

Appendix A: PBCore 2.1 XML Schema and Process History

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<?xml version="1.0" ?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns="http://www.pbcore.org/PBCore/PBCoreNamespace.html"
  targetNamespace="http://www.pbcore.org/PBCore/PBCoreNamespace.html"
  elementFormDefault="qualified" version="2.1draft3">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">This is the PBCore version 2.1draft3
XML schema. All element descriptions can be found at
http://www.pbcore.org</xsd:documentation>
  </xsd:annotation>
  <!-- Change Log:
20150717
- Added the 'source, ref, version, annotation' collection of attributes
to all elements where they are not yet currently available.
- Added supplemental attribute groups 'titleTypeSource, titleTypeRef,
titleTypeVersion, titleTypeAnnotation'; 'subjectTypeSource, subjectTypeRef,
subjectTypeVersion, subjectTypeAnnotation'; 'descriptionTypeSource,
descriptionTypeRef,
descriptionTypeVersion, descriptionTypeAnnotation'; 'segmentTypeSource,
segmentTypeRef, segmentTypeVersion, segmentTypeAnnotation';
'affiliationSource, affiliationRef, affiliationVersion,
affiliationAnnotation'; and 'partTypeSource, partTypeRef, partTypeVersion,
and partTypeAnnotation' to allow for the sourcing of information in the
'titleType,' 'subjectType,' 'descriptionType,' 'segmentType', 'affiliation'
and 'partType' attributes.
- Updated descriptions for all elements and attributes.
-->
  <!-- the pbcoreCollection root element -->
  <xsd:element name="pbcoreCollection" type="pbcoreCollectionType">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The pbcoreCollection
element groups multiple pbcoreDescriptionDocument XML into one container
element to allow for a serialized output. Uses might include API returns or
other web service output.</xsd:documentation>
      <xsd:documentation xml:lang="en">Best practice: This element is
not intended to be equivalent to the archive/library concept of a
'collection.' Please see pbcoreAssetType for information on how PBCore can be
used to express information about collections. The element is only applicable
to XML expressions of PBCore. This container enables a similar function to
RSS; pbcoreCollection would be similar to rss:channel and pbcoreDescription
document to rss:item.</xsd:documentation>
    </xsd:annotation>
  </xsd:element>
  <!-- the pbcoreDescriptionDocument root element -->
  <xsd:element name="pbcoreDescriptionDocument"
type="pbcoreDescriptionDocumentType">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: the
pbcoreDescriptionDocument element is a root XML element for the expression of
an individual PBCore record. pbcoreDescriptionDocument can be used to
express intellectual content only (e.g. a series or collection level record
with no associated instantiations), or intellectual content with one or more
instantiations (e.g. an episode of a program with copies/instantiations on

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videotape and digital file). This element is only applicable to XML
expressions of PBCore.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<!-- the pbcoreInstantiationDocument root element -->
<xsd:element name="pbcoreInstantiationDocument" type="instantiationType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
pbcoreInstantiation element is the equivalent of the instantiation element,
but used for the expression of an instantiation record at the root of an XML
document. This is most commonly used when referenced from other schemas, or
if you want to create and express a single, stand-alone
instantiation.</xsd:documentation>
    <xsd:documentation xml:lang="en">Best practice: This is most
commonly used when Intellectual Content (in other words, descriptive
metadata) is not expressed using PBCore, but rather another standard such as
MODS or Dublin Core.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<!-- the pbcoreCollectionType -->
<xsd:complexType name="pbcoreCollectionType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
pbcoreCollectionType schema type allows the addition of attributes that
describe the PBCoreCollection. The attributes define the title, the
description, the source, the reference and the date of the
collection.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <xsd:element maxOccurs="unbounded" minOccurs="1"
ref="pbcoreDescriptionDocument">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
pbcoreDescriptionDocument element assembles together all of PBCore knowledge
items into a single data record organized in a hierarchical structure. For
PBCore these knowledge items are metadata descriptions of media, including
all the knowledge items and metadata terms and values associated with its
content and containers.</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
  </xsd:sequence>
  <xsd:attribute name="collectionTitle" type="xsd:string">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The
collectionTitle attribute is a title or label for the group of individual
serialized XML records contained within one pbcoreCollection
element.</xsd:documentation>
    </xsd:annotation>
  </xsd:attribute>
  <xsd:attribute name="collectionDescription" type="xsd:string">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The
collectionDescription attribute is a description group of individual
serialized XML records contained within one pbcoreCollection
element.</xsd:documentation>
    </xsd:annotation>
  </xsd:attribute>

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    <xsd:attribute name="collectionSource" type="xsd:string">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
collectionSource attribute indicates an organization, application, or
individual for group of individual XML records contained within a
pbcoreCollection element.</xsd:documentation>
      </xsd:annotation>
    </xsd:attribute>
    <xsd:attribute name="collectionRef" type="xsd:string">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
collectionRef attribute provides a URL for the source organization,
application, or individual for a group of XML records contained within a
pbcoreCollection element.</xsd:documentation>
      </xsd:annotation>
    </xsd:attribute>
    <xsd:attribute name="collectionDate" type="xsd:string">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
collectionDate attribute provides the date of of creation for a
pbcoreCollection XML document.</xsd:documentation>
      </xsd:annotation>
    </xsd:attribute>
    <xsd:attributeGroup ref="sourceVersionGroup"/>
  </xsd:complexType>
  <!-- pbcoreDescriptionDocumentType -->
  <xsd:complexType name="pbcoreDescriptionDocumentType">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The
pbcoreDescriptionDocumentType schema type allows its use as a single asset or
repeated use in the pbcoreCollection.</xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
      <!-- the pbcore asset type -->
      <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreAssetType"
      type="sourceVersionStringType">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">Definition: The
pbcoreAssetType element is a broad definition of the type of intellectual
content being described. Asset types might include those without associated
instantiations (a collection or series), or those with instantiations
(programs, episodes, clips, etc.)" </xsd:documentation>
          <xsd:documentation xml:lang="en">Best practice: The asset
type should broadly describe all related instantiations -- for example, if an
asset includes many instantiations representing different generations of a
program, the asset type 'program' remains accurate for all of them."
</xsd:documentation>
        </xsd:annotation>
      </xsd:element>
      <!-- the pbcore asset date - this element may occur many times
with different date types -->
      <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreAssetDate"
      type="dateStringType">
        <xsd:annotation>

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        <xsd:documentation xml:lang="en">Definition: The
pbcoreAssetDate element is intended to reflect dates associated with the
Intellectual Content.</xsd:documentation>
        <xsd:documentation xml:lang="en">Best practice: By
contrast, instantiationDate is intended to reflect date information for the
specific instance. For example, if you have a VHS copy of Gone With The Wind,
the pbcoreAssetDate would be 1939, while the instantiationDate of the VHS
copy could be 1985. pbcoreAssetDate may also be used to reflect availability
dates, etc. Date types should be specified using the @dateType attribute.
Dates or time-based events related to the content of the asset, on the other
hand, would be described in the 'coverage' element -- so, while the storyline
of Gone with the Wind takes place in the nineteenth century, this information
should be noted in the Coverage field, not the assetDate field. Best practice
is to use ISO 8601 or some other date/time standard if
possible.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore identifier - this element may occur as many times
as
        desired; however, an identifier source attribute is
required. -->
    <xsd:element maxOccurs="unbounded" minOccurs="1"
name="pbcoreIdentifier"
        type="requiredSourceVersionStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
pbcoreIdentifier element provides an identifier that can apply to the asset.
This identifier should not be limited to a specific instantiation, but rather
is shared by or common to all instantiations of an asset. It can also hold a
URL or URI that points to the asset.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: Identify
the asset by means of a string or number corresponding to an established or
formal identification system if one exists. Otherwise, use an identification
method that is in use within your agency, station, production company,
office, or institution.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore title - this element may occur as many times as
        desired, optionally, a titleType attribute may appear -
->
    <xsd:element maxOccurs="unbounded" minOccurs="1"
name="pbcoreTitle"
        type="titleStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
pbcoreTitle element is a name or label relevant to the
asset.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: An asset
may have many types of titles, an asset may have, such as a series title,
episode title, segment title, or project title; therefore the element is
repeatable.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore subject - this element may occur as many times as
        desired, optional attributes can note subjectType as
well as time annotations -->

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        <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreSubject"
        type="subjectStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
pbcoreSubject element is used to assign topic headings or keywords that
portray the intellectual content of the asset. A subject is expressed by
keywords, key phrases, or even specific classification codes. Controlled
vocabularies, authorities, formal classification codes, as well as
folksonomies and user-generated tags, may be employed when assigning
descriptive subject terms.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore description - this element may occur as many
times
        as desired, however if it does occur, then a
description tag is
        required. optionally, the description type may appear
- but
        it has a limited vocabulary -->
    <xsd:element maxOccurs="unbounded" minOccurs="1"
name="pbcoreDescription"
        type="descriptionStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
pbcoreDescription element uses free-form text or a narrative to report
general notes, abstracts, or summaries about the intellectual content of an
asset. The information may be in the form of an individual program
description, anecdotal interpretations, or brief content reviews. The
description may also consist of outlines, lists, bullet points, rundowns,
edit decision lists, indexes, or tables of content.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore genre - this element may occur as many times as
desired. -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreGenre"
        type="sourceVersionStartEndStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
pbcoreGenre element describes the Genre of the asset, which can be defined as
a categorical description informed by the topical nature or a particular
style or form of the content.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: Genre
refers to the intellectual content of the asset, whereas the element
pbcoreAssetType defines a broader structural category; i.e. an asset might
have the Asset Type of Segment, with a Genre of News, together defining a
news segment.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore relation - this element may occur as many times
as
        desired. -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreRelation">
        <xsd:annotation>

