arts, Culture and Entertainment</name>
    <name xml:lang="fr">Arts, culture, et spectacles</name>
    <narrower type="cpnat: abstract" qcode="medtop: 20000003">
      <name xml:lang="en- GB">Animati on</name>
      <name xml:lang="fr">Dessin animé</name>
    </narrower>
  </subject>
  <headline>Loriot retrospective</headline>
  <description role="descrole: dopesheet">
    Yesterday evening (November, 5) an exhibition opened in Berlin in
    honour of German humorist Vicco von Bülow, better known under the
    pseudonym "Loriot", to commemorate his 85th birthday. He was born
  </description>

```



```
November 12, 1923 in Brandenburg an der Havel and comes from an old
German aristocratic family. He is most well-known for his cartoons,
television sketches alongside late German actress Evelyn Hammann.
<br />
</description>
<description role="descrole:shotlist">
  Berlin, 05/11/2008 <br />
  - vs. Vicco von Bülow entering exhibition<br />
  - vs. Lorient and media<br />
  - sot Vicco von Bülow<br />
  "Since 85 years I didn't succeed in pursuing a job that could be
  called a profession.<br />
  - vs exhibition<br />
  - sot Irm Herrmann, actress<br />
  "Lorient is timeless. You always can watch him and I can always
  laugh." <br />
  sot Ulrich Matthes, actor <br />
  " I would say: one of the great German classics. Goethe, Kleist,
  Schiller, Thomas Mann, Lorient. That's the way I would say it."<br />
</description>
</contentMeta>
<partMeta partid="Part1_ID" seq="1">
  <icon href="http://www.example.com/video/Keyframes/407624.jpeg"/>
  <timeDelim start="0" end="446" timeunit="timeunit:editUnit"/>
  <language tag="en" role="langusecode:VoiceOver" />
  <description>Vicco von Bülow entering exhibition</description>
</partMeta>
<partMeta partid="Part2_ID" seq="2">
  <icon href="http://www.example.com/video/Keyframes/407624-447.jpeg"/>
  <timeDelim start="447" end="831" timeunit="timeunit:editUnit"/>
  <language tag="en" role="langusecode:VoiceOver" />
  <description>Lorient and media</description>
</partMeta>
<partMeta partid="Part3_ID" seq="3">
  <icon href="http://www.example.com/video/Keyframes/407624-832.jpeg"/>
  <timeDelim start="832" end="1081" timeunit="timeunit:editUnit"/>
  <language tag="en" role="langusecode:Interlocution" />
  <description>Vicco von Bülow interview</description>
</partMeta>
<partMeta partid="Part4_ID" seq="4">
  <icon href="http://www.example.com/video/Keyframes/407624-1082.jpeg"/>
  <timeDelim start="1082" end="1313" timeunit="timeunit:editUnit"/>
  <language tag="en" role="langusecode:NaturalSound" />
  <description>Exhibition panorama</description>
</partMeta>
<partMeta partid="Part5_ID" seq="5">
  <icon href="http://www.example.com/video/Keyframes/407624-1314.jpeg"/>
  <timeDelim start="1314" end="1616" timeunit="timeunit:editUnit"/>
  <language tag="en" role="langusecode:Interlocution" />
  <description>Irm Herrmann, actress, interview</description>
</partMeta>
<partMeta partid="Part6_ID" seq="6">
  <icon href="http://www.example.com/video/Keyframes/407624-1617.jpeg"/>
  <timeDelim start="1617" end="2109" timeunit="timeunit:editUnit"/>
  <language tag="en" role="langusecode:VoiceOver" />
  <description>Ulrich Matthes, actor, in exhibition</description>
</partMeta>
<partMeta partid="Part7_ID" seq="7">
  <icon href="http://www.example.com/video/Keyframes/407624-2110.jpeg"/>
  <timeDelim start="2110" end="2732" timeunit="timeunit:editUnit"/>
  <language tag="en" role="langusecode:Interlocution" />
  <description>Ulrich Matthes, actor, interview</description>
</partMeta>
<partMeta partid="Part8_ID" seq="8">
  <icon href="http://www.example.com/video/Keyframes/407624-2733.jpeg"/>
  <timeDelim start="2733" end="2774" timeunit="timeunit:editUnit"/>
  <language tag="en" role="langusecode:VoiceOver" />
  <description>"I would say: one of the great German classics. Goethe, Kleist,
  Schiller, Thomas Mann, Lorient. That's the way I would say it."</description>
</partMeta>
<contentSet>
  <remoteContent href="http://www.example.com/video/407624.avi"
  format="fmt:avi"
  duration="111" durationunit="timeunit:seconds"
  videocodec="vcdc:c155"
  videoframerate="25"
  videoaspectratio="16:9" />
</contentSet>
</newsItem>
```

Part Metadata

G2 Items can have many <partMeta> wrappers, each expressing properties for an identifiably separate part of the content; in this example each of the shots, or segments, which make up the video. The properties for each segment include:

- ❖ an ID for the segment, and a sequence number
- ❖ a keyframe, or icon that may help to visually identify the content of the segment
- ❖ the start time and duration of the segment

It is also possible to assert any Administrative or Descriptive Metadata for each <partMeta> element, if required.

The id and sequence number for the shot are expressed as attributes of <partMeta> and the <partMeta> element is repeated for each video segment. Below is a complete example of a single segment:

