

Online Archive of California Best Practice Guidelines for Encoded Archival Description

(OAC BPG EAD)

Version 2.0

Prepared by the OAC Working Group Metadata Standards Subcommittee

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Chapter 1. Introduction

The OAC Best Practice Guidelines for Encoded Archival Description, Version 2.0 (OAC BPG EAD) must be followed when contributing XML finding aids to the OAC, a core component of the University of California's California Digital Library (CDL). Version 2.0 supercedes version 1.0 of the OAC BPG EAD, as well as the *Encoded Archival Description Retrospective Conversion Guidelines*. Institutions should follow the present guidelines for all *newly* encoded finding aids.

These guidelines were prepared by the OAC Working Group's Metadata Standards Subcommittee during the spring and summer of 2003. This version of the OAC BPG EAD draws substantially on the [RLG Best Practice Guidelines for Encoded Archival Description](#) (2002) compiled by the Research Libraries Group (RLG) EAD Advisory Group. Because the communities represented by the OAC BPGs and RLG BPGs have different needs and requirements, there are some differences between the two sets of guidelines.

The purpose of the OAC BPG EAD is to:

- Ensure a basic level of uniformity in the structure and encoding of finding aids
- Advance interoperability among digital materials from diverse institutions
- Promote efficient ingest procedures
- Facilitate access to digital materials by users
- Minimize costs

The OAC BPG EAD address the application of EAD within the OAC. Institutions not participating in the OAC are free to adopt the guidelines, in full or in part, for their local use.

1.1. Context

These guidelines are based on the [EAD Version 2002 DTD](#) for archival finding aids maintained by the Society of American Archivists (SAA). The OAC BPG EAD supplement the [EAD Tag Library](#) (EAD TL) and the [EAD Application Guidelines](#) (EADAG), both published by the SAA, by defining a core set of practices for encoding a subset of EAD elements required or recommended for use in finding aids contributed to the OAC. Refer to these SAA publications for official definitions of EAD elements and attributes, lists of attribute values, and recommended general applications.

The guidelines are substantially informed by the [General International Standard Archival Description](#) (ISAD(G)) and [Describing Archives: a Content Standard](#) (DACs), the current U.S. data content standard for archival description.

The guidelines focus on the general issues pertinent to interoperability of finding aids in the OAC database. The absence of discussion of particular elements or attributes is not meant to imply they are unimportant. The guidelines are supplemented, particularly in regards to the description and contribution of digital objects, by the [OAC Best Practice Guidelines for Digital Objects, Version 1.0](#) (OAC BPG DO).

1.2. Multilevel Description

Four fundamental rules of multilevel description guide the description of archival materials. These are summarized below and should serve as overarching guidelines for all archival descriptions submitted to the OAC:

- Present all archival description in a hierarchical whole-to-part relationship that proceeds from general description of the collection to more specific descriptions of parts of the collection.
- At each hierarchical level, give only information relevant to that particular level. For example, do not provide an administrative history for an entire department if the creator of the materials being described is a division or branch.
- Give information that is common to multiple parts of the collection at the highest appropriate level. Do not repeat information at a lower level of description that has already been given at a higher level.
- In order to make explicit the position of a particular level of description within the hierarchy, embed the description at each level within the description at its next higher level. Also, identify each level of description (i.e., give it a name, such as "series").

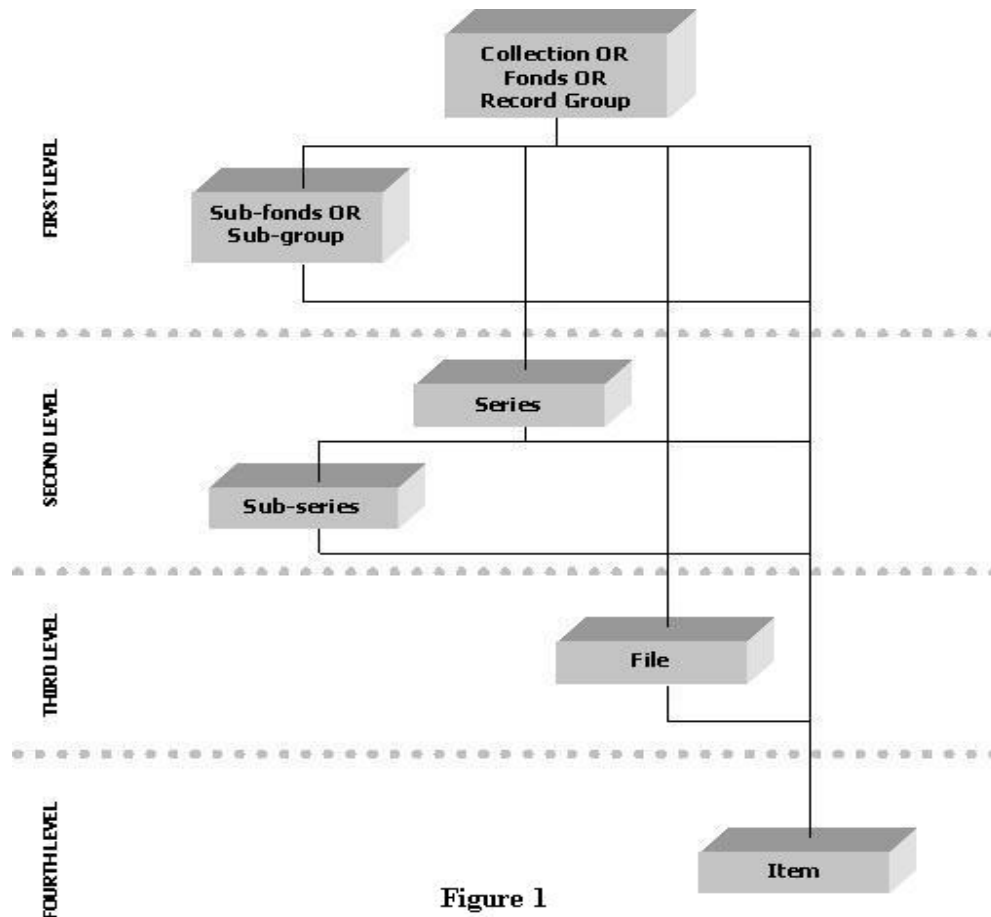


Figure 1

As illustrated in Figure 1 above, an archival description can proceed through various levels and conclude at any level. The archivist determines the unique organization of finding aids for each collection based on information supplied by the creator or collector, appraisal information, or a physical survey of the materials themselves. Each institution's available resources and user needs will

determine the level of detail of its finding aids. The finding aid models presented in the OAC BPG EAD are based on the convention of a finding aid describing the papers or records of a single person or organization that begins at the level for large accumulations of material (collections, record groups, fonds, or record series), and where suitable, proceeds to subsequent descriptions of series, subseries, files, and items or directly to files and items.

Chapter 2. OAC Encoding Schemes

The OAC database contains descriptions for all archival materials—single items and small collections, as well as complex, multi-level collections. The OAC understands that it is impractical and inefficient to describe the entire range of archival materials to the same degree. Some extensive, homogeneous files of materials, such as the minutes of a single committee, can be satisfactorily described at the collection level, while a collection of two or three homogeneous series, such as the outgoing correspondence of an administrator and the minutes of one committee, can be described satisfactorily at the series or subseries level. In short, not all archival descriptions need descend to the more granular folder or item level.

In recognition of this range of options for describing archival materials, the OAC has devised two encoding schemes to steer finding aid producers toward more informed and cost effective choices and, most important, to help ensure the interoperability of all finding aids contributed to the OAC. The two encoding schemes described below inform the use of the guideline tables in Chapter 4.

2.1. OAC Basic

The "OAC Basic" encoding scheme (Tables 4.1 and 4.2 combined) is the *minimal scheme allowable for new finding aids added to the OAC database*. It reflects single-level descriptive outputs at any level, but typically for large accumulations such as collections, record groups, fonds, or record series. It can, however, only describe materials at one explicitly articulated level and does not support multilevel encoding of subsequent lower levels (the "OAC Full" encoding scheme).

The "OAC Basic" encoding scheme is appropriate for the following kinds of collections:

- Small collections or single-items
- Large homogeneous collections (e.g., the minutes of a committee, and nothing else)
- Collections not yet fully processed or not expected to be processed for some time

In such instances, the collection may not warrant component description or a detailed listing of files or items. The OAC recommends, however, using the "OAC Full" encoding scheme for collections demonstrating greater complexity.

2.2. OAC Full

The "OAC Full" encoding scheme reflects multilevel descriptive outputs (Tables 4.1, 4.2, and 4.3 combined). Multilevel descriptive outputs can describe archival material beginning at any level, and must include at least one other level than the one at which they begin. Typically multilevel descriptive outputs begin at the level of large accumulations such as collections, record groups, fonds, or record series. Multilevel finding aids represent the deepest encoding supported by the OAC BPG EAD.

Note that application of the "OAC Full" encoding scheme does not require that each subdivision in the collection be described to the file or item level.