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        <xsd:documentation xml:lang="en">Definition: The
pbcoreRelation element contains the pbcoreRelationType and
pbcoreRelationIdentifier elements. In order to properly use these two
elements they must be nested with the pbcoreRelation element, and
pbcoreRelation must contain both pbcoreRelationType and
pbcoreRelationIdentifier if it is included.</xsd:documentation>
    </xsd:annotation>
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element maxOccurs="1" minOccurs="1"
name="pbcoreRelationType"
                type="sourceVersionStringType">
                    <xsd:annotation>
                        <xsd:documentation xml:lang="en">Definition:
The pbcoreRelationType element describes the relationship between the asset
being describe by the pbcore document and any other asset. Ideally it would
contain text from a controlled vocabulary for describing relationships. There
is some depth to what a relationship could be. The assets can be related as
different episodes in a series, different tapes in a box set, or different
versions of an original, among others.</xsd:documentation>
                            <xsd:documentation xml:lang="en">Best
practice: The assets may be related in that they are different discrete parts
of a single intellectual unit, one may be a derivative of another, or they
may be different versions that are distinct enough to be described as
separate assets.</xsd:documentation>
                                </xsd:annotation>
                            </xsd:element>
                        <xsd:element maxOccurs="1" minOccurs="1"
name="pbcoreRelationIdentifier"
                                type="sourceVersionStringType">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">Definition:
The pbcoreRelationIdentifier element contains the identifier of the related
asset. In the case that the related asset has a PBCore record, this
identifier should correspond with the pbcoreIdentifier of the related asset.
However, it is possible to use this element with a record that isn't in
PBCore, in which case the source attribute should identify the source of the
identifier.</xsd:documentation>
                                            </xsd:annotation>
                                        </xsd:element>
                                    </xsd:sequence>
                                </xsd:complexType>
                            </xsd:element>
                        <!-- the pbcore coverage - this element may occur as many times
as
                                desired, and within it a Spatial or a Temporal
coverageType -->
                                    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreCoverage">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">Definition: The
pbcoreCoverage element is a container for sub-elements 'coverage' and
'coverageType'.</xsd:documentation>
                                                </xsd:annotation>
                                            <xsd:complexType>
                                                <xsd:sequence>

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        <xsd:element maxOccurs="1" minOccurs="1"
name="coverage"
        type="sourceVersionStartEndStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition:
The coverage element refers to either the geographic location or the time
period covered by the asset's intellectual content. For geographic locations
('spatial' descriptors), it is expressed by keywords such as place names
(e.g. 'Alaska' or 'Washington, DC'), numeric coordinates or geo-spatial data.
For time-based events ('temporal' descriptors), it is expressed by using a
date, period, era, or time-based event that is portrayed or covered in the
intellectual content (e.g. '2007' or 'Victorian Era'). The PBCore metadata
element coverage houses the actual spatial or temporal keywords. The
companion element coverageType is used to identify the type of keywords that
are being used.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
        <xsd:element maxOccurs="1" minOccurs="0"
name="coverageType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition:
The coverageType element is used to identify the actual type of keywords that
are being used by its companion metadata element coverage. coverageType
provides a picklist of two possible types - spatial or temporal - because
coverage in intellectual content may be expressed spatially by geographic
location or it may also be expressed temporally by a date, period, era, or
time-based event." </xsd:documentation>
            </xsd:annotation>
            <xsd:simpleType>
                <xsd:restriction base="xsd:string">
                    <xsd:enumeration value="Spatial"/>
                    <xsd:enumeration value="Temporal"/>
                </xsd:restriction>
            </xsd:simpleType>
        </xsd:element>
    </xsd:sequence>
</xsd:complexType>
</xsd:element>
<!-- the pbcore audienceLevel - this may occur as many times as
desired
        within the document -->
        <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreAudienceLevel"
        type="sourceVersionStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
pbcoreAudienceLevel element identifies a type of audience, viewer, or
listener for whom the media item is primarily designed or educationally
useful.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
        <!-- the pbcore audienceRating - this may occur as many times as
desired
        within the document -->
        <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreAudienceRating"
        type="sourceVersionStringType">

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        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
pbcoreAudienceRating element designates the type of users for whom the
intellectual content of a media item is intended or judged appropriate. This
element differs from the element pbcoreAudienceLevel in that it utilizes
standard ratings that have been crafted by the broadcast television and film
industries and that are used as flags for audience or age-appropriate
materials.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore creator - may appear as many times as
necessary, but when it does appear, the creator tag is required.
the
    creatorRole tag is optional. -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreCreator">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">The pbcoreCreator
element is a container for sub-elements 'creator' and
'creatorRole'.</xsd:documentation>
        </xsd:annotation>
        <xsd:complexType>
            <xsd:sequence>
                <xsd:element maxOccurs="1" minOccurs="1"
name="creator"
                    type="affiliatedStringType">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">Definition:
The creator element identifies the primary person, people, or organization(s)
responsible for creating the asset. Note that non-primary names and roles
should be included within the pbcoreContributor container. Best practice: We
recommend providing a consistent internal standard for entering proper names
and organizational names, such as 'Last name, First name, Middle name,' or
'Main group, subdivision.' We also recommend supplying separate pbcoreCreator
containers for each creator to be named for a resource. </xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                <xsd:element maxOccurs="unbounded" minOccurs="0"
name="creatorRole"
                    type="sourceVersionStringType">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">Definition:
The creatorRole element is used to identify the role played by the person,
people or organization(s) identified in the companion descriptor creator.
The PBCore schema allows for creatorRole to be repeated in the pbcoreCreator
container element. This can be useful when a single person or organization is
associated with multiple roles in an asset.</xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
            </xsd:sequence>
        </xsd:complexType>
    </xsd:element>
    <!-- the pbcore contributor - this element may appear as many
times as necessary, but when it does appear, the contributor tag must appear
inside it. the contributor role is optional. -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreContributor">

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        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
pbcoreContributor element is a container for sub-elements 'contributor' and
'contributorRole'.</xsd:documentation>
        </xsd:annotation>
        <xsd:complexType>
            <xsd:sequence>
                <xsd:element maxOccurs="1" minOccurs="1"
name="contributor"
                    type="affiliatedStringType">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">Definition:
The contributor element identifies a person, people, or organization that has
made substantial creative contributions to the asset. This contribution is
considered to be secondary to the primary author(s) (person or organization)
identified in the descriptor creator. Best practice: We recommend providing a
consistent internal standard for entering proper names and organizational
names, such as 'Last name, First name, Middle name,' or 'Main group,
subdivision.' We also recommend supplying separate pbcoreCreator containers
for each creator to be named for a resource.</xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                <xsd:element maxOccurs="unbounded" minOccurs="0"
name="contributorRole"
                    type="contributorStringType">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">Definition:
The contributorRole element is used to identify the role played by the
person, people or organizations identified in the companion element
contributor. The PBCore schema allows for contributorRole to be repeated in
the pbcoreContributor container element. This can be useful when a single
person or organization is associated with multiple roles in an
asset.</xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
            </xsd:sequence>
        </xsd:complexType>
    </xsd:element>
    <!-- the pbcore publisher - this follows the same guidelines as
the
        contributor and the creator.  this may exist as many
times as
        we wish, but inside it there must be a publisher tag.
a
        publisherRole tag is optional. -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcorePublisher">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
pbcorePublisher element is a container for sub-elements 'publisher' and
'publisherRole.'</xsd:documentation>
        </xsd:annotation>
        <xsd:complexType>
            <xsd:sequence>
                <xsd:element maxOccurs="1" minOccurs="1"
name="publisher"
                    type="affiliatedStringType">

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        <xsd:annotation>
          <xsd:documentation xml:lang="en">Definition:
The publisher element identifies a person, people, or organization primarily
responsible for distributing or making the asset available to others. The
publisher may be a person, a business, organization, group, project or
service. Best practice: We recommend providing a consistent internal standard
for entering proper names and organizational names, such as 'Last name, First
name, Middle name,' or 'Main group, subdivision.' We also recommend supplying
separate pbcoreCreator containers for each creator to be named for a
resource.</xsd:documentation>
        </xsd:annotation>
      </xsd:element>
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="publisherRole"
          type="sourceVersionStringType">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition:
The publisherRole element is used to identify the role played by the specific
publisher or publishing entity identified in the companion descriptor
publisher. The PBCore schema allows for publisherRole to be repeated in the
pbcorePublisher container element. This can be useful when a single person or
organization is associated with multiple roles in an
asset.</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
  </xsd:sequence>
</xsd:complexType>
</xsd:element>
<!-- the pbcore rights - this may appear as many times as needed
-->
  <xsd:element name="pbcoreRightsSummary" type="rightsSummaryType"
maxOccurs="unbounded"
      minOccurs="0">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: Th
pbcoreRightsSummary element is a container for sub-elements 'rightsSummary',
'rightsLink', and 'rightsEmbedded' used to describe Rights for the
asset.</xsd:documentation>
    </xsd:annotation>
  </xsd:element>
  <!-- the pbcore instantiation - this contains all the details on
how
      the asset is actualized -->
  <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreInstantiation"
      type="instantiationType">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The
instantiationType element contains sub-elements that describe a single
instantiation of an asset. The definition is malleable but it should be
thought of as any discreet and tangible unit that typically (though not
always) comprises a whole representation of the asset. For example, an
original master videotape, a preservation master video file, and a low-
bitrate access copy would all be considered Instantiations of a single video
program. All of the sub-elements held by this element are used to describe
the instantiation specifically, not necessarily the asset as a whole."
    </xsd:documentation>

