



Cataloging Cultural Objects

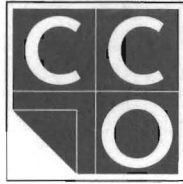
A Guide to Describing Cultural Works and Their Images



Murtha Baca • Patricia Harpring • Elisa Lanzi

Linda McRae • Ann Whiteside

On behalf of the Visual Resources Association



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AMERICAN LIBRARY ASSOCIATION

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Introduction

PURPOSE

Over the last decade, many organizations and agencies have been working toward developing data standards for creating descriptions of and retrieving information about cultural objects. Data standards not only promote the recording of information consistently but are also fundamental to retrieving it efficiently. They promote data sharing, improve content management, and reduce redundant efforts. In time, the accumulation of consistently documented records across multiple repositories will increase access to content by maximizing research results. Ultimately, uniform documentation will promote the development of a body of cultural heritage information that will greatly enhance research and teaching in the arts and humanities.

Standards that guide data structure, data values, and data content form the basis for a set of tools that can lead to good descriptive cataloging, consistent documentation, shared records, and increased end-user access. In the art and cultural heritage communities, the most fully developed type of data standards are those that enumerate a set of categories or metadata elements that can be used to create a structure for a fielded format in a database. *Categories for the Description of Works of Art* (CDWA) is an example of a metadata element set. The *CDWA Lite XML* schema and the *VRA Core Categories, Version 4.0* schema are examples of metadata element sets expressed within an XML structure. Although a data structure is the logical first step in the development of standards, a structure alone will achieve neither a high rate of descriptive consistency on the part of catalogers, nor a high rate of retrieval on the part of end users.

Standards that govern the words (data values), and their selection, organization, and formatting (data content) are two other types of standards that must be used in conjunction with an agreed-upon data structure. Far more work has been done in developing standards for data values than for data content, typically in the form of thesauri and controlled vocabularies such as the *Thesaurus for Graphic Materials* (TGM), the *Art & Architecture Thesaurus* (AAT), the *Union List of Artist*

Names (ULAN), and the *Getty Thesaurus of Geographic Names* (TGN). Along with the Library of Congress Name and Subject Authorities, the Getty vocabularies and other thesauri bring us to the second step on the road to documentation standards and the potential for shared cataloging.

Cataloging Cultural Objects (CCO) takes us to the third step by providing standards for data content. Until now, little published documentation on data content standards has applied to cultural works—standards that guide the choice of terms and define the order, syntax, and form in which data values should be entered into a data structure. The library and archival communities have well-established rules for data content in the form of the *Anglo-American Cataloguing Rules* (AACR) and, more recently, *Describing Archives: A Content Standard* (DACS). The cultural heritage community in the United States, on the other hand, has never had any similar published guidelines that meet the unique and often idiosyncratic descriptive requirements of one-of-a-kind cultural objects. *Cataloging Cultural Objects* has been developed to fill this gap. Building on existing standards, *Cataloging Cultural Objects* provides guidelines for selecting, ordering, and formatting data used to populate metadata elements in a catalog record; this manual is designed to promote good descriptive cataloging, shared documentation, and enhanced end-user access. It is also intended to inform the decision-making processes of catalogers and builders of cultural heritage systems. In CCO, the emphasis is on principles of good cataloging and documentation, rather than on rigid rules that do not allow catalogers and system implementers to make informed judgments about the information they create and how it will be presented to their users. We hope that, whether used locally as an aid in developing training manuals or in-house cataloging rules, or more broadly in a shared environment as a guide to building consistent cultural heritage documentation, this manual will advance the increasing move toward shared cataloging and contribute to improved documentation and access to cultural heritage information.

AUDIENCE

Cataloging Cultural Objects was designed specifically for members of the communities engaged in describing and documenting works of art, architecture, cultural artifacts, and images of these things—museum documentation specialists, visual resources curators, archivists, librarians, or anyone who documents cultural objects and their images. Although the guide is not about system design, it may also be useful to system designers who need to understand the nature and form of cultural object information.

The guide attempts to balance the needs of various audiences but recognizes that each institution will have its own local requirements. Additionally, it is understood that those who describe original objects rather than analog or digital images of objects may require some additional, specialized guidelines. Museum registrars, for example, may require more detailed procedures for measuring an object or describing its condition or conservation. In addition to the bibliography that accompanies this manual, recommendations within the chapters include additional specialized sources for cataloging museum collections.

SCOPE AND METHODOLOGY

Cataloging Cultural Objects focuses on data content standards for descriptive cataloging—standards that guide the choice of terms, and that define the order, syntax, and form in which those terms, phrases, values, and narrative descriptions are recorded. Other types of data standards (for example, data structure, data value, and interchange standards) are excluded, except where relevant to a discussion of data content standards. For example, each chapter references standard tools appropriate to specific elements. Controlled vocabularies and various thesauri are recommended for building local authority files.


The primary emphasis of CCO is descriptive metadata and authority control—data intended to describe a cultural work, data used