Chapter 3. General Encoding Guidelines

3.1. Conventions Used and Nomenclature

"Tag" refers to the XML markers (i.e., <...> and </...>) that enclose an element's data value.

"Element" refers to individual EAD datum, represented in mark-up by a start-tag <...> and end-tag </...>.

"Attribute" refers to named properties of an element that may have different values; attributes qualify elements. The OAC BPG EAD use small capital letters (e.g., LEVEL) for attribute names to distinguish them from element names.

"Data value" refers to the data content encoded within elements or attributes.

"Status" indicates whether an element is required or not. The following codes are used to represent element statuses:

Table 3.1.

R	"Required." This EAD tag is required at this level.
M	"Mandatory if applicable." This EAD tag is required when the information is available at this level.
P	"Preferred." This EAD tag is optional at this level, but strongly recommended in order to facilitate user access to your collection.

Use of all other EAD tags discussed is completely optional as allowed by the [EAD TL](#). The statement "Use one ..." in the guidelines tables in Chapter 4 indicates that only one instance of that element should be used, not two or more.

3.2. Order of Elements

The EAD DTD requires that certain elements be encoded in a particular sequence. Additionally, the OAC BPG EAD present EAD elements in a suggested sequence for finding aids submitted to the OAC. The OAC suggestion is not prescriptive, however, and another sequence can be used if desirable, providing it adheres at least to the sequence requirements of the EAD DTD.

3.3. Recursion and Repeatability of Elements

Elements may be used recursively as allowed by the [EAD TL](#).

While most elements may be repeated per the EAD DTD, certain elements may not be encoded more than once. The OAC BPG EAD also place further constraints on repeatability beyond the DTD for

local processing purposes. The repeatability status of these particular elements is presented in a separate column in the guideline tables in Chapter 4. As with the order of elements, the constraints the OAC places on repeatability are not prescriptive.

The following codes are used to represent element repeatability status.

Table 3.2.

Y	Element may be repeated at this level.
N	Element may not be repeated at this level.

3.4. XML Encoding

Institutions should ensure that all encoding conforms to XML encoding specifications. For general information on XML, see the [World Wide Web Consortium \(W3C\) Website](#). For information about EAD in XML, see the [EAD AG](#) and [EAD in XML](#) by David Ruddy.

3.5. Dates

All `<unitdate>` Date elements *above* the `<dsc>` Description of Subordinate Components element must contain a NORMAL attribute for encoding normalized dates. Dates must be normalized according to the [International Standard Organization \(ISO\) 8601](#) standard, using the following modified version of the [W3C date and time formats profile](#).

Examples:

Date spans

- `<unitdate normal="1956-01/1956-07">Jan 1956 - July 1956</unitdate>` [*use ISO 8601 date intervals*]
- `<unitdate type="bulk" normal="1900/1950">(bulk 1900-1950)</unitdate>`

Broken date spans (e.g., "1924, 1956-1975")

- `<unitdate normal=1924>1924,</unitdate><unitdate type="inclusive" normal="1956/1975">1956-1975</unitdate>` [*encode dates in separate <unitdate> tags*]

Open date spans

- `<unitdate normal="1911/9999">1911-[ongoing]</unitdate>` [*use an interval and set the end date to 9999*]

Approximate dates (e.g., "ca. 1950")

- `<unitdate normal="1945/1955">ca. 1950</unitdate>` [*normalize as an interval to express an appropriate date range*]
- `<unitdate normal="1980/1989">1980s</unitdate>` [*use an interval to indicate every year of the decade*]
- `<unitdate normal="1801/1900">19th century</unitdate>`

Undated material

- `<unitdate normal="1920/1957">undated</unitdate>` [*normalize as an interval (as with approximate dates), perhaps using the collection dates, or life of creator, etc.*]
- `<unitdate normal="1935/1965">undated: ca. mid 20th century</unitdate>` [*if a document is undated this can be stated but provide an estimate if possible; normalize as an interval, perhaps using the collection dates, or life of creator, etc.*]

Approximate dates should be normalized using an interval to express the earliest and latest dates in the range. In order to facilitate date searching on all collection items, supply normalized approximate dates for material even with unknown or undetermined dates. For unknown or undetermined dates, consider using collection inclusive dates.

Note that normalized dates do not display, but are utilized strictly for computer processing of date information.

3.6. Internal and External Linking

This section provides guidelines for internal linking within a finding aid, and for external linking to digital resources or objects that are not part of the materials being described by the finding aid. For guidelines on linking from a finding aid to associated digital objects described by that finding aid, see Section 4.4.

All internal linking should be encoded using `<ptr>` Pointer or `<ref>` Reference tags with a TARGET attribute to establish a source for a link, with a corresponding ID attribute within a tag elsewhere in the same finding aid to establish a destination for that link. Note that whereas `<ptr>` is an empty internal linking tag, `<ref>` can include text and subelements that identify or describe the referenced object. See the [EAD AG](#) for more information.

All external linking should be encoded using `<extptr>` Extended Pointer, `<extref>` Extended Reference, `<bibref>` Bibliographic Reference, or `<archref>` Archival Reference tags with the HREF attribute. Note that whereas `<extptr>` is an empty external linking tag, `<extref>` can include text and subelements as part of its reference to an electronic object external to the finding aid. Do not use the ENTITYREF attribute with an associated entity declaration for establishing a destination for the link, such as a URL. See the [EAD AG](#) for more information.

For all internal and external linking elements, the default OAC stylesheet behavior will be to render links as SHOW="replace" (i.e., the linked resource will be displayed in the same browser window). The stylesheet will support SHOW="embed" for images only (i.e., the image will be displayed inline)

and SHOW="new" (i.e., the linked resource will be displayed in a new browser window). Use of any other SHOW attribute will be rendered as the default SHOW="replace".

3.7. Component Tags

EAD uses a system of nested numbered <c0x> Component tags to capture the hierarchical organization and description of a collection. There is no fixed correspondence between a Component tag and the intellectual level; the component tag is merely a wrapper element used to encode hierarchically arranged, nested descriptions. For example, a <c02> tag may serve to encode a file in one section of a container list and an item in another section.

The OAC BPG EAD requires numbered Component tags, from <c01> up to <c12>; do not use unnumbered <c> Component tags. For each <c01> down to <c12> Component tag, a LEVEL attribute must also be used in order to distinguish the levels from each other. This encoding will facilitate computer processing, searching, style sheet manipulation, and ultimately, readability of finding aid data.

Note that there is logic to the nesting of levels. A series, for example, may contain subseries, files, or items, but not another series. For examples see:

- Possible EAD <c0x> structures for [University of Michigan Bentley Historical Library](#) finding aids.
- [ISAD\(G\)](#) (see Appendix A1, page 36)

To clarify the level of each component part, finding aid contributors are required to use the LEVEL attribute at all component levels. Component levels must be numbered, as unnumbered component levels are not supported by the OAC. Use standard archival units to articulate levels (e.g., collection, record group, subgroup, series, subseries, file, and item). See: [ISAD\(G\)](#) (see Appendix A1, page 36)

The record group may be divided into subgroups; series may be divided into subseries. EAD provides for further subdivision of subgroups and subseries through setting the LEVEL attribute to "otherlevel" and the otherlevel attribute data value to designate a succession of "subsub" levels as needed.

Similarly, file-level components may be subdivided with additional levels of hierarchy before reaching the item level. This may be done through setting the LEVEL attribute to "otherlevel" and the otherlevel attribute data value to "subfile" or another local term. In general, however (since there are not generally accepted terms for subdivisions of a file), a file should be nested within another file.

3.8. Entities

Internal and external entities should be encoded per the [EAD AG](#). External entity data files (containing either parseable data, such as additional EAD content; or non-parseable data, such as an image file) should be locally hosted by contributing institutions: declarations must therefore refer to absolute URLs (as system identifiers) for those locally hosted files.

3.9. Character Encoding

For all special characters encoded in XML, encode directly in UTF-8 Unicode or use Unicode decimal or hexadecimal character references. Note all decimal character references should begin with an ampersand and pound sign, and end with a semicolon (use the syntax "&#D;", where D is a decimal number). Note all hexadecimal character references should begin with an ampersand, pound sign, and lower- or uppercase "x", and end with a semicolon (use the syntax "&#xH;" or "&#XH;", where H is a hexadecimal number); see the Unicode [Code Charts](#) for hexadecimal character reference codes.

For more detailed information on XML, UTF-8, and special character encoding, see the W3C/Unicode Consortium document [Unicode in XML and other Markup Languages](#).

Example using UTF-8 Unicode hexadecimal character references to express the term "émigrés":

... The papers also document trends in high school and university education among Russian émigrés...

[NOTE: "é" UTF-8 Unicode hexadecimal character reference used to encode the letter "é" in the word "émigrés," derived from the Unicode Latin-1 Supplement code chart]

Characters reserved for XML markup delimiters (ampersand, left angle bracket, and right angle bracket) need to be replaced with the following character entities:

Table 3.3.