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        </xsd:annotation>
    </xsd:element>
    <!-- PBCore Annotation -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreAnnotation"
        type="annotationStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
pbcoreAnnotation element allows the addition of any supplementary information
about the metadata used to describe the PBCore record. pbcoreAnnotation
clarifies element values, terms, descriptors, and vocabularies that may not
be otherwise sufficiently understood.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- PBCore Part -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcorePart" type="pbcorePartType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
pbcorePart element may be used to split up a single asset so as to enable the
use of all available elements at the pbcoreDescriptionDocument level to
describe the intellectual content of individual segments of an asset."
        </xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: Splitting
up an asset in this way allows for defining and describing segments, stories,
episodes or other divisions within the asset, such as individual films in a
compilation reel, or distinct segments of a news show when each may have
their own titles, creators, publishers, or other specific intellectual
content information that does not apply across the whole
asset.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- PBCore Extension -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="pbcoreExtension"
        type="extensionType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
pbcoreExtension element can be used as either a wrapper containing a specific
element from another standard OR embedded xml containing the
extension.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: Use it to
supplement other metadata sub-elements of the PBCore description document in
which it appears.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- For Readability - DescriptionDocument sequence end -->
</xsd:sequence>
<xsd:attributeGroup ref="sourceVersionGroup"/>
    <!-- For Readability - DescriptionDocument complexType end -->
</xsd:complexType>
<!-- the pbcore instantiationType -->
<xsd:complexType name="instantiationType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
pbcoreinstantiationType schema type uses a common structure to allow for a

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single instantiation or multiple instantiations within a
pbcoreDocumentDescription.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <!-- the pbcore instantiationIdentifier -->
    <xsd:element maxOccurs="unbounded" minOccurs="1"
name="instantiationIdentifier"
  type="requiredSourceVersionStringType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiationIdentifier element contains an unambiguous reference or
identifier for a particular instantiation of an asset.</xsd:documentation>
    <xsd:documentation xml:lang="en">Best practice: Identify
the media item (whether analog or digital) by means of a string or number
corresponding to an established or formal identification system if one
exists. Otherwise, use an identification method that is in use within your
agency, station, production company, office, or
institution.</xsd:documentation>
  </xsd:annotation>
  </xsd:element>
  <!-- the pbcore instantiationDate -->
  <xsd:element maxOccurs="unbounded" minOccurs="0"
name="instantiationDate"
  type="dateStringType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiationDate element is a date associated with an
instantiation.</xsd:documentation>
    <xsd:documentation xml:lang="en">Best practice: Use ISO
8601 or some other date/time standard if possible.</xsd:documentation>
  </xsd:annotation>
  </xsd:element>
  <!-- the pbcore instantiationDimensions -->
  <xsd:element maxOccurs="unbounded" minOccurs="0"
name="instantiationDimensions"
  type="technicalStringType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiationDimensions element specifies either the dimensions of a physical
instantiation, or the high-level visual dimensions of a digital
instantiation.</xsd:documentation>
    <xsd:documentation xml:lang="en">Best practice: For
physical dimensions, usage examples might be 7" for an audio reel. When
describing visual dimensions, use this for high-level descriptors such as
1080p. Use the element frameSize to describe the pixel dimensions of a visual
resource.</xsd:documentation>
  </xsd:annotation>
  </xsd:element>
  <!-- the pbcore instantiationPhysical -->
  <xsd:element maxOccurs="1" minOccurs="0"
name="instantiationPhysical"
  type="sourceVersionStringType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiationPhysical element is used to identify the format of a particular
instantiation as it exists in a physical form that occupies physical space

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(e.g., a tape on a shelf). This includes physical digital media, such as a DV
tape, audio CD or authored DVD, as well as analog media.</xsd:documentation>
  <xsd:documentation xml:lang="en">Best practice: PBCore
provides a controlled vocabulary for media objects, though any controlled
vocabulary can be used as long as it is referenced. For digital storage
carriers that contain portable file-based media, such as data CDs, LTO tapes
or hard drives, use instantiationDigital to convey the mime type of the file
instead of describing the carrier.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<!-- the pbcore instantiationDigital -->
<xsd:element maxOccurs="1" minOccurs="0"
name="instantiationDigital"
  type="sourceVersionStringType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiationDigital element is used to identify the format of a particular
instantiation of an asset as it exists as a digital file on a server, hard
drive, or other digital storage medium. Digital instantiations should be
expressed as a formal Internet MIME types.</xsd:documentation>
    <xsd:documentation xml:lang="en">Best practice:
instantiationDigital should only be used to describe the MIME type of the
digital file itself. There are multiple options to convey more information
about the storage medium or location of the digital file, which are discussed
in more detail on the PBCore site.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<!-- the pbcore instantiationStandard -->
<xsd:element maxOccurs="1" minOccurs="0"
name="instantiationStandard"
  type="instantiationStandardStringType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiationStandard element can be used, if the instantiation is a physical
item, to refer to the broadcast standard of the video signal (e.g. NTSC,
PAL), or the audio encoding (e.g. Dolby A, vertical cut). If the
instantiation is a digital item, instantiationStandard should be used to
express the container format of the digital file (e.g.
MXF).</xsd:documentation>
    <xsd:documentation xml:lang="en">Best practice: While the
usage described in the definition is best practice for 2.1, this usage is
likely to change if new elements are added for PBCore
3.0.</xsd:documentation>
  </xsd:annotation>
</xsd:element>
<!-- the pbcore instantiationLocation -->
<xsd:element maxOccurs="1" minOccurs="1"
name="instantiationLocation"
  type="sourceVersionStringType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiationLocation element may contain information about a specific
location for an instantiation, such as an organization's name, departmental
name, shelf ID and contact information. The instantiationLocation for a
digital file should include domain, path or URI to the
file.</xsd:documentation>

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        <xsd:documentation xml:lang="en">Best practice: For
digital files, instantiationLocation should always include a path or URI to
the file. There are multiple ways to convey additional information about the
location of a carrier or storage medium of the digital file, which are
expressed on the
        PBCore site.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<!-- the pbc core instantiationMediaTypes -->
<xsd:element maxOccurs="1" minOccurs="0"
name="instantiationMediaTypes"
    type="sourceVersionStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
instantiationMediaTypes element identifies the general, high level nature of
the content of an instantiation. It uses categories that show how content is
presented to an observer, e.g., as a sound, text or moving
image.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<!-- the pbc core instantiationGenerations -->
<xsd:element maxOccurs="unbounded" minOccurs="0"
name="instantiationGenerations"
    type="sourceVersionStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
instantiationGeneration element identifies the use type and provenance of the
instantiation. The generation of a video tape may be an "Original Master" or
"Dub", the generation of a film reel may be an "Original Negative" or
"Composite Positive", an audiotape may be a "Master" or "Mix Element", an
image may be a "Photograph" or a "Photocopy.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<!-- the pbc core instantiationFileSize -->
<xsd:element maxOccurs="1" minOccurs="0"
name="instantiationFileSize"
    type="technicalStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
instantiationFileSize element indicates the file size of a digital
instantiation. It should contain only numerical values. As a standard,
express the file size in bytes. Units of Measure should be declared in the
unitsOfMeasure attribute.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<!-- the pbc core instantiationTimeStart -->
<xsd:element maxOccurs="1" minOccurs="0"
name="instantiationTimeStart"
    type="sourceVersionStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
instantiationTimeStart element describes the point at which playback begins
for a time-based instantiation. It is likely that the content on a tape may
begin an arbitrary amount of time after the beginning of the instantiation.
Best practice is to use a timestamp format such as HH:MM:SS[;:]FF or
HH:MM:SS.mmm or S.mmm.</xsd:documentation>
    </xsd:annotation>

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    </xsd:element>
    <!-- the pbcore instantiationDuration -->
    <xsd:element maxOccurs="1" minOccurs="0"
name="instantiationDuration"
    type="sourceVersionStringType">
    <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiationDuration element provides a timestamp for the overall length or
duration of a time-based media item. It represents the playback time. Best
practice is to use a timestamp format such as HH:MM:SS[:|;]FF or HH:MM:SS.mmm
or S.mmm.</xsd:documentation>
    </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiationDataRate -->
    <xsd:element maxOccurs="1" minOccurs="0"
name="instantiationDataRate"
    type="technicalStringType">
    <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiationDataRate element expresses the amount of data in a digital media
file that is encoded, delivered or distributed, for every second of time.
This should be expressed as numerical data, with the units of measure
declared in the unitsOfMeasure attribute. For example, if the audio file is
56 kilobits/second, then 56 should be the value of instantiationDataRate and
the attribute unitsOfMeasure should be kilobits/second.</xsd:documentation>
    </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiationColors -->
    <xsd:element maxOccurs="1" minOccurs="0"
name="instantiationColors"
    type="sourceVersionStringType">
    <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiationColors element indicates the overall color, grayscale, or black
and white nature of the presentation of an instantiation, as a single
occurrence or combination of occurrences in or throughout the
instantiation.</xsd:documentation>
    </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiationTracks -->
    <xsd:element maxOccurs="1" minOccurs="0"
name="instantiationTracks"
    type="sourceVersionStringType">
    <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiationTracks element is simply intended to indicate the number and
type of tracks that are found in a media item, whether it is analog or
digital. (e.g. 1 video track, 2 audio tracks, 1 text track, 1 sprite track,
etc.) Other configuration information specific to these identified tracks
should be described using
instantiationChannelConfiguration.</xsd:documentation>
    <xsd:documentation xml:lang="en">Best practice: Best
practices is to use essenceTracks, as this element has been
deprecated.</xsd:documentation>
    </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiationChannelConfiguration -->

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        <xsd:element maxOccurs="1" minOccurs="0"
name="instantiationChannelConfiguration"
        type="sourceVersionStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
                instantiationChannelConfiguration element is designed
to indicate, at a general narrative level, the arrangement or configuration
of specific channels or layers of information within an instantiation's
tracks. Examples are 2-track mono, 8- track stereo, or video track with alpha
channel.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiationLanguage -->
    <xsd:element name="instantiationLanguage"
type="threeLetterStringType"
        maxOccurs="unbounded" minOccurs="0">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
instantiationLanguage element identifies the primary language of the tracks'
audio or text. Languages must be indicated using 3-letter codes standardized
in ISO 639-2 or 639-3. If an instantiation includes more than one language,
the element can be repeated. Alternately, both languages can be expressed in
one element by separating two three-letter codes with a semicolon, i.e.