```
<partMeta partid="Part1_ID" seq="1">
  <icon href="http://www.example.com/video/Keyframes/407624.jpeg"/>
  <timeDelim start="0" end="446" timeunit="timeunit:editUnit"/>
  <language tag="en" role="lrol:voiceover" />
  <description>Vico von Bülow entering exhibition</description>
</partMeta>
```

These elements of video <partMeta> are discussed below.

Add keyframe using <icon>

A keyframe for the video segment is expressed as the child element <icon> with @href pointing to the keyframe image as a resource on the Web:

```
<icon href="http://www.example.com/video/Keyframes/407624.jpeg"/>
```

Timing metadata

The <timeDelim> property indicates the start and end time of this segment, and the time unit being used as shown below:

```
<timeDelim start="0" end="446" timeunit="timeunit:editUnit"/>
```

In the example, @start and @end are expressed as integers but note that the datatype of @start and @end is XML String, because start and end times can be expressed as integer, time, or SMPTE time code.

@timeunit use a QCode to indicate that @start and @end are expressed as frames, the smallest editable unit of video content. This is the default and is assumed if @timeunit is not present in the <timeDelim> element. Other values of time unit MUST be taken from the IPTC Time Unit NewsCodes (recommended Scheme Alias "timeunit").

The values in the scheme are:

- ❖ editUnit: (default) the time is expressed in frames (video) or samples (audio).
- ❖ timeCode: the format of the timestamp is hh:mm:ss:ff (ff for frames).
- ❖ timeCodeDropFrame: the format of the timestamp is hh:mm:ss:ff (ff for frames).
- ❖ normalPlayTime: the format of the timestamp is hh:mm:ss.sss (milliseconds).
- ❖ seconds.
- ❖ milliseconds.



When specifying the start and end points of a video segment, be aware that these are unlikely to be frame-accurate for the same shot rendered in different technical formats, due to potentially differing frame-rates. They may even produce different viewing results.

To overcome this issue, the attribute @renditionref has been added to <timeDelim>, allowing implementers to specify separate time delimiters corresponding to alternative renditions of the same shot.

Please note: @renditionref is not used in the main code example.



```
<partMeta...>
<!-- 10 seconds in frames at 25 fps = 250 frames -->
<timeDelim renditionref="vi drnd: avi 25" start="0" end="250"
timeunit="timeunit: editUnit"/>
<!-- 10 seconds in frames at 30 fps = 300 frames -->
<timeDelim renditionref="vi drnd: avi 30" start="0" end="300"
timeunit="timeunit: editUnit"/>
</partMeta>
```

Each @renditionref identifies a corresponding @rendition in <remoteContent>:

```
<contentSet>
<remoteContent contentType="..."
href="..."
rendition="vi drnd: avi 25"
... />
<remoteContent contentType="..."
href="..."
rendition="vi drnd: avi 30"
... />
</contentSet>
```

Description and Language

The example also indicates the language being used in the shot, and the context in which it is used. In this case, @role uses a QCode from a proprietary EBU scheme to indicate that the soundtrack of the shot is a voiceover in English.

```
<language tag="en" role="Langusecode: VoiceOver" />
```

Implementers may also use the IPTC Language Role NewsCodes (recommended Scheme Alias "lrol") for this purpose.

Using <description>, we can also indicate what the viewer can expect to see in this segment:

```
<description>Vico von Bülow entering exhibition</description>
```

Video Content

The <contentSet wrapper contains a single rendition of the video inside the <remoteContent> element:

```
<contentSet>
<remoteContent href="http://www.example.com/video/407624.avi"
format="fmt: avi"
duration="111" durationunit="timeunit: seconds"
videocodec="vcdc: c155"
videoframerate="25"
videoaspectratio="16: 9" />
</contentSet>
```

Further Resources

The IPTC Video Metadata Hub Recommendation (VMHub) was launched in October 2016 as a comprehensive solution to the exchange of video metadata between multiple existing standards. Visit the IPTC website www.iptc.org and follow the links to Video Metadata Hub.



NewsML-G2 Implementation Guidelines and Specification

For more comprehensive information about G2 implementation than is covered by these Quick Start Guides, the full Guidelines for NewsML-G2 Implementers may be downloaded from www.newsml-g2.org/doc.

This includes more detailed “How To” topics to help implementers with more complex needs, and also covers subjects such as creating and managing Catalogs and Controlled Vocabularies, conveying multiple G2 Items in News Messages, and using Planning and NewsML-G2 Events for news management and fulfilment.

The NewsML-G2 Specification is available for download at www.newsml-g2.org/spec.

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