Character	Character Name	Character Entity
&	Ampersand	&
<	Left angle bracket	<
>	Right angle bracket	>

3.10. Headings, Labels, Punctuation, and White Space

Note that the OAC style sheet supports a standard, generic presentation, which may not accommodate local preferences. Use of headings, labels, punctuation, and white space is a matter of local choice and practice. In order to render local headings and labels, repositories may need to devise and implement their own style sheets for presenting their finding aids in their local systems.

3.11. Special Formatting

Lists should be represented using the EAD <list> tag with nested <item> tags for each entry in the list. Set the <list> TYPE attribute accordingly to match the type of list. See the [EAD TL](#) for more information.

Bold, underline, italic, and other similar kinds of formatting should be represented using the EAD `<emph>` tag with RENDER attribute set accordingly. See the [EAD TL](#) for more information.

3.12. Publication and Display

The OAC BPG EAD mandate encoding that is largely independent of a particular online presentation: the encoding can be manipulated and repurposed through the application of customized style sheets in order to achieve local and/or consortium display needs and formatting preferences. In order to provide a consistent user experience, the OAC style sheets support a standard presentation which may not accommodate local preferences.

3.13. File Naming

Finding aid file names must adhere to the following specifications:

- Include a ".xml" file format extension.
- May only include lowercase letters and numbers, underscores, or dashes. Periods may only be used for the file extension. Do not include punctuation at the end of the file name.
- Must not contain spaces.

Examples of valid filenames:

mss000261.xml
bay-pap004.xml
plen_session.xml
p23.xml
arequipa.xml

Examples of invalid filenames:

plen.session.xml
sntrecs:corr.xml
Hansen.xml
fogerty.XML

Chapter 4. Guideline Tables

Table 4.1.

ELEMENTS & ATTRIBUTES	STATUS	REPEAT?	COMMENTS / APPLICATION NOTES
<?xml version="1.0" encoding="UTF-8"?>	R	N	
<ead>	R	N	
<eadheader>	R	N	
langencoding="iso639-2b"	R		
scriptencoding="iso15924"	R		
repositoryencoding="iso15511"	R		
countryencoding="iso3166-1"	R		
dateencoding="iso8601"	R		
<eadid>	R	N	Recommended practice is to encode the file name for the finding aid.
countrycode="us"	R		
mainagencycode=	R		Encode your repository code supplied by the Library of Congress. Ask the Library of Congress to establish a repository code if none exists. Repository codes and instructions for requesting a new code may be found on the Library of Congress MARC Code List for Organizations web page.
publicid=	Optional		Recommended practice is to encode a Formal Public Identifier (FPI) for the finding aid. See Appendix B for a suggested FPI.
identifier=	Optional		Recommended practice is to encode a machine-readable unique identifier for the finding aid. Institutions may choose one of the following options for encoding unique identifiers: <ul style="list-style-type: none"> • Leave this value empty. The CDL will assign an ARK to the finding aid upon ingest, and will internally manage the ARK. • Encode a pre-assigned ARK; in this

			<p>case, the CDL will not re-assign an ARK to the finding aid upon ingest.</p> <p>The ARK is a machine-readable unique identifier scheme for persistent access to digital objects (including images, texts, data sets, and finding aids), currently being tested and implemented by the CDL for collections that it manages. Given that ARKs are specially constructed and globally unique identifiers, their production and management is controlled by the CDL. Institutions have several options for obtaining ARKs: they may request an ARK from the CDL for a particular finding aid, or they may mint ARKs locally using a CDL tool. For more information on the use of ARKs at the CDL, and options for institutions to obtain ARKs, please see the CDL ARK service description.</p>
< filedesc >	R	N	
< titlestmt >	R	N	
< titleproper >	R	N	Encode the <i>formal title</i> of the finding aid itself and not the title of the fonds or record group being described.
< titleproper >	R	N	<p>Encode the <i>filing title</i> of the finding aid and not the title of the fonds or record group being described. Note that the filing title is a modified form of the formal title. The filing title appears in browsing lists on the OAC.</p> <p>For papers created, collected, or associated with an individual, the filing title should begin with the individual's last name, followed by the first name and optional middle initial, which should both be in parentheses:</p> <p>Abel (Theodore F.) Papers</p> <p>Chambrun (René; de) Papers</p> <p>Branch (Francis Z.) Correspondence and Papers</p>

			<p>When two individuals are responsible for a collection and they share the same last name, put the last name at the beginning of the filing title. Then list both names and, optionally, a middle initial, which should both be in parentheses:</p> <p style="text-align: center;">French (Helen D. and Paul M.) Collection</p> <p>When the individuals do not share the same last name, list the most appropriate name first, with corresponding first name following in parentheses, and then the second last name with its corresponding first name in another set of parentheses:</p> <p style="text-align: center;">French (Helen D.) and Hightower (Paul) Collection</p> <p>Corporate names and family names should generally be listed as in their established form or as they appear. Use appropriate abbreviations such as Corp., Co., Inc., Misc., Dept., etc. to maintain brevity:</p> <p style="text-align: center;">Weihe, Frick & Kruse Collection</p> <p style="text-align: center;">Bidwell Family Papers</p> <p style="text-align: center;">Crowley Maritime Corp. Records</p>
type="filing"	R		
< author >	R	N	Encode the name of the person(s) or institution(s) responsible for the intellectual content of the encoded finding aid.
< publicationstmt >	R	N	
< publisher >	R	Y	Encode the name of your repository.
< address >	P	Y	Encode postal, contact information, and web site information for the repository.
< date >	R	Y	
normal=	P		Use ISO 8601 .
< profiledesc >	P	N	
< creation >	P	N	Encode a statement about the encoding of

			the finding aid.
< date >	P	Y	Encode the date of the <i>initial</i> encoding into EAD.
normal=	P		Use ISO 8601 .
< language >	P	N	Use one <language> tag to encode language(s) significantly represented in the text of the finding aid. Do not confuse this with the <langmaterial> tag, which is used to specify the language(s) significantly represented within collection materials.
< language >	P	Y	Use as many <language> tags as necessary to encode languages predominantly represented in the text of the finding aid.
langcode=	P		Use ISO 639-2b .
scriptcode=	P		Use ISO 15924
< descrules >	P	N	
< revisiondesc >	P	N	
< change >	P	Y	Use one or more <change> tags.
< date >	P	N	
normal=	P		Use ISO 8601 .
< item >	P	N	
< frontmatter >	Optional	N	The <frontmatter> tag is reserved for local applications and may not be displayed in the OAC.

4.2. <archdesc>

Tables 4.1-4.2 constitute the "OAC Basic" encoding scheme (with the exception of the <[dsc](#)> tag and associated TYPE attribute), the minimal scheme allowable for new finding aids added to the OAC database. Together, they reflect single-level descriptive outputs at any level, but typically for large accumulations such as collections, record groups, fonds, or record series. All finding aids submitted to the OAC must include all required elements.

Table 4.2.

ELEMENTS & ATTRIBUTES	STATUS	REPEAT?	COMMENTS / APPLICATION NOTES
< archdesc >	R	N	Use one <archdesc> tag.
level="collection fonds class recordgrp series subfonds subgrp subseries file item otherlevel"	R		

< did >	R	N	
< unittitle >	R	N	Encode the collection title, formulated according to DACS Section 2.3. Use one <unittitle> tag.
< unitdate >	R	Y	Use at least one <unitdate> tag for single or inclusive dates for the collection. Repeat the <unitdate> tag if both inclusive and bulk dates are given. The <unitdate> should be encoded outside of <unittitle>.
type="bulk"	M		Mandatory for bulk dates only.
normal=	R		Use ISO 8601 ; see the guidelines for Dates for more information.
< unitid >	R	N	Use one <unitid> tag to encode collection or call number, even if your repository does not assign collection numbers to archival holdings. In the latter case, use the text "Consult repository".
repositorycode=	R		Use MAINAGENCYCODE code used in <eadid>.
countrycode="us"	R		
< origination >	M	N	Use one <origination> tag for the principal creator(s) or collector(s).
label=	M		Encode an appropriate label for the collector or collector. The labels "Creator" or "Collector" are recommended.
< persname < famname < corpname >	M	Y	Use one or more appropriate <...name> tags to encode and indicate the type of origination names. The choice and number of names should be determined according to DACS Chapter 9. The form of the name(s) should be taken from an standard naming authority file, such as the Library of Congress Name Authority File or Union List of Artists' Names .