<instantiationLanguage>eng;fre</instantiationLanguage>. + Best practice:
Alternative audio or text tracks and their associated languages should be
identified using the element
instantiationAlternativeModes.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiationAlternativeModes -->
    <xsd:element maxOccurs="1" minOccurs="0"
name="instantiationAlternativeModes"
        type="sourceVersionStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
instantiationAlternativeModes element is a catch-all metadata element that
identifies equivalent alternatives to the primary visual, sound or textual
information that exists in an instantiation. These are modes that offer
alternative ways to see, hear, and read the content of an instantiation.
Examples include DVI (Descriptive Video Information), SAP (Supplementary
Audio Program), ClosedCaptions, OpenCaptions, Subtitles, Language Dubs, and
Transcripts. For each instance of available alternativeModes, the mode and
its associated language should be identified together, if applicable.
Examples include 'SAP in English,' 'SAP in Spanish,' 'Subtitle in French,'
'OpenCaption in Arabic.'</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiationEssenceTrack -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="instantiationEssenceTrack"
        type="essenceTrackType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
instantiationEssenceTrack element is an XML container element that allows for
grouping of related essenceTrack elements and their repeated use. Use
instantiationEssenceTrack element to describe the individual streams that

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comprise an instantiation, such as audio, video, timecode,
etc.</xsd:documentation>
    <xsd:documentation xml:lang="en">Best practice: Essence
tracks can exist in either the digital or physical realm. In the digital
realm, they may refer to the separate audio and video tracks within a digital
file. In the physical realm, they may refer to the video and audio tracks
contained on a single video tape.</xsd:documentation>
    </xsd:annotation>
</xsd:element>
<!-- the pbcore InstantiationRelation - this element may occur as
many times as desired. if it does occur, the instantiationRelationIdentifier
must appear, also the relationType must also appear -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="instantiationRelation">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
instantiationRelation element is a container for sub-elements
instantiationRelationType and instantiationRelationIdentifier to describe
relationships to other instantiations.</xsd:documentation>
    </xsd:annotation>
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element maxOccurs="1" minOccurs="1"
name="instantiationRelationType"
                type="sourceVersionStringType">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">Definition:
The
                        instantiationRelationType element
describes the relation between the instantiation being described and another
instantiation.</xsd:documentation>
                    <xsd:documentation xml:lang="en">Best
practice: Use to express relationships between instantiations, for example to
note that they are different discrete parts of a single intellectual unit,
generationally related, derivative of another, or different
versions.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
            <xsd:element maxOccurs="1" minOccurs="1"
name="instantiationRelationIdentifier"
                type="sourceVersionStringType">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">Definition:
The instantiationRelationIdentifier element is used to provide a name,
locator, accession, identification number or ID where the related item can be
obtained or found.</xsd:documentation>
                    <xsd:documentation xml:lang="en">Best
practice: We recommend using a unique identifier or global unique ID in this
element.</xsd:documentation>
                </xsd:annotation>
            </xsd:element>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<!-- the pbcore instantiationRights -->
    <xsd:element name="instantiationRights" type="rightsSummaryType"
maxOccurs="unbounded"

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        minOccurs="0">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
instantiationRights element is a container for sub-elements rightsSummary,
rightsLink and rightsEmbedded to describe rights particular to this
instantiation." </xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: This
element contains rights information that is specific to an instantiation of
an asset, such as rights conferred in a donation agreement that apply only to
a single donated item.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiationAnnotation -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="instantiationAnnotation"
        type="annotationStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
instantiationAnnotation element is used to add any supplementary information
about an instantiation of the instantiation or the metadata used to describe
it. It clarifies element values, terms, descriptors, and vocabularies that
may not be otherwise sufficiently understood.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiationPart -->
    <xsd:element name="instantiationPart" type="instantiationType"
maxOccurs="unbounded"
        minOccurs="0">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
instantiationPart element is a container that allows the instantiation to be
split into multiple parts, which can describe the parts of a multi-section
instantiation, e.g., a multi-disk DVD or vitagraph record and 35mm reel that
are intended for synchronous playback. It contains all of the elements that a
pbcoreInstantiation element would typically contain.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiationExtension -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="instantiationExtension"
        type="extensionType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
instantiationExtension element can be used as either a wrapper containing a
specific element from another standard OR embedded xml containing the
extension.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: Use it to
supplement other metadata sub-elements of 'instantiationPart' or
'pbcoreInstantiationDocument' in which it appears.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
</xsd:sequence>
<!-- instantiationStartEndTimeGroup -->
<xsd:attributeGroup ref="startEndTimeGroup">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
instantiation level attribute group startEndTimeGroup may be used when there

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is a multi-part instantiation and time notation is important.
</xsd:documentation>
  </xsd:annotation>
</xsd:attributeGroup>
<xsd:attributeGroup ref="sourceVersionGroup">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiation level attribute group sourceVersionGroup may be used when there
is a multi-part instantiation and notation is important. </xsd:documentation>
  </xsd:annotation>
</xsd:attributeGroup>
</xsd:complexType>
<!-- the pbcore instantiation essenceTrackType -->
<xsd:complexType name="essenceTrackType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The essenceTrackType
schema type uses a common structure to allow for grouping of the essence
related elements and their repeated use.</xsd:documentation>
  </xsd:annotation>
  <xsd:sequence>
    <!-- the pbcore instantiation essenceTrackType -->
    <xsd:element maxOccurs="1" minOccurs="0" name="essenceTrackType"
      type="sourceVersionStringType">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
essenceTrackType element refers to the media type of the decoded data. Tracks
may possibly be of these types: video, audio, caption, metadata, image,
etc.</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiation essenceTrackIdentifier -->
    <xsd:element maxOccurs="unbounded" minOccurs="0"
name="essenceTrackIdentifier"
      type="sourceVersionStringType">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
essenceTrackIdentifier element is an identifier of the track. Several
audiovisual containers include such identifier schema to identify each track,
such as MPEG2 PIDs or QuickTime Track IDs.</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiation essenceTrackStandard -->
    <xsd:element maxOccurs="1" minOccurs="0"
name="essenceTrackStandard"
      type="sourceVersionStringType">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
essenceTrackStandard element should be be used with file-based instantiations
to describe the broadcast standard of the video signal (e.g. NTSC, PAL) or to
further clarify the standard of the essenceTrackEncoding
format.</xsd:documentation>
      </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiation essenceTrackEncoding -->
    <xsd:element maxOccurs="1" minOccurs="0"
name="essenceTrackEncoding"
      type="sourceVersionStringType">

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        <xsd:annotation>
          <xsd:documentation xml:lang="en">Definition: The
essenceTrackEncoding element essenceTrackEncoding identifies how the actual
information in an instantiation is compressed, interpreted, or formulated
using a particular scheme. Identifying the encoding used is beneficial for a
number of reasons, including as a way to achieve reversible compression; for
the construction of document indices to facilitate searching and access; or
for efficient distribution of the information across data networks with
differing bandwidths or pipeline capacities. Human-readable encoding value
should be placed here. Use @ref to identify the codec ID.</xsd:documentation>
          <xsd:documentation xml:lang="en">Best practice: Use
@source to describe the type of encoding reference used, such as fourcc. In
@ref, use a URI/URL from the source to identify the codec utilized by its
container format.</xsd:documentation>
        </xsd:annotation>
      </xsd:element>
      <!-- the pbcore instantiation essenceTrackDataRate -->
      <xsd:element maxOccurs="1" minOccurs="0"
name="essenceTrackDataRate"
          type="technicalStringType">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">Definition: The
essenceTrackDataRate element measures the amount of data used per time
interval for encoded data. The data rate can be calculated by dividing the
total data size of the track's encoded data by a time unit. By default use
bytes per second.</xsd:documentation>
          </xsd:annotation>
        </xsd:element>
      <!-- the pbcore instantiation essenceTrackFrameRate -->
      <xsd:element maxOccurs="1" minOccurs="0"
name="essenceTrackFrameRate"
          type="technicalStringType">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">Definition: The
essenceTrackFrameRate element is relevant to tracks of video track type only.
The frame rate is calculated by dividing the total number of frames by the
duration of the video track. By default measure frame rate in frames per
second expressed as fps as a unit of measure. e.g., 24
fps.</xsd:documentation>
          <xsd:documentation xml:lang="en">Best practice: Example:
1920x1080.</xsd:documentation>
          </xsd:annotation>
        </xsd:element>
      <!-- the pbcore instantiation essenceTrackPlaybackSpeed -->
      <xsd:element maxOccurs="1" minOccurs="0"
name="essenceTrackPlaybackSpeed"
          type="technicalStringType">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">Definition: The
essenceTrackPlaybackSpeed element specifies the rate of units against time at
which the media track should be rendered for human consumption. e.g., 15ips
(inches per second).</xsd:documentation>
          </xsd:annotation>
        </xsd:element>
      <!-- the pbcore instantiation essenceTrackSamplingRate -->
      <xsd:element maxOccurs="1" minOccurs="0"
name="essenceTrackSamplingRate"

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        type="technicalStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
essenceTrackSamplingRate element measures how often data is sampled when
information from the audio portion from an instantiation is digitized. For a
digital audio signal, the sampling rate is measured in kilohertz and is an
indicator of the perceived playback quality of the media item (the higher the
sampling rate, the greater the fidelity).</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiation essenceTrackBitDepth -->
    <xsd:element maxOccurs="1" minOccurs="0"
name="essenceTrackBitDepth"
        type="technicalStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
essenceTrackBitDepth element specifies how much data is sampled when
information is digitized, encoded, or converted for an instantiation
(specifically, audio, video, or image). Bit depth is measured in bits and
generally implies an arbitrary perception of quality during playback of an
instantiation (the higher the bit depth, the greater the fidelity).
</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiation essenceTrackFrameSize -->
    <xsd:element maxOccurs="1" minOccurs="0"
name="essenceTrackFrameSize"
        type="technicalStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
essenceTrackFrameSize element measures the width and height of the encoded
video or image track. The frame size refers to the size of the encoded pixels
and not the size of the displayed image. It may be expressed as combination
of pixels measured horizontally vs. the number of pixels of image/resolution
data stacked vertically (interlaced and progressive
scan).</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiation essenceTrackAspectRatio -->
    <xsd:element maxOccurs="1" minOccurs="0"
name="essenceTrackAspectRatio"
        type="technicalStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
essenceTrackAspectRatio element indicates the ratio of horizontal to vertical
proportions in the display of a static image or moving
image.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
    <!-- the pbcore instantiation essenceTrackTimeStart -->
    <xsd:element maxOccurs="1" minOccurs="0"
name="essenceTrackTimeStart"
        type="sourceVersionStringType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
essenceTrackTimeStart element provides a time stamp for the beginning point
of playback for a time-based essence track. It is likely that the content on

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a tape may begin an arbitrary amount of time after the beginning of the
instantiation.</xsd:documentation>
  <xsd:documentation xml:lang="en">Best practice: Use in
combination with essenceTrackDuration to identify a sequence or segment of an
essence track that has a fixed start time and end time. Best practice is to
use a timestamp format such as HH:MM:SS[:|;]FF or HH:MM:SS.mmm or
S.mmm.</xsd:documentation>
    </xsd:annotation>
  </xsd:element>
  <!-- the pbcore instantiation essenceTrackDuration -->
  <xsd:element maxOccurs="1" minOccurs="0"
name="essenceTrackDuration"
  type="sourceVersionStringType">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The
essenceTrackDuration element provides a timestamp for the overall length or
duration of a track. It represents the track playback time. Best practice is
to use a timestamp format such as HH:MM:SS[:|;]FF or HH:MM:SS.mmm or
S.mmm.</xsd:documentation>
    </xsd:annotation>
  </xsd:element>
  <!-- the pbcore instantiation essenceTrackLanguage -->
  <xsd:element maxOccurs="unbounded" minOccurs="0"
name="essenceTrackLanguage"
  type="threeLetterStringType">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The
essenceTrackLanguage element identifies the primary language of the tracks'
audio or
          text.</xsd:documentation>
      <xsd:documentation xml:lang="en">Best practice:
Alternative audio or text tracks and their associated languages should be
identified using the element alternativeModes.</xsd:documentation>
    </xsd:annotation>
  </xsd:element>
  <!-- the pbcore instantiation essenceTrackAnnotation -->
  <xsd:element maxOccurs="unbounded" minOccurs="0"
name="essenceTrackAnnotation"
  type="annotationStringType">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The
essenceTrackAnnotation element can store any supplementary information about
a track or the metadata used to describe it. It clarifies element values,
terms, descriptors, and vocabularies that may not be otherwise sufficiently
understood.</xsd:documentation>
    </xsd:annotation>
  </xsd:element>
  <!-- the pbcore instantiation essenceExtension -->
  <xsd:element maxOccurs="unbounded" minOccurs="0"
name="essenceTrackExtension"
  type="extensionType">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The
essenceTrackExtension element can be used as either a wrapper containing a
specific element from another standard OR embedded xml containing the
extension. The essenceTrackExtension element is a container to accomodate
track-level metadata from external systems. Use it to supplement other

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metadata sub-elements of instantiationEssenceTrack in which it
appears.</xsd:documentation>
    </xsd:annotation>
  </xsd:element>
</xsd:sequence>
<xsd:attributeGroup ref="sourceVersionGroup"/>
</xsd:complexType>
<!-- extensionType -->
<xsd:complexType name="extensionType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The extensionType
schema type uses a common structure to allow for the use of multiple,
qualified extensions at the asset, instantiation and essence
levels.</xsd:documentation>
  </xsd:annotation>
  <xsd:choice>
    <xsd:element maxOccurs="unbounded" minOccurs="1"
name="extensionWrap">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
extensionWrap element serves as a container for the elements
extensionElement, extensionValue, and
extensionAuthorityUsed.</xsd:documentation>
      </xsd:annotation>
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element maxOccurs="1" minOccurs="1"
name="extensionElement"
          type="xsd:string">
            <xsd:annotation>
              <xsd:documentation xml:lang="en">Definition:
The extensionElement element should contain the name of an element used from
another metadata standard, in the case that an element from another metadata
standard is used. While we recommend the usage of an existing standard, this
element can also be used to define local elements that may not be part of an
existing standard." </xsd:documentation>
              <xsd:documentation xml:lang="en">Best
practice: These extensions fulfill the metadata requirements for communities
identifying and describing their own types of media with specialized, custom
terminologies.</xsd:documentation>
            </xsd:annotation>
          </xsd:element>
          <xsd:element maxOccurs="1" minOccurs="1"
name="extensionValue"
          type="xsd:string">
            <xsd:annotation>
              <xsd:documentation xml:lang="en">Definition:
The extensionValue element is used to express the data value of the label
indicated by extensionElement.</xsd:documentation>
            </xsd:annotation>
          </xsd:element>
          <xsd:element maxOccurs="1" minOccurs="0"
name="extensionAuthorityUsed"
          type="xsd:anyURI">
            <xsd:annotation>

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        <xsd:documentation xml:lang="en">Definition:
The extensionAuthorityUsed element identifies the authority used for the
extensionElement.</xsd:documentation>
        <xsd:documentation xml:lang="en">Best
practice: If metadata extensions to PBCore are assigned to a media item with
the element extensionElement, and the terms used are derived from a specific
authority or metadata scheme, use extensionAuthorityUsed to identify whose
metadata extensions are being used.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
</xsd:sequence>
    <xsd:attributeGroup ref="sourceVersionGroup"/>
</xsd:complexType>
</xsd:element>
    <xsd:element maxOccurs="unbounded" minOccurs="1"
name="extensionEmbedded"
    type="embeddedType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
extensionEmbedded element allows the inclusion of xml from another schema,
e.g. TEI, METS, etc.</xsd:documentation>
        </xsd:annotation>
    </xsd:element>
</xsd:choice>
</xsd:complexType>
<!-- pbcorePartType -->
<xsd:complexType name="pbcorePartType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The pbcorePartType
schema type uses a common structure to allow for the repeating of descriptive
sub-documents to define different segments, episodes etc., just as super-
element 'pbcoreDescriptionDocument' can be collected and used to describe
higher-level media programs.</xsd:documentation>
    </xsd:annotation>
    <xsd:complexContent>
        <xsd:extension base="pbcoreDescriptionDocumentType">
            <xsd:attributeGroup ref="startEndTimeGroup">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">Definition: The
group of attributes "startTime', 'endTime' and 'timeAnnotation' could be used
when a there is a multipart asset and time notation is important.
                    </xsd:documentation>
                </xsd:annotation>
            </xsd:attributeGroup>
            <xsd:attribute name="partType" type="xsd:string">
                <xsd:annotation>
                    <xsd:documentation>Definition: The partType attribute
is used to indicate the nature of the part into which the asset has been
divided.</xsd:documentation>
                </xsd:annotation>
            </xsd:attribute>
            <xsd:attribute name="partTypeSource" type="xsd:string">
                <xsd:annotation>
                    <xsd:documentation>Definition: The partTypeSource
attribute provides the name of the authority used to declare data value of
the partType attribute.</xsd:documentation>

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        <xsd:documentation>Best practice: This might be the
name of a controlled vocabulary, namespace or authority list, such as the
official PBCore vocabulary. We recommend a consistent and human readable
use.</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="partTypeRef" type="xsd:string">
    <xsd:annotation>
        <xsd:documentation>Definition: The partTypeRef
attribute is used to supply a source's URI for the value of the attribute
titleTypeSource.</xsd:documentation>
        <xsd:documentation>Best practice: The partTypeRef
attribute can be used to point to a term in a controlled vocabulary, or a URI
associated with a source.</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="titleTypeVersion" type="xsd:string">
    <xsd:annotation>
        <xsd:documentation>Definition: The partTypeVersion
attribute identifies any version information about the authority or
convention used to express data of this element.</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="titleTypeAnnotation" type="xsd:string">
    <xsd:annotation>
        <xsd:documentation>Definition: The partTypeAnnotation
attribute includes narrative information intended to clarify the nature of
data used in the element.</xsd:documentation>
        <xsd:documentation>Best practice: This attribute can
be used as a notes field to include any additional information about the
element or associated attributes</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<!-- dateStringType -->
<xsd:complexType name="dateStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The dateStringType
schema type allows for the addition of the dateType
attribute.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="dateType" type="xsd:string">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">Definition: The
dateType attribute classifies by named type the date-related data of the
element e.g., created, broadcast, dateAvailableStart.</xsd:documentation>
                    <xsd:documentation xml:lang="en">Best practice: Used
to clarify how the date is related to the asset or instantiation. Date
Created may be the most common, but the element could also be used to
describe the Date Accessioned or Date Deaccessioned, for
example.</xsd:documentation>
                </xsd:annotation>
            </xsd:attribute>