			If a name does not appear in an authority file, establish the name according to a content standard such as AACR2.
source=	M		Indicate the code for a standard naming authority file from which the name is taken. Use "lcnaf" or "ulan" for the Library of Congress Name Authority File or Union List of Artists' Names, respectively. For all others, use the appropriate code for the source (see the Library of Congress' Term, Name, and Title Sources Code List). If the name does not appear in an authority file, use the RULES attribute to indicate how the name is established.
rules=	M		Indicate the content standard by the which name is established, e.g., "acr" for AACR2. Use the appropriate code for the content standard by which the name is established (see the Library of Congress' Descriptive Conventions Code List).
< physdesc >	R	N	Use one <physdesc> tag.
< extent >	R	Y	Use multiple <extent> tags for multiple views, items, linear feet, etc. Units of measure, e.g., box, linear feet, etc., can be expressed as part of a single extent statement, or encoded in a separate <extent> tag.
< extent >	P	Y	
type="dao"	P		Use additional <extent> tags with a TYPE="dao" attribute to encode a statement specifying the number of digital objects represented within the finding aid.
< repository >	R	N	Use one <repository> tag.
< corpname >	R	Y	Use one or more <corpname> tags to encode the full name of your repository. Use the LCNAF

			form of the name; if none exists, follow AACR2 rules for formulating name headings.
< subarea >	M	N	Use one <subarea> tag to encode your secondary or subordinate administrative unit within a repository, if applicable.
< address >	P	Y	Use one or more for each distinct <corpname>.
< addressline >	P	Y	Use as many <addressline> subelements as necessary to encode complete repository contact information.
< abstract >	R	N	Use one <abstract> tag for a brief summary of collection contents and context at highest level only. The <abstract> tag is not a substitute for <scopecontent>.
< physloc >	P	N	Recommended for all University of California collections housed at the regional storage facilities (SRLF and NRLF). Otherwise optional.
< container >	P	Y	Use one or more.
type=	Optional		Recommended for encoding the appropriate container type: "box-folder" for boxes and folders, "box" for boxes only, or "folder" for folders only.
label=	M		Use of an appropriate label for the display of your physical containment data is mandatory if using <container> (e.g., "Box/folder: " or "Box: "). Include a space at the end of the data value.
< langmaterial >	R	N	Use one <langmaterial> tag to encode languages significantly represented within the collection. Do not confuse this with the <language> tag, which is used to specify the language(s) in which the finding aid is written.
< language >	R	Y	Use one or more <language> tags to encode the languages

			significantly represented in collection materials.
langcode=	R		Use ISO 639-2b .
< accessrestrict >	R	N	Use one <accessrestrict> tag to note particular access restrictions, even if the collection has no access restrictions. In the latter case, use the text "Collection open for research" or a similar statement.
< userrestrict >	R	N	Use one <userrestrict> tag for conditions governing the use of a collection after access has been provided.
< prefercite >	R	N	Use one <prefercite> tag to indicate the format the repository prefers for citation of its collections.
< acqinfo >	M	N	Use one <acqinfo> tag to indicate the date of acquisition and, if desired, any other information about the source of the acquisition.
< bioghist >	P	Y	Use one or more <bioghist> tags to encode concise essays or chronologies providing information about the creator(s) or collector(s).
< scopecontent >	R	N	Use one <scopecontent> tag to provide a prose statement summarizing the document types, formats, and topical coverage of the collection. If the organization/arrangement cannot readily be separated, give it as part of <scopecontent>. If the organization/arrangement are separable, use the <arrangement> tag and do not nest within <scopecontent>.
< arrangement >	M	N	Use to encode the filing sequence of the material (e.g., alphabetical or chronological) and/or the manner in which the collection has been ordered (e.g., organized into series).

<p><controlaccess></p>	<p>R</p>	<p>N</p>	<p>Use one <controlaccess> tag to group nested subelements. Subelements are repeatable.</p> <p>In order to promote content access to collections, the OAC requires at least three controlled access headings encoded using the following subelements: <persname>, <famname>, <corpname>, <title>, <geogname>, <genreform>, <occupation>, or <function>.</p> <p>Some repositories may wish to encode as a <title> subelement the name of the metacollection to which an individual collection is assigned or associated, e.g., Critical Theory Archive for the Jacques Derrida Papers or Melanesia Archive for the John Layard Papers.</p> <p>In addition, repositories may use subelements to indicate additional creators and collectors, encoded using <persname>, <famname>, or <corpname>.</p> <p>Each subelement requires either a SOURCE or RULES attribute, as appropriate. Use a SOURCE attribute to encode the source (i.e., thesaurus, authority file) of an established list of indexing terms. If the term is not found in an established list, then do not use a SOURCE attribute. Use instead a RULES attribute to indicate the content standard by which the term is constructed, e.g., "lcs", "aacr", "dacs". If the term is not constructed according to an established content standard, encode the RULES attribute value as "local".</p>
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			If the choice is made to add a preferred "P" element to <controlaccess>, the attributes for that element become mandatory "M". In other words, every element in <controlaccess> must have a ROLE attribute where it applies (e.g., on <...name> subelements), and either a SOURCE or RULES attribute.
< persname >	P	Y	Use one or more <persname> tags. The form of the name(s) should be taken from an standard naming authority file, such as the Library of Congress Name Authority File or Union List of Artists' Names . If a name does not appear in an authority file, establish the name according to a content standard such as DACS, or more generally, AACR2.
role="subject"	M		Use only when the name is used as a subject, not as a co-creator or contributor. If adding additional data values for role, separate values by a space (e.g., "subject cre").
source=	M		Indicate the code for a standard naming authority file from which the name is taken. Use "lcnaf" or "ulan" for the Library of Congress Name Authority File or Union List of Artists' Names, respectively. For all others, use the appropriate code for the source (see the Library of Congress' Term, Name, and Title Sources Code List). If the name does not appear in an authority file, use the RULES attribute to indicate how the name is established.
rules=	M		Indicate the content standard by which the name is established, e.g., "acr". Use the appropriate

			code for the content standard by which the name is established (see the Library of Congress' Descriptive Conventions Code List). If a content standard is not used, use "local".
< famname >	P	Y	Use one or more <famname> tags. The form of the name(s) should be taken from an standard naming authority file, such as the Library of Congress Name Authority File or Union List of Artists' Names . If a name does not appear in an authority file, establish the name according to a content standard such as DACS, or more generally, AACR2.
role="subject"	M		Use only when the name is used as a subject, not as a co-creator or contributor. If adding additional data values for role, separate values by a space (e.g., "subject cre").
source=	M		Indicate the code for a standard naming authority file from which the name is taken. Use "lcnaf" or "ulan" for the Library of Congress Name Authority File or Union List of Artists' Names, respectively. For all others, use the appropriate code for the source (see the Library of Congress' Term, Name, and Title Sources Code List). If the name does not appear in an authority file, use the RULES attribute to indicate how the name is established.
rules=	M		Indicate the content standard by which the name is established, e.g., "acr". Use the appropriate code for the content standard by which the name is established (see the Library of Congress' Descriptive Conventions Code

			List). If a content standard is not used, use "local".
< corpname >	P	Y	Use one or more <corpname> tags. The form of the name(s) should be taken from an standard naming authority file, such as the Library of Congress Name Authority File or Union List of Artists' Names . If a name does not appear in an authority file, establish the name according to a content standard such as DACS, or more generally, AACR2.
role="subject"	M		Use only when the name is used as a subject, not as a co-creator or contributor. If adding additional data values for role, separate values by a space (e.g., "subject cre").
source=	M		Indicate the code for a standard naming authority file from which the name is taken. Use "lcnaf" or "ulan" for the Library of Congress Name Authority File or Union List of Artists' Names, respectively. For all others, use the appropriate code for the source (see the Library of Congress' Term, Name, and Title Sources Code List). If the name does not appear in an authority file, use the RULES attribute to indicate how the name is established.
rules=	M		Indicate the content standard by which the name is established, e.g., "acr". Use the appropriate code for the content standard by which the name is established (see the Library of Congress' Descriptive Conventions Code List). If a content standard is not used, use "local".
< title >	P	Y	Use one or more <title> tags for

			<p>formal titles of works which are contained or represented in a collection, or for titles of projects and/or (meta)collections of which the collection is a member. A "metacollection" is an artificial collection of two or more discrete collections.</p> <p>The form of the title should be taken from an standard naming authority file, such as the Library of Congress Title Authority File. If a title does not appear in an authority file, establish the title according to a content standard such as DACS, or more generally, AACR2.</p>
role="subject"	M		Use only when the title is used as a subject, not as an added title entry.
source=	M		Use "lctah" when the name is established in Library of Congress Title Authority File. If the name does not appear in the authority file, use the RULES attribute to indicate how the name is established.
rules=	M		Indicate the content standard by which the title is established, e.g., "aacr". Use the appropriate code for the content standard by which the name is established (see the Library of Congress' Descriptive Conventions Code List).
< subject >	P	Y	<p>Use one or more <subject> tags.</p> <p>The form of the heading should be taken from a standard thesaurus, such as the Library of Congress Subject Headings (LCSH), Art and Architecture Thesaurus (AAT), or Thesaurus of Graphic Materials I (TGM). While the OAC does not prescribe that topical values be drawn from a specific thesaurus,</p>