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        <xsd:attributeGroup ref="sourceVersionGroup"/>
    </xsd:extension>
</xsd:simpleContent>
</xsd:complexType>
<!-- sourceVersionStringType -->
<xsd:complexType name="sourceVersionStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
sourceVersionStringType schema type is used with a number of elements to
allow the attachment of the attributes: source, ref, version and
annotation.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attributeGroup ref="sourceVersionGroup"/>
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>
<!-- requiredSourceVersionStringType -->
<xsd:complexType name="requiredSourceVersionStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
requiredSourceVersionStringType schema type type is the same as
sourceVersionStringType with the addition that the source attribute is
required instead of optional.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="source" type="xsd:string"
use="required">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">Definition: The
source attribute provides the name of the authority used to declare the value
of the element.</xsd:documentation>
                    <xsd:documentation xml:lang="en">Best practice:
Different elements will use the source attribute slightly differently. For
example, identifier source (required) should be the name of the organization,
institution, system or namespace that the identifier came from, such as "PBS
NOLA Code" or an institutional database identifier. For other elements, this
might be the name of a controlled vocabulary, namespace or authority list,
such as Library of Congress Subject Headings. We recommend a consistent and
human readable use.</xsd:documentation>
                </xsd:annotation>
            </xsd:attribute>
            <xsd:attribute name="ref" type="xsd:string">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">Definition: The ref
attribute is used to supply a source's URI for the value of the
element.</xsd:documentation>
                    <xsd:documentation xml:lang="en">Best practice:
Attribute ref can be used to point to a term in a controlled vocabulary, or a
URI associated with a source.</xsd:documentation>
                </xsd:annotation>
            </xsd:attribute>
            <xsd:attribute name="version" type="xsd:string">
                <xsd:annotation>

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        <xsd:documentation xml:lang="en">Definition: The
version attribute identifies any version information about the authority or
convention used to express data of this element.</xsd:documentation>
        <xsd:documentation xml:lang="en">Best practice: This
attribute can be used as a notes field to include any additional information
about the element or associated attributes.</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="annotation" type="xsd:string">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
annotation attribute includes narrative information intended to clarify the
nature of data used in the element.</xsd:documentation>
    </xsd:annotation>
</xsd:attribute>
</xsd:extension>
</xsd:simpleContent>
</xsd:complexType>
<!-- titleStringType -->
<xsd:complexType name="titleStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The titleStringType
schema type allows for the addition of a titleType attribute as well as the
standard sourceVersionGroup attributes and a startEndTimeGroup or
attributes.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="titleType" type="xsd:string">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">Definition: The
titleType attribute is used to indicate the type of title being assigned to
the asset, such as series title, episode title or project
title.</xsd:documentation>
                </xsd:annotation>
            </xsd:attribute>
            <xsd:attribute name="titleTypeSource" type="xsd:string">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">Definition: The
titleTypeSource attribute is used to provides the name of the authority used
to declare data value of the titleType attribute.</xsd:documentation>
                    <xsd:documentation xml:lang="en">Best practice: This
might be the name of a controlled vocabulary, namespace or authority list,
such as the official PBCore vocabulary. We recommend a consistent and human
readable use.</xsd:documentation>
                </xsd:annotation>
            </xsd:attribute>
            <xsd:attribute name="titleTypeRef" type="xsd:string">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">Definition: The
titleTypeRef attribute is used to supply a source's URI for the value of the
attribute titleTypeSource.</xsd:documentation>
                    <xsd:documentation xml:lang="en">Best practice:
Attribute titleTypeRef can be used to point to a term in a controlled
vocabulary, or a URI associated with a source.</xsd:documentation>
                </xsd:annotation>
            </xsd:attribute>

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        <xsd:attribute name="titleTypeVersion" type="xsd:string">
          <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
titleTypeVersion attribute identifies any version information about the
authority or convention used to express data of this
element.</xsd:documentation>
          </xsd:annotation>
        </xsd:attribute>
        <xsd:attribute name="titleTypeAnnotation" type="xsd:string">
          <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
titleTypeAnnotation attribute includes narrative information intended to
clarify the nature of data used in the element.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: This
attribute can be used as a notes field to include any additional information
about the element or associated attributes.</xsd:documentation>
          </xsd:annotation>
        </xsd:attribute>
        <xsd:attributeGroup ref="sourceVersionGroup"/>
        <xsd:attributeGroup ref="startEndTimeGroup"/>
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>
  <!-- subjectStringType -->
  <xsd:complexType name="subjectStringType">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The
subjectStringType schema type allows for the addition of a subjectType
attribute as well as the standard sourceVersionGroup attributes and a
startEndTimeGroup or attributes.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleContent>
      <xsd:extension base="xsd:string">
        <xsd:attribute name="subjectType" type="xsd:string">
          <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
subjectType attribute is used to indicate the type of subject being assigned
to the attribute subjectType, such as 'topic,' 'personal name,' or
'keyword'.</xsd:documentation>
          </xsd:annotation>
        </xsd:attribute>
        <xsd:attribute name="subjectTypeSource" type="xsd:string">
          <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
subjectTypeSource attribute provides the name of the authority used to
declare the value of the attribute subjectType.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: This
might be the name of a controlled vocabulary, namespace or authority list,
such as the official PBCore vocabulary. We recommend a consistent and human
readable use.</xsd:documentation>
          </xsd:annotation>
        </xsd:attribute>
        <xsd:attribute name="subjectTypeRef" type="xsd:string">
          <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
subjectTypeRef attribute is used to supply a source's URI for the value of
the attribute subjectType.</xsd:documentation>
          </xsd:annotation>
        </xsd:attribute>
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>

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        <xsd:documentation xml:lang="en">Best practice:
Attribute subjectTypeRef can be used to point to a term in a controlled
vocabulary, or a URI associated with a source.</xsd:documentation>
    </xsd:annotation>
  </xsd:attribute>
  <xsd:attribute name="subjectTypeVersion" type="xsd:string">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The
subjectTypeVersion attribute identifies any version information about the
authority or convention used to express data of the attribute
subjectType.</xsd:documentation>
    </xsd:annotation>
  </xsd:attribute>
  <xsd:attribute name="subjectTypeAnnotation"
type="xsd:string">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The
subjectTypeAnnotation attribute includes narrative information intended to
clarify the nature of data used in the attribute
subjectType.</xsd:documentation>
      <xsd:documentation xml:lang="en">Best practice: This
attribute can be used as a notes field to include any additional information
about the element or associated attributes.</xsd:documentation>
    </xsd:annotation>
  </xsd:attribute>
  <xsd:attributeGroup ref="sourceVersionGroup"/>
  <xsd:attributeGroup ref="startEndTimeGroup"/>
</xsd:extension>
</xsd:simpleContent>
</xsd:complexType>
<!-- descriptionStringType -->
<xsd:complexType name="descriptionStringType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The descriptionType
schema type is a complex group of attributes that help define the description
type, as well as allowing for descriptions of segments and relevant
times.</xsd:documentation>
  </xsd:annotation>
  <xsd:simpleContent>
    <xsd:extension base="xsd:string">
      <xsd:attribute name="descriptionType" type="xsd:string">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">Definition: The
descriptionType attribute is used to indicate the type of description being
assigned to the element, such as 'abstract,' 'summary,' or 'physical
description.'</xsd:documentation>
        </xsd:annotation>
      </xsd:attribute>
      <xsd:attribute name="descriptionTypeSource"
type="xsd:string">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">Definition: The
descriptionTypeSource attribute provides the name of the authority used to
declare data value of the attribute descriptionType.</xsd:documentation>
          <xsd:documentation xml:lang="en">Best practice: This
might be the name of a controlled vocabulary, namespace or authority list,

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such as the official PBCore recommended vocabulary. We recommend a consistent
and human readable use.</xsd:documentation>
  </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="descriptionTypeRef" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
descriptionTypeRef attribute is used to supply a source's URI for the value
of the attribute descriptionType.</xsd:documentation>
    <xsd:documentation xml:lang="en">Best practice: The
descriptionTypeRef attribute can be used to point to a term in a controlled
vocabulary, or a URI associated with a source.</xsd:documentation>
  </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="descriptionTypeVersion"
type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
descriptionTypeVersion attribute identifies any version information about the
authority or convention used to express data of the attribute
descriptionType.</xsd:documentation>
  </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="descriptionTypeAnnotation"
type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
descriptionTypeAnnotation attribute includes narrative information intended
to clarify the nature of data used in the element.</xsd:documentation>
    <xsd:documentation xml:lang="en">Best practice: This
attribute can be used as a notes field to include any additional information
about the element or associated attributes.</xsd:documentation>
  </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="segmentType" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
segmentType attribute is used to define the type of content contained in a
segment.</xsd:documentation>
    <xsd:documentation xml:lang="en">Best practice: We
recommend using description and descriptionType instead of
segmentType.'</xsd:documentation>
  </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="segmentTypeSource" type="xsd:string">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
segmentTypeSource attribute provides the name of the authority used to
declare data value of the attribute segmentType.</xsd:documentation>
    <xsd:documentation xml:lang="en">Best practice: This
might be the name of a controlled vocabulary, namespace or authority list,
such as the official PBCore recommended vocabulary.</xsd:documentation>
  </xsd:annotation>
</xsd:attribute>
<xsd:attribute name="segmentTypeRef" type="xsd:string">
  <xsd:annotation>