			<p>it strongly prefers that repositories use LCSH.</p> <p>If a heading does not appear in a thesaurus, establish the heading according to standard thesaurus rules (such as the Library of Congress' Subject Cataloging Manual, AAT rules, or TGM rules), or according to local rules.</p>
source=	M		<p>If using LCSH, set the SOURCE to "lcsch". For any other source used, use the appropriate code from the Library of Congress' Term, Name, and Title Sources Code List. If using local rules, do not use a SOURCE attribute.</p>
rules=	M		<p>Indicate the thesaurus rules by which the term is established, e.g., "lcsch", "aat", or "lctgm". Use the appropriate code for the content standard by which the name is established (see the Library of Congress' Term, Name, and Title Sources Code List). If a content standard is not used, use "local".</p>
< geogname >	P	Y	<p>Use one or more <geogname> tags.</p> <p>The form of the name(s) should be taken from an standard naming authority file, such as the Library of Congress Name Authority File. If a name does not appear in an authority file, establish the name according to a content standard such as DACS, or more generally, AACR2.</p>
role="subject"	R		
source=	M		<p>Indicate the code for a standard naming authority file from which the name is taken. Use "lcnaf" for the Library of Congress Name Authority File. For all others, use the appropriate code for the</p>

			source (see the Library of Congress' Term, Name, and Title Sources Code List). If the name does not appear in an authority file, use the RULES attribute to indicate how the name is established.
rules=	M		Indicate the content standard by which the name is established, e.g., "acr". Use the appropriate code for the content standard by which the name is established (see the Library of Congress' Descriptive Conventions Code List). If a content standard is not used, use "local".
< genreform >	P	Y	Use one or more <genreform> tags. The form of the heading should be taken from a standard or local thesaurus, such as the Library of Congress Subject Headings (LCSH), Art and Architecture Thesaurus (AAT), or Thesaurus of Graphic Materials II (TGM). While the OAC does not prescribe that topical values be drawn from a specific thesaurus, it strongly prefers that repositories use LC Subject Headings (LCSH). If a heading does not appear in a thesaurus, establish the heading according to standard thesaurus rules (such as the Library of Congress' Subject Cataloging Manual, AAT rules, or TGM rules), or local thesaurus rules.
source=	M		If using LCSH, set the SOURCE to "lchsh". For any other source used, use the appropriate code from the Library of Congress' Term, Name, and Title Sources Code List. If using local rules, do not use a SOURCE attribute.

rules=	M		Indicate the thesaurus rules by which the term is established, e.g., "lcsch", "aat", or "gmgpc". Use the appropriate code for the content standard by which the name is established (see the Library of Congress' Term, Name, and Title Sources Code List). If a content standard is not used, use "local".
< occupation >	P	Y	Use one or more <occupation> tags. The form of the heading should be taken from a standard or local thesaurus, such as the Library of Congress Subject Headings (LCSH), Art and Architecture Thesaurus (AAT), or Thesaurus of Graphic Materials I (TGM). While the OAC does not prescribe that topical values be drawn from a specific thesaurus, it strongly prefers that repositories use LC Subject Headings (LCSH). If a heading does not appear in a thesaurus, establish the heading according to standard thesaurus rules (such as the Library of Congress' Subject Cataloging Manual, AAT rules, or TGM rules), or local thesaurus rules.
source=	M		If using LCSH, set the SOURCE to "lcsch". For any other source used, use the appropriate code from the Library of Congress' Term, Name, and Title Sources Code List. If using local rules, do not use a SOURCE attribute.
rules=	M		Indicate the thesaurus rules by which the term is established, e.g., "lcsch", "aat", or "lctgm". Use the appropriate code for the content standard by which the name is established (see the

			Library of Congress' Term, Name, and Title Sources Code List). If a content standard is not used, use "local".
< function >	P	Y	Use one or more <function> tags. The form of the heading should be taken from a standard or local thesaurus, such as the Library of Congress Subject Headings (LCSH), Art and Architecture Thesaurus (AAT), or Thesaurus of Graphic Materials I (TGM). While the OAC does not prescribe that topical values be drawn from a specific thesaurus, it strongly prefers that repositories use LC Subject Headings (LCSH). If a heading does not appear in a thesaurus, establish the heading according to standard thesaurus rules (such as the Library of Congress' Subject Cataloging Manual, AAT rules, or TGM rules), or local thesaurus rules.
source=	M		If using LCSH, set the SOURCE to "lsh". For any other source used, use the appropriate code from the Library of Congress' Term, Name, and Title Sources Code List. If using local rules, do not use a SOURCE attribute.
rules=	M		Indicate the thesaurus rules by which the term is established, e.g., "lsh", "aat", or "lctgm". Use the appropriate code for the content standard by which the name is established (see the Library of Congress' Term, Name, and Title Sources Code List). If a content standard is not used, use "local".
< dsc >	M	N	Use one <dsc> tag to encode the component hierarchy. The <dsc> tag is not required for finding

			aids encoded to the "OAC Basic" encoding scheme for single-level descriptive outputs at the collection level. However, it is required for finding aids encoded to the "OAC Full" encoding scheme for multilevel descriptive outputs.
type="combined analyticcover in-depth"	M		<p>Encode appropriate value based on the structure of your finding aid.</p> <p>Use "analyticcover" for finding aids that include a narrative description of major subdivisions, such as series and subseries, but that lack a file or item level container list.</p> <p>Use "in-depth" for finding aids that lack any major subdivisions and consist only of a high-level description followed by a file or item level container list.</p> <p>Use "combined" for a combination of both of these, where each major subdivision should be immediately followed by a file or item level container list. "Combined" is required for the latter in order to facilitate stylesheet manipulation of multi-level finding aid data.</p>

4.3. <dsc>

Tables 4.1-4.3 constitute the "OAC Full" encoding scheme. Together, they reflect multilevel descriptive outputs. Note that encoding to this scheme is not required for finding aids to be submitted to the OAC, i.e., Table 4.3 requirements must be followed only when creating multilevel descriptions. Element statuses (i.e., "Required", "Mandatory", or "Preferred") are therefore relative to this particular part of the encoding scheme.

Table 4.3.

ELEMENTS & ATTRIBUTES	STATUS	REPEAT?	COMMENTS / APPLICATION
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			NOTES
<c01>/<c12>	R	Y	Numbered <c01> through <c12> Components are required; do not use the unnumbered <c> Component. Nested <c0x>s should be used as needed to reflect the intellectual structure of the archival materials. The full suite of subelements and attributes described are available at each component
level=	R		Component levels should generally be subordinate to the level set in <archdesc>.
<did>	R	N	
<container>	P	Y	Use one or more.
type=	P		Recommended for encoding the appropriate container type: "box-folder" for boxes and folders, "box" for boxes only, or "folder" for folders only.
label=	M		Use of an appropriate label for the display of your physical containment data is mandatory if using <container> (e.g., "Box/folder:" or "Box: "). Include a space at

			the end of the data value.
< unitid >	M	N	Use one <unitid> for the number of the series, subseries, or other unit of description; do not encode the number within <container> or <unittitle>.
repositorycode=	M		The value of this attribute is considered to be inherited from the equivalent mandatory entry at the uppermost level (<archdesc>). If the records in a component are held in a different repository than that of their parent, the value should be set using ISO 15511 .
countrycode=	M		The value of this attribute is considered to be inherited from the equivalent mandatory entry at the uppermost level (<archdesc>). If the records in a component are held in a different country than that of their parent, the value should be set using ISO 3166-1 .
< unittitle >	M	N	Use one

			<p><unittitle> for the title of the series, subseries, or other unit of description. This is considered the minimum for description at component levels because some description is needed for users to decide if the documents are worth further investigation.</p>
<p><unitdate></p>	<p>M</p>	<p>Y</p>	<p>Use one or more <unitdate> tags for single or inclusive dates. If multiple single dates or date ranges are present, each should be encoded in its own <unitdate>. Repeat <unitdate> if both inclusive and bulk dates are given. <unitdate> should be encoded outside of <unittitle>; note that OAC stylesheets will render <unitdate> information separately from <unittitle>, and no punctuation therefore needs to be encoded to separate data values between the two elements. Where no <unittitle> content</p>

			exists, <unitdate> may be placed within <unittitle> so that there is some title-related content.
< origination >	M	N	Mandatory if the creator(s) or collector(s) at the level being described is different than defined at the <archdesc> or in a parent level. Use one or more <origination> tags as necessary.
label=	M		Encode an appropriate label for the collector or collector. The labels "Creator" or "Collector" are recommended.
< persname famname corpname >	M	Y	Use one or more appropriate <...name> tags to indicate the type of the origination name.
source="lcnaf"	M		Use "lcnaf" when the name is established in LCNAF. Do not use this element if the name is formulated according to AACR2 rules for name headings; use RULES attribute instead.
rules="aacr2"	M		Use "aacr2" when the name is not established in

			LCNAF, but formulated according AACR2 rules for name headings. Do not use this element if the name is established in LCNAF; use SOURCE attribute instead.
< physdesc >	M	N	
< extent >	M	Y	Use one or more <extent> tags for multiple views, items, linear feet, etc. Units of measure should be expressed either as part of the content of this tag or in a unit attribute.
< repository >	M	N	Mandatory if the repository at level being described is different than defined in the <archdesc> tag or in a parent level.
< corpname >	M	Y	Use one or more <corpname> tags to encode the full name of the repository. Use the LCNAF form of the name; if none exists, follow AACR2 rules for formulating name headings.
< langmaterial >	M	N	Use if the material being described is in a language

			different from that specified in the <archdesc> tag or in a parent level.
< language >	M	Y	Use one or more <language> tags.
langcode=	M		Use ISO 639-2b .
< scopecontent >	M	N	Use one <scopecontent> tag to encode the scope and content information at the appropriate component levels (i.e., subgroup, subfonds, series, etc.). Do not use <abstract>.
< accessrestrict >	M	N	Mandatory if there are particular conditions governing access different than defined in the <archdesc> tag or in a parent level.
< userrestrict >	M	N	Mandatory if there are particular conditions, such as copyright, governing use different than defined in the <archdesc> tag or in a parent level.

4.4. Linking to Digital Objects

This section pertains only to linking from a particular finding aid to digital objects described in that finding aid, using either <[dao](#)> Digital Archival Object or <[daogrp](#)> Digital Archival Object Group

tags. Element statuses (i.e., "Required", "Mandatory", or "Preferred") are therefore relative to this situation. For complete guidelines on preparing digital objects and linking them to their corresponding finding aid, please consult the [CDL GDO](#).

For guidelines on internal linking within a finding aid, and external linking to digital resources or objects that are not part of the materials being described by the finding aid, see [Section 3.6](#).

4.4.1. Terminology

A digital object may be defined as a resource entity in which one or more content files (e.g., an image file, TEI structured text file, etc.) and corresponding metadata are united, physically and/or logically, through the use of a digital wrapper.

The use of a digital wrapper is what gives technical specificity to the term "digital object." Digital wrappers are pieces of software for binding digital content files and their metadata together and for specifying the logical relationships among the content files. The [Metadata and Encoding Transmission Standard \(METS\)](#), currently implemented by the CDL for digital objects that it manages in its repositories, is the emerging national standard for wrapping digital library materials. For more information, see the [CDL METS Repository](#).

4.4.2. Context

The OAC technical framework and service model is predicated on ingesting and managing digital objects that are associated with finding aids: digital objects should ideally be hosted by the CDL to ensure persistent access to those digital objects and interoperability with other data formats. However, contributing institutions may link to locally-hosted digital objects.

Legacy digital objects in the OAC created before 2003 were generated by the CDL through an EAD extraction process. Metadata for a particular digital object was extracted directly from the <daogrp> Digital Archival Object Group encoding within an EAD finding aid, and united with associated content files (either contributed to the CDL or hosted on the institution's local web server) by compilation into a METS wrapper. (As of 2005, digital objects contributed to the CDL should be prepared and submitted according to the specifications outlined in the [CDL GDO](#)).

The subsequent tables in this section therefore distinguish two permissible methods for linking to digital objects in the OAC: one for CDL-hosted METS digital objects (or locally-hosted digital objects), the other for legacy EAD extracted digital objects.

4.4.3. <dao> Digital Archival Object vs. <daogrp> Digital Archival Object Group

The <dao> tag should be used for general linking to CDL-hosted METS digital objects (or locally-hosted digital objects). The <daogrp> tag should be used exclusively when linking to legacy, EAD extracted CDL-hosted METS digital objects.

4.4.4. Use of the ROLE Attribute

The OAC reserves use of the ROLE attribute on <dao> and <daogrp> for particular kinds of data processing purposes, summarized below.

Table 4.4.

http://oac.cdlib.org/arcrole/link/	Use when linking directly to a URL for a METS object already ingested and hosted by the CDL.
http://oac.cdlib.org/arcrole/link/grab/	Use when linking to a URL for a METS object to be ingested and hosted by the CDL (i.e., a URL to a METS file).
http://oac.cdlib.org/arcrole/define	Use to indicate that the CDL should continue to generate and host a METS object, extracting metadata for that object from <daogrp> subelements.
http://oac.cdlib.org/arcrole/link/search/	Use when linking to a search for a collection of CDL-hosted METS objects described in the finding aid. Also supply the total number of digital objects in the collection at the end of the URL (e.g., " http://oac.cdlib.org/arcrole/link/search/ " for a search of a collection of digital objects).

4.4.5. Linking from Finding Aids to Digital Objects: Collection or Major Subdivision vs. <obj> Component Levels

The link from a finding aid to an object or group of objects can be made at any level (i.e., collection, series, subseries, file, or item level) in the finding aid, but it should be made at the level where the object(s) is described or implied in the finding aid.

Linking to a group of objects can be done using two different methods:

- Use a single <dao> Digital Archival Object or <daogrp> Digital Archival Object Group tag, as appropriate, to link to individual CDL-hosted METS objects as defined in Tables 4.5 and 4.7 of this chapter. Note that this is most practical if linking from the file or item level to an individual object or group of objects.
- Use a single <dao> Digital Archival Object tag for a group of objects, with the ROLE attribute set to "<http://oac.cdlib.org/arcrole/link/search/>" as defined in Table 4.5 of this chapter. Within the HREF attribute, encode a link to a search for a collection of CDL-hosted METS objects, using the following search query syntax. Supply the ARK unique identifier for the finding aid in the "relation" parameter of the search query (see bolded "**ark:/13030/kt9290094p**" below):

Example:

```
<dao role="http://oac.cdlib.org/arcrole/link/search/"  
href="http://content.cdlib.org/search?style=oac-  
img&sort=title&relation=ark:/13030/kt9290094p" title="Online items">
```

Note that this is most practical if linking from the collection level or major subdivision to the entire group of objects represented by that level of description.

4.4.6. Linking from Digital Objects to Finding Aids

Objects can be linked to the finding aid in two ways:

- If linking to the collection level, use an external reference in the digital wrapper for the METS object to link to the beginning of the finding aid. (If submitting metadata records and associated content files for compilation by the CDL into a METS object, use an external reference in the object's metadata record).
- If linking to any other specific part of the finding aid (i.e., series, subseries, file, or item level), encode a unique identifier in the digital wrapper for the METS object. (If submitting metadata records and associated content files for compilation by the CDL into a METS object, encode a unique identifier in the object's metadata record).

At the appropriate <archdesc> Archival Description or <c0x> Component level where the object(s) is described or implied in the finding aid, encode the unique identifier (see bolded "xyzj0098" below) within an ID attribute for that <c0x> Component tag.

Example:

```
<c02 id="xyzj0098" level="item">
<did>
<container type="box" label="Flat file">7</container>
<unittitle>Ushiwaka and Benkei duelling on Gojo Bridge or Gojo Bridge, an episode
from the Life of Yoshitsune, Chronicles of Yoshitsune, <unitdate>1881</unitdate>.
</unittitle>
<dao role="http://oac.cdlib.org/arcrole/link/image"
href="http://ark.cdlib.org/ark:/13030/kt4p3005qx/"></dao>
</did>
</c02>
```

The value of the unique identifier must be unique for the finding aid. The unique identifier must also comply with rules for IDs specified in the W3C's [XML Schema Part 2: Datatypes](#). Namespaces must start with a letter and can include letters, digits, periods, hyphens, and underscores. Colons are not allowed.

As of 2004, links to specific <c0x> Component levels cannot be implemented in the OAC database, but are expected to be implemented by early 2005. However, institutions are encouraged to encode valid <c0x> Component level links in the meantime, as they will be activated upon implementation.

For complete guidelines, see the [CDL GDO](#).

4.4.7. Implementing Archival Resource Keys (ARKs) for Digital Objects

The Archival Resource Key (ARK) identifier is a naming scheme for persistent access to digital objects (including images, texts, data sets, and finding aids), currently being tested and implemented by the CDL for collections that it manages. The ARK is a specially constructed, globally unique, actionable URL. Each ARK persistently links users to three things:

- Digital object metadata
- Digital object content files

- A faceted commitment statement by the CDL to provide persistent access to the digital object.

Given that ARKs are specially constructed and globally unique, their production and management is controlled by the CDL.

Institutions must encode ARKs within a finding aid whenever linking to corresponding CDL-hosted METS digital objects. For information on the use of ARKs at the CDL, and options for OAC contributing members to obtain ARKs for CDL-hosted METS digital objects, please see the CDL [ARK service description](#).

4.5. Linking from Finding Aids to CDL-Hosted METS Digital Objects/Locally-Hosted Digital Objects

Table 4.5.