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        <xsd:documentation xml:lang="en">Definition: The
segmentTypeRef attribute is used to supply a source's URI for the value of
the attribute segmentType.</xsd:documentation>
        <xsd:documentation xml:lang="en">Best practice:
Attribute segmentTypeRef can be used to point to a term in a controlled
vocabulary, or a URI associated with a source.</xsd:documentation>
        </xsd:annotation>
    </xsd:attribute>
    <xsd:attribute name="segmentTypeVersion" type="xsd:string">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
segmentTypeVersion attribute identifies any version information about the
authority or convention used to express data of the attribute
segmentType.</xsd:documentation>
        </xsd:annotation>
    </xsd:attribute>
    <xsd:attribute name="segmentTypeAnnotation"
type="xsd:string">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
segmentTypeAnnotation attribute includes narrative information intended to
clarify the nature of data used in the attribute
segmentType.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: This
attribute can be used as a notes field to include any additional information
about the element or associated attributes.</xsd:documentation>
        </xsd:annotation>
    </xsd:attribute>
    <xsd:attributeGroup ref="sourceVersionGroup"/>
    <xsd:attributeGroup ref="startEndTimeGroup"/>
</xsd:extension>
</xsd:simpleContent>
</xsd:complexType>
<!-- sourceVersionStartEndStringType -->
<xsd:complexType name="sourceVersionStartEndStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
sourceVersionStartEndStringType adds attributes that define the source of the
string with the option of time related attributes</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attributeGroup ref="sourceVersionGroup"/>
            <xsd:attributeGroup ref="startEndTimeGroup"/>
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>
<!-- affiliatedStringType -->
<xsd:complexType name="affiliatedStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
affiliatedStringType adds attributes of affiliation and time
relevance.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="affiliation" type="xsd:string">

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        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
affiliation attribute is used to indicate the organization with which an
agent is associated or affiliated.</xsd:documentation>
        </xsd:annotation>
    </xsd:attribute>
    <xsd:attribute name="affiliationSource" type="xsd:string">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
affiliationSource attribute provides the name of the authority used to
declare the value of the attribute affiliation.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: This
might be the name of a controlled vocabulary, namespace or authority list,
such as the official PBCore recommended vocabulary.</xsd:documentation>
        </xsd:annotation>
    </xsd:attribute>
    <xsd:attribute name="affiliationRef" type="xsd:string">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
affiliationRef attribute is used to supply a source's URI for the value of the
attribute affiliation.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice:
Attribute affiliationRef can be used to point to a term in a controlled
vocabulary, or a URI associated with a source.</xsd:documentation>
        </xsd:annotation>
    </xsd:attribute>
    <xsd:attribute name="affiliationVersion" type="xsd:string">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
affiliationVersion attribute identifies any version information about the
authority or convention used to express data of the attribute
affiliation.</xsd:documentation>
        </xsd:annotation>
    </xsd:attribute>
    <xsd:attribute name="affiliationAnnotation"
type="xsd:string">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The
affiliationAnnotation attribute includes narrative information intended to
clarify the nature of data used in the attribute
affiliation.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: This
attribute can be used as a notes field to include any additional information
about the element or associated attributes.</xsd:documentation>
        </xsd:annotation>
    </xsd:attribute>
    <xsd:attributeGroup ref="sourceVersionGroup"/>
    <xsd:attributeGroup ref="startEndTimeGroup"/>
</xsd:extension>
</xsd:simpleContent>
</xsd:complexType>
<!-- contributorStringType -->
<xsd:complexType name="contributorStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
contributorString helps define the portrayal role as well as the general
source and version group attributes.</xsd:documentation>

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</xsd:annotation>
<xsd:simpleContent>
  <xsd:extension base="xsd:string">
    <xsd:attribute name="portrayal" type="xsd:string">
      <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
portrayal attribute identifies any roles or characters performed by a
contributor.</xsd:documentation>
      </xsd:annotation>
    </xsd:attribute>
    <xsd:attributeGroup ref="sourceVersionGroup"/>
  </xsd:extension>
</xsd:simpleContent>
</xsd:complexType>
<!-- technicalStringType -->
<xsd:complexType name="technicalStringType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
technicalStringType schema type adds the attributes of unitsOfMeasure and
annotation.</xsd:documentation>
  </xsd:annotation>
  <xsd:simpleContent>
    <xsd:extension base="xsd:string">
      <xsd:attribute name="unitsOfMeasure" type="xsd:string">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">Definition: The
unitsOfMeasure attribute defines the unit used in the containing element,
e.g. pixels, GB, Mb/s, ips, fps, kHz, inches, lines, dpi.</xsd:documentation>
          <xsd:documentation xml:lang="en">Best practice: We
recommend standardizing the notation that is most widely recognized in your
institution and using with consistency.</xsd:documentation>
        </xsd:annotation>
      </xsd:attribute>
      <xsd:attributeGroup ref="sourceVersionGroup"/>
    </xsd:extension>
  </xsd:simpleContent>
</xsd:complexType>
<!-- instantiationDigitalStringType -->
<xsd:complexType name="instantiationStandardStringType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The
instantiationStandardStringType schema type allows for the addition of a
profile attribute along with the sourceVersionGroup.</xsd:documentation>
  </xsd:annotation>
  <xsd:simpleContent>
    <xsd:extension base="xsd:string">
      <xsd:attribute name="profile" type="xsd:string">
        <xsd:annotation>
          <xsd:documentation xml:lang="en">Definition: The
profile attribute is used to further quantify the profile of the container
format (e.g. Opla).</xsd:documentation>
          <xsd:documentation xml:lang="en">Best practice: This
attribute can be used as a notes field to include any additional information
about the element or associated attributes.</xsd:documentation>
        </xsd:annotation>
      </xsd:attribute>
      <xsd:attributeGroup ref="sourceVersionGroup"/>
    </xsd:extension>
  </xsd:simpleContent>
</xsd:complexType>

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        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>
<!-- annotationStringType -->
<xsd:complexType name="annotationStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The stringType
schema type added an annotationType attribute and a
reference.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="annotationType" type="xsd:string">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">Definition: Use the
attribute annotationType to indicate the type of annotation being assigned to
the asset, such as a comment, clarification, or cataloging
note.</xsd:documentation>
                </xsd:annotation>
            </xsd:attribute>
            <xsd:attributeGroup ref="sourceVersionGroup"/>
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>
<!-- rightsSummaryType -->
<xsd:complexType name="rightsSummaryType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The rightsSummaryType
schema type allows the use of rights at the asset level and the instantiation
level. The rights can be expressed as a summary or a link or an embedded XML
record. These can also contain time relations.</xsd:documentation>
    </xsd:annotation>
    <xsd:choice>
        <xsd:element maxOccurs="1" minOccurs="0" name="rightsSummary"
            type="sourceVersionStringType">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">Definition: The
rightsSummary element is used as a general free-text element to identify
information about copyrights and property rights held in and over an asset or
instantiation, whether they are open access or restricted in some way. If
dates, times and availability periods are associated with a right, include
them. End user permissions, constraints and obligations may also be
identified as needed.</xsd:documentation>
                <xsd:documentation xml:lang="en">Best practice: For
rights information that applies to the asset as a whole, use this element
within the container pbcoreRightsSummary. For rights information that is
specific to an instantiation of an asset, use it within the container
instantiationRights.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
        <xsd:element maxOccurs="1" minOccurs="0" name="rightsLink"
            type="rightsLinkType">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">Definition: The
rightsLink element is a URI pointing to a declaration of
rights.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
    </xsd:choice>
</xsd:complexType>

```

```

        </xsd:element>
        <xsd:element name="rightsEmbedded" type="embeddedType"
maxOccurs="1" minOccurs="0">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">Definition: The
rightsEmbedded element allows the inclusion of xml from another rights
standard, e.g. ODRL, METS, etc. The included XML then defines the rights for
the PBCore asset and/or PBCore instantiation.</xsd:documentation>
            </xsd:annotation>
        </xsd:element>
    </xsd:choice>
    <xsd:attributeGroup ref="startEndTimeGroup"/>
</xsd:complexType>
<!-- rightsLinkType -->
<xsd:complexType name="rightsLinkType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The rightsLinkType
schema type allows for the addition of an annotation attribute to the
rightsLink.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleContent>
        <xsd:extension base="xsd:anyURI">
            <xsd:attributeGroup ref="sourceVersionGroup"/>
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>
<!-- embeddedType -->
<xsd:complexType name="embeddedType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The embeddedType
schema type allows for the addition of an annotation attribute to the
embeddedType.</xsd:documentation>
    </xsd:annotation>
    <xsd:sequence>
        <xsd:any namespace="##any" processContents="lax" minOccurs="0"
maxOccurs="unbounded"/>
    </xsd:sequence>
    <xsd:attributeGroup ref="sourceVersionGroup"/>
</xsd:complexType>
<!-- threeLetterStringType -->
<xsd:complexType name="threeLetterStringType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The
threeletterStringType adds the sourceVersionGroup to threelettercode for
source references.</xsd:documentation>
    </xsd:annotation>
    <xsd:simpleContent>
        <xsd:extension base="threeLetterCode">
            <xsd:attributeGroup ref="sourceVersionGroup"/>
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>
<!-- threelettercode Algorithm -->
<xsd:simpleType name="threeLetterCode">
    <xsd:annotation>

```