ELEMENTS & ATTRIBUTES	STATUS	REPEAT?	COMMENTS / APPLICATION NOTES										
<dao>	R	N	Use one or more <dao> tags per finding aid, but use only one <dao> tag for each link to a single object. Nest <dao> within <did>.										
role="http://oac.cdlib.org/arcrole/link/ http://oac.cdlib.org/arcrole/link/grab/ http://oac.cdlib.org/arcrole/link/search/"	R		<p>CDL systems supply a default value of "http://oac.cdlib.org/arcrole/link/image" within the ROLE attribute for <dao>. To override this default value, use the following guidelines.</p> <p>Use "http://oac.cdlib.org/arcrole/link/" when linking directly to a URL for a METS object already ingested and hosted by the CDL. Use "http://oac.cdlib.org/arcrole/link/grab/" when linking to a URL for a METS object to be ingested and hosted by the CDL (i.e., a URL to a METS file). Also supply one of the following qualifiers at the end of the URI to specify type of object (e.g., "http://oac.cdlib.org/arcrole/link/text"):</p> <p>Table 4.6.</p> <table border="1" data-bbox="1070 1698 1549 1927"> <thead> <tr> <th>Type of object</th> <th>Qualifier</th> </tr> </thead> <tbody> <tr> <td>Audio recording</td> <td>audio</td> </tr> <tr> <td>Single image</td> <td>image</td> </tr> <tr> <td>Multiple images</td> <td>image+collection</td> </tr> <tr> <td>Data set</td> <td>numeric</td> </tr> </tbody> </table>	Type of object	Qualifier	Audio recording	audio	Single image	image	Multiple images	image+collection	Data set	numeric
Type of object	Qualifier												
Audio recording	audio												
Single image	image												
Multiple images	image+collection												
Data set	numeric												

		<table border="1" data-bbox="1068 163 1550 258"> <tr> <td data-bbox="1068 163 1300 212">Text</td> <td data-bbox="1300 163 1550 212">text</td> </tr> <tr> <td data-bbox="1068 212 1300 258">Video recording</td> <td data-bbox="1300 212 1550 258">video</td> </tr> </table> <p>Alternatively, use "http://oac.cdlib.org/arcrole/link/search/" if you would like to link to a search for a collection of CDL-hosted METS objects described in the finding aid.</p>	Text	text	Video recording	video
Text	text					
Video recording	video					
href=	R	<p>If the ROLE attribute is set to "http://oac.cdlib.org/arcrole/link/", then encode the URL for a METS object already ingested and hosted by the CDL. If the ROLE attribute is set to "http://oac.cdlib.org/arcrole/link/grab/", then encode the URL for a METS object to be ingested and hosted by the CDL (i.e., a URL to a METS file).</p> <p>Alternatively, encode the search query for a collection of objects in HREF using the following search query syntax. Supply the ARK unique identifier for the finding aid in the "relation" parameter of the search query (see bolded "ark:/13030/kt9290094p" below):</p> <p><i>Example:</i></p> <pre data-bbox="1068 1161 1550 1423"><dao role="http://oac.cdlib.org/arcrole/link/search/" href="http://content.cdlib.org/search?style=oac- img&sort=title&relation=ark:/13030/kt9290094p title="Online items"></pre> <p>The corresponding ROLE attribute should then be set to "http://oac.cdlib.org/arcrole/link/search/".</p> <p>Do not use XLINK, XPOINTER, or ENTITYREF in lieu of HREF</p>				
title=	P	<p>Use an appropriate label to characterize the nature of the digital object version or format (e.g., "Image" or "Online items"). The default label supplied by the OAC is "view attached object". Any label supplied in TITLE will override the</p>				

			default label supplied by the OAC.
<daodesc>	P		Use to state information about the contents, usage, or source of a <dao> Digital Archival Object, when not sufficiently characterized by information in <unittitle> or other descriptive information.

Example (link to a new CDL-hosted METS digital object, from an item-level description):

```
<dsc>
...
<c02 id="xyzj0098" level="item">
<did>
<container type="box" label="Flat file">7</container>
<unittitle>Ushiwaka and Benkei duelling on Gojo Bridge, an episode from the Life of
Yoshitsune, Chronicles of Yoshitsune</unittitle> <unitdate>1881</unitdate>
<dao role="http://oac.cdlib.org/arcrole/link/image"
href="http://ark.cdlib.org/ark:/13030/kt4p3005qx/">
</did>
</c02>
...
<dsc>
```

Example (link to a search for a collection of CDL-hosted METS digital objects, from a collection-level description):

```
<archdesc level="collection">
<did>
<origination label="Creator">
<corpname source="aacr2">Anaheim Public Library </corpname>
</origination>
<unittitle>Anaheim Public Library photograph collection on Anaheim local
history</unittitle>
<unitdate type="inclusive" normal="1860/1970">1860-1970</unitdate>
<unitdate type="bulk" normal="1860/1923">(bulk 1860-1923)</unitdate>
<physdesc>
<extent>1,802 items</extent>
</physdesc>
<abstract>Anaheim Public Library's photograph collection includes images of historical
interest of the City of Anaheim and other areas of Orange County from the 1860s to
2002. Images document public, residential and commercial buildings, including
businesses, schools, churches, citrus packing houses, fire and police department
facilities, theaters (such as the Fox Theater), and the public library; street scenes;
neighborhoods; significant individuals, including members of the Los Angeles Vineyard
Society which founded Anaheim in 1857 as a wine making colony, early mayors and
civic leaders (such as August Langenberger and Charles Pearson); groups and family
```

portraits; annual events, such as the California Valencia Orange Show and the Anaheim Halloween Parade; local geography, including the Santa Ana River, Anaheim Landing and local canyons; rancho families, such as Juan Pacifico Ontiveros and Vicenta Sepulveda Yorba Carrillo; Mission San Juan Capistrano; viticulture and agriculture, including the Anaheim chili peppers; transportation; ethnic communities, including Japanese Americans, Chinese Americans, etc.; natural disasters, such as the 1933 Long Beach earthquake and the 1938 flood; Anaheim Resort area, including Edison International Field (also known as the Big A), Anaheim Convention Center, Arrowhead Pond of Anaheim and Disneyland. Formats include panoramic and aerial photographs. Of particular interest are the large number of photographs which document the development of the Los Angeles Vineyard Society from circa 1860 to 1890. The collection also contains a small number of ambrotypes, daguerreotypes, and tintypes from the 1870s and 1880s.</abstract>

```
<repository>
<corpname source="lcnaf">Anaheim Public Library.
<subarea>Central Library. History Room.</subarea></corpname>
<address>
<addressline>Anaheim, California 92805</addressline>
</address>
</repository>
<unitid repositorycode="CAna" countrycode="US">Consult repository</unitid>
<langmaterial>Collection materials are in <language
langcode="eng">English</language>.</langmaterial>
<dao role="http://oac.cdlib.org/arcrole/link/search/"
href="http://content.cdlib.org/search?style=oac-
img&sort=title&relation=ark:/13030/kt2199p9w7" title="Online items">
<daodesc>
<p>Selected digitized images from this collection.</p>
</daodesc>
</dao>
</did>
...
</archdesc>
```

Example (link to a search for a collection of CDL-hosted METS digital objects, from a series-level description):

```
<dsc>
...
<c01 level="series">
<did>
<container type="box" label="Drawer : Folder ">1 : 56 - 4 : 7</container>
<unitid>Series 2. </unitid>
<unittitle>Correspondence</unittitle>
<unitdate>1840-1947</unitdate>
<physdesc><extent>5.5 cubic ft.</extent></physdesc>
<dao role="http://oac.cdlib.org/arcrole/link/search/"
href="http://content.cdlib.org/search?style=oac-
img&sort=title&relation=ark:/13030/kt9290094p" title="Online items">
```

```

<daodesc>
<p>Selected digitized images from this series.</p>
</daodesc>
</dao>
</did>
<scopecontent>
<head>Series Scope and Content Summary</head>
<p>This series contains correspondence between Ellen Browning Scripps and her
family, friends, and acquaintances. Most of the excerpts of correspondence located at
the beginning of this series were compiled by J. C. Harper and are arranged by subject.
Excerpts may also be found in correspondence with Edward Wyllis Scripps (E. W.),
1868-1926.</p>
<p>This series is arranged alphabetically by correspondent or subject.</p>
</scopecontent>
...
</c01>
...
</dsc>

```

4.6. Linking from Finding Aids to Legacy CDL-Hosted METS Digital Objects (Metadata Derived From EAD)

Table 4.7.