```

        <xsd:documentation xml:lang="en">Definition: This algorithm
controls the language element to insure the use of three letter
codes.</xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:pattern value="([a-z]{3}((;[a-z]{3})?)*)?"/>
        <!-- allows for null -->
    </xsd:restriction>
</xsd:simpleType>
<!-- sourceVersionGroup -->
<xsd:attributeGroup name="sourceVersionGroup">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Definition: The grouping of
attributes: source, reference, version and annotation.</xsd:documentation>
    </xsd:annotation>
    <xsd:attribute name="source" type="xsd:string" use="optional">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The source
attribute provides the name of the authority used to declare the value of the
element.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: Different
elements will use the source attribute slightly differently. For example,
identifier source (required) should be the name of the organization,
institution, system or namespace that the identifier came from, such as "PBS
NOLA Code" or an institutional database identifier. For other elements, this
might be the name of a controlled vocabulary, namespace or authority list,
such as Library of Congress Subject Headings. We recommend a consistent and
human readable use.</xsd:documentation>
        </xsd:annotation>
    </xsd:attribute>
    <xsd:attribute name="ref" type="xsd:string">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The ref
attribute is used to supply a source's URI for the value of the
element.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: Attribute ref
can be used to point to a term in a controlled vocabulary, or a URI
associated with a source.</xsd:documentation>
        </xsd:annotation>
    </xsd:attribute>
    <xsd:attribute name="version" type="xsd:string">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The version
attribute identifies any version information about the authority or
convention used to express data of this element.</xsd:documentation>
        </xsd:annotation>
    </xsd:attribute>
    <xsd:attribute name="annotation" type="xsd:string">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">Definition: The annotation
attribute includes narrative information intended to clarify the nature of
data used in the element.</xsd:documentation>
            <xsd:documentation xml:lang="en">Best practice: This
attribute can be used as a notes field to include any additional information
about the element or associated attributes.</xsd:documentation>
        </xsd:annotation>
    </xsd:attribute>

```

```

</xsd:attributeGroup>
<!-- startEndTimeGroup -->
<xsd:attributeGroup name="startEndTimeGroup">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Definition: The grouping of
attributes: startTime, endTime and timeAnnotation.</xsd:documentation>
  </xsd:annotation>
  <xsd:attribute name="startTime" type="xsd:string">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The startTime
attribute combines with the endTime attribute to define a specific media
segment within a broader timeline of an asset and/or
instantiation.</xsd:documentation>
      <xsd:documentation xml:lang="en">Best practice: This is a
free text attribute and can be applied at the asset or instantiation level.
When used at the asset level, it may be used to talk generally about the
start/end time of a segment (e.g. "30 minutes"), or by providing a timestamp
to a specific point in an instantiation. If you're doing that for element at
the asset level, we suggest referencing the instantiation ID you are
referring to in timeAnnotation. One example would be if a six-hour long tape
was broken into multiple programs, and each instantiation might have its
start time labeled as when the instantiation began in the timeline of the
broader tape. Another example for this usage might be a digital file created
from a VHS tape that contains multiple segments. In the digital copy, color
bars are removed from the beginning, and black from the end of the digital
instantiation. Time references referring to the segments on the physical VHS
are no longer relevant; therefore it's important to tie start and end time
references to a specific instantiation, e.g. use the asset ID and
timestamp.</xsd:documentation>
    </xsd:annotation>
  </xsd:attribute>
  <xsd:attribute name="endTime" type="xsd:string">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The endTime
attribute combines with a similar value in the startTime attribute to define
a specific media segment within a broader timeline of an asset and/or
instantiation.</xsd:documentation>
    </xsd:annotation>
  </xsd:attribute>
  <xsd:attribute name="timeAnnotation" type="xsd:string">
    <xsd:annotation>
      <xsd:documentation xml:lang="en">Definition: The
timeAnnotation attribute includes narrative information intended to clarify
any time-oriented nature of data used in the element.</xsd:documentation>
    </xsd:annotation>
  </xsd:attribute>
</xsd:attributeGroup>
</xsd:schema>

```

Update to the Public Broadcasting Metadata Dictionary project

After a long process of review, we are excited to announce the updated PBCore 2.1 schema!

In deciding what changes to implement for PBCore 2.1, the PBCore Schema Team considered the following criteria:

What problems and challenges with the PBCore 2.0 schema were brought up during our open call for PBCore users to submit issues on GitHub as of September 30, 2014?

What issues required a change to the schema, and what issues could be resolved by improving the documentation around PBCore elements and attributes to clarify their usage?

What changes would allow the 2.1 schema to remain backwards compatible with PBCore 2.0, so that current users could continue to validate their metadata? Keep in mind that PBCore 2.1 is an incremental version, not a major release.

After balancing these considerations, we decided to implement the following schema changes for PBCore 2.1:

In 2.0, the collection of attributes that includes ‘@source, @ref, @version, @annotation’ -- which is designed to allow catalogers to provide accurate information about the source of their metadata -- was available to most elements, but not all of them.

The updated schema provides the option to include ‘@source, @ref, @version, @annotation’ information to all elements. This change affects:

pbcoreDescription
 pbcoreAssetDate
 creator
 contributor
 publisher
 instantiationLocation
 instantiationDimensions
 instantiationDataRate
 instantiationFileSize
 instantiationTimeStart
 instantiationDuration
 instantiationDate
 instantiationTracks
 instantiationChannelConfiguration
 instantiationAlternativeModes
 essenceTrackType
 essenceTrackDataRate
 essenceTrackFrameRate
 essenceTrackPlaybackSpeed
 essenceTrackSamplingRate
 essenceTrackBitDepth
 essenceTrackTimeStart
 essenceTrackDuration

In all of these cases, these attributes are optional, but they will allow users to document their metadata in greater detail if they so choose. The increased ability to provide URIs for PBCore XML data elements will benefit users who wish to convert their PB Core XML records to Linked

Data. Discussions are ongoing with EBU Core to provide a common RDF ontology for this purpose.

Several PBCore elements include attributes -- specifically, the @titleType attribute (for pbcoreTitle), the @subjectType attribute (for pbcoreSubject), and the @affiliation attribute (for pbcoreCreator, pbcoreContributor, and pbcorePublisher) -- for which users also requested the ability to provide the source of the value used to express the type. In future releases of PBCore, the schema could be altered such that these attributes become elements in their own right. However, in order to comply with goal of keeping PBCore 2.1 backwards compatible, this was not possible for 2.1. Therefore, we created several new optional attribute groups for inclusion with the following elements:

for pbcoreTitle:

@titleTypeSource
 @titleTypeRef
 @titleTypeVersion
 @titleTypeAnnotation

for pbcoreSubject:

@subjectTypeSource
 @subjectTypeRef
 @subjectTypeVersion
 @subjectTypeAnnotation

for pbcorePart:

@partType
 @partTypeSource
 @partTypeRef
 @partTypeVersion
 @partTypeAnnotation

for creator, contributor and publisher:

@affiliationSource
 @affiliationRef
 @affiliationVersion
 @affiliationAnnotation

In PBCore 2.0, the element essenceTrackBitDepth did not include the option to add a @unitofMeasure attribute. PBCore 2.1 now includes this optional attribute.

In PBCore 2.0, the elements instantiationLanguage and essenceTrackLanguage are not repeatable. This required that if an instantiation or essence track contains multiple languages, both of them would have to be entered in the same data field as three-letter language codes separated by a semicolon, e.g.

```
<instantiationLanguage>eng;fre</instantiationLanguage>.
```

While this form of entering data is still valid, we have made those fields repeatable in 2.1 to allow for the option of entering language information separately, e.g.

```
<instantiationLanguage>eng</instantiationLanguage>
<instantiationLanguage>fre</instantiationLanguage>
```

This allows for more specificity and searchability in entering metadata.

In order to provide more flexibility in accommodating local metadata elements and values (e.g. from an in-house database), the requirement to use `extensionAuthorityUsed` when using the container `extensionWrap` has been removed. However, we still highly recommend using this element whenever possible to document the source system or schema of the element.

One newly suggested element, to define asset version, was approved by the Schema Team. However, it was not explicitly added to the schema at this time due to the ongoing work to merge some efforts between PBCore and EBUCore (currently limited to a common RDF ontology). This element does exist in EBUCore; therefore, the team suggests that this (and other similar elements) be considered for future releases of PBCore and/or a future merger with EBUCore. In the meantime, it should be expressed in PBCore using extensions, with the EBUCore element as the `extensionElement` and EBUCore as `extensionAuthorityUsed`, as follows:

version - The purpose of this element is to express the version of the intellectual content of the asset being described. In this case, version is specific to content, not to the instantiations of that content (e.g. UK edit, Hulu version, etc.). Use the EBUCore element `version` to express this information. In a PBCore extension, this could look like:

```
<extensionWrap>
  <extensionElement>version</extensionElement>
  <extensionValue>Hulu Version</extensionValue>
  <extensionAuthorityUsed>EBUCore</extensionAuthorityUsed>
</extensionWrap>
```

The schema team found that several of the issues raised on GitHub were caused by confusion over the definition or usage of an element or attribute. Many of these were addressed by changes to the documentation, specifically the element and attribute definitions, which have been completely revised. Best practice guidelines for nearly all elements have also been added, and will appear on the website alongside definitions. Longer explanations addressing common use cases (e.g. when and how to use extensions) will be provided in blog posts on the updated PBCore website.

Several other changes were suggested over the course of this process. Many would require changes that may be implemented for the eventual release of PBCore 3.0, which will provide a broader revision of the PBCore data model. Please also note that this release does not include changes to the PBCore vocabularies. Suggested changes for these are forthcoming.

We welcome your questions and comments about PBCore 2.1!