ELEMENTS & ATTRIBUTES	STATUS	REPEAT?	COMMENTS / APPLICATION NOTES				
<daogrp>	R	N	Use one or more <daogrp> tags per finding aid, but use only one <daogrp> tag for each link to a single object.				
role="http://oac.cdlib.org/arcrole/define/"	R		<p>CDL systems supply a default value of "http://oac.cdlib.org/arcrole/define/image" within the ROLE attribute for <daogrp>. This is used to indicate that the CDL should continue to generate and host a METS digital object, extracting metadata for that object from subelements.</p> <p>Override the default ROLE attribute value, if necessary, using one of the following qualifiers at the end of the URI to specify the type of object (e.g., "http://oac.cdlib.org/arcrole/define/text"):</p> <p>Table 4.8.</p> <table border="1"> <thead> <tr> <th>Type of object</th> <th>Qualifier</th> </tr> </thead> <tbody> <tr> <td>Audio recording</td> <td>audio</td> </tr> </tbody> </table>	Type of object	Qualifier	Audio recording	audio
Type of object	Qualifier						
Audio recording	audio						

			<table border="1"> <tr> <td>Single image</td> <td>image</td> </tr> <tr> <td>Multiple images</td> <td>image+collection</td> </tr> <tr> <td>Data set</td> <td>numeric</td> </tr> <tr> <td>Text</td> <td>text</td> </tr> <tr> <td>Video recording</td> <td>video</td> </tr> </table>	Single image	image	Multiple images	image+collection	Data set	numeric	Text	text	Video recording	video
Single image	image												
Multiple images	image+collection												
Data set	numeric												
Text	text												
Video recording	video												
<daoloc>	R	Y											
role="thumbnail med-res hi-res"	R		<p>Use one of the following values to indicate the nature of the digital object version or format:</p> <ul style="list-style-type: none"> • thumbnail • med-res • hi-res 										
href=	R		Use to encode the URL for the location of each content file associated with the digital object. Do not use XLINK, XPOINTER, or ENTITYREF in lieu of HREF.										
title=	P		<p>Use an appropriate label to characterize the nature of the content file version or format. (e.g., "panoramic view," "enlargement," etc.). A default label for the content file will be supplied by the OAC based on the information encoded in ROLE:</p> <p>Table 4.9.</p> <table border="1"> <thead> <tr> <th>ROLE</th> <th>Label</th> </tr> </thead> <tbody> <tr> <td>med-res</td> <td>Medium image</td> </tr> <tr> <td>hi-res</td> <td>Large image</td> </tr> </tbody> </table> <p>Any label supplied in TITLE will override the default label supplied by the OAC.</p>	ROLE	Label	med-res	Medium image	hi-res	Large image				
ROLE	Label												
med-res	Medium image												
hi-res	Large image												

Example (link to a legacy CDL-hosted METS digital object, from an item-level description; metadata derived from EAD):

```

<dsc>
...
<c02 id="gcga_1991.38.5" level="item">
<did>
<origination>
<persname>Tsukioka Yoshitoshi, 1839-1892</persname></origination>
<unittitle>The ferocity of Tametomo driving away the small-pox demons, from New Forms of
Thirty-six Ghosts</unittitle>
<unitdate>1890</unitdate>
<physdesc>

```

```

<genreform>Oban</genreform>
<physfacet>Color woodcut</physfacet>
<physfacet>Inscription: Recto, signed Yoshitoshi and Taiso seal at l.r.</physfacet>
<dimensions>14 3/8 x 10 inches</dimensions>
<bibref>References: Keyes 509.19</bibref>
</physdesc>
<repository>Grunwald Center for the Graphic Arts, UCLA Hammer Museum</repository>
<unitid>1991.38.5</unitid>
<daogrp role="http://oac.cdlib.org/arcrole/define/image">
<daoloc role="thumbnail"
href="http://www.oac.cdlib.org/affiliates/images/grunwald/gcga_1991.38.5_1_3.jpg">
</daoloc>
<daoloc role="hi-res"
href="http://www.oac.cdlib.org/affiliates/images/grunwald/gcga_1991.38.5_1_2.jpg ">
</daoloc>
</daogrp>
</did>
<admininfo>
<p>
<custodhist>The Eugene L. and Davida R. Trope Collection.</custodhist>
</p>
</admininfo>
<controlaccess>
<head>Subjects</head>
<subject source="local">rulers (people)</subject>
<subject source="local">samurai</subject>
<subject source="local">weapons</subject>
<subject source="local">demons</subject>
<subject source="local">disease</subject>
</controlaccess>
</c02>
...
<dsc>

```

Appendix A. Example Encoded Finding Aids

The following fully-encoded EAD examples of finding aids are available online:

- [Single-level description at collection level \(OAC Basic encoding scheme\)](#)
- [Multi-level description from collection through subseries levels \(OAC Full encoding scheme\)](#)
- [Multi-level description from collection through file and item levels \(OAC Full encoding scheme\)](#)

Appendix B. Formal Public Identifiers for Finding Aids

Formal Public Identifiers (FPI) are a formal structure for identifying naming authorities and named entities that is independent of the physical format or location of the named entity. The following instructions are recommendations only (i.e., not requirements), and may be used to prepare a FPI. Each element of the FPI is specified as to whether it is CONSTANT (same in all FPIs) or VARIABLE (changes from naming institution to naming institution and/or from individual named entity to entity):

1. publicid=

2. "

3. -//

A minus sign (-) followed by two forward slashes (//) indicating that the naming authority is not registered with an official registering agency. (If the participating institutions apply to formally register as naming authorities, the minus sign will change to a plus sign (+). CONSTANT.

4. Name of institution::subordinate named division of institution

The name of the contributing institution assigning a name to the entity. Double colons (::) are used to separate hierarchically distinct elements of the name. The subordinate named division is repeatable. VARIABLE, from one naming agency to another.

The name of the contributing institution, formulated according to DACS or AACR2 rules for corporate names. If the institution is part of a larger named body, then the name of the parent institution will be prefixed to the name if the name of the parent body is not already part of the catalog entry form of the name. Elements of the name are separated by double colons (::).

Examples:

Alameda County Library System::Albany Library

California Historical Society::North Baker Research Library

University of California, Berkeley::Bancroft Library

History San Jose::Research Library

University of California, Irvine::Library::Special Collections and Archives

California State Archives

University of California, Los Angeles::Library::Dept. of Special Collections

University of California, Santa Cruz::

5. //

Separator between name of owner of text and unique name or identifier for the entity.
CONSTANT.

6. TEXT

The Public Text Class will always be "TEXT" for finding aids.

7. Public text description

The public text description contains an assigned name or identifier for the finding aid.
VARIABLE, from unique finding aid to unique finding aid.

The assigned name or identifier for a finding aid and the archival unit it describes will be the same. The identifier is based on ISAD(G). The identifier will have the following form:

(Country code (ISO 3166)::National repository code::local repository reference code::Title of archival unit)

The entire string is contained in parentheses.

A. ()

A left parenthesis indicates the opening of the finding aid/archival unit identifier; a right parenthesis indicates the close of the identifier.

B. ::

Double colons (::) are used to separate hierarchical elements of the identifier or reference code.

C. US

Use the ISO 3166 country code for the United States, which is "US".

D. National repository code

Encode your repository code supplied by the Library of Congress. Ask the Library of Congress to establish a repository code if none exists. Repository codes and instructions for requesting a new code may be found on the Library of Congress [MARC Code List for Organizations](#) web page.

E. Local repository reference code

Typically this will be the collection number, though it may be a bar code or unique key supplied by a local archival management system.

F. Title of archival unit

The title of the archival unit should match exactly the wording (though not necessarily the punctuation or markup) of the <unittitle> in <archdesc>. The formal syntax for FPI entries specifies that in addition to numbers, and upper- and lowercase letters, only the following marks of punctuation may be used:

- ' (apostrophe)
- ((left parenthesis)
-) (right parenthesis)
- + (plus sign)
- , (comma)
- ? (hyphen)
- . (period)
- : (colon)
- = (equal sign)
- ? (question mark)
- / (forward slash)

Either delete all other marks of punctuation or convert them to the nearest equivalent from the list above. Do not retain diacritical marks. Convert these to their nearest Latin equivalents. Be aware that a XML parser will not flag incorrect <eadid>s as errors.

The reference code or identifier must be unique within the naming domain of the owner of the text, that is, no other finding aid and archival unit can have the same identifier.

The identifier is based on ISAD(G) section 3.1.1. It has been extended in the following way because the local repository reference code may not be unique or some repositories do not assign reference codes: the title of the archival unit is appended as a final element.

If no reference code is assigned, the title of the archival unit must be unique in the repository. If the reference codes are not unique, then the reference code and the title combined must be unique. If no unit title is given, then the reference code must be unique.

A one-to-one correspondence between the EAD instance and the archival unit is assumed. In other words, the unique identifier for the EAD instance and the archival unit are one and the same. If more than one archival unit shares the same identification number and title, or more than one EAD instance is used to describe one archival unit,

then distinguishing information should be added to the local identification number and/or title.

8. //

Separator between Public Text Description and Public Text Language. CONSTANT.

9. Public text language

The language in which the entity is encoded. The two letter language code is to be taken from [ISO 639](#). VARIABLE, though most frequently "EN" for English.

10. "

The complete FPI will have the following form:

```
publicid="-//Name of owner::subordinate named division of owner//TEXT (Country code  
::National repository code::local repository reference code::Title of archival unit)//EN"
```

Examples:

```
publicid="-//Stanford University::Hoover Institution Archives//TEXT (US::CSUZ:::Vasilii  
Sergeevich Il'in Papers)//EN"
```

```
publicid="-//University of California, Santa Cruz::University Library::Special  
Collections//TEXT (US::CU-SC::MS 74::John Cage Mycology Collection)//EN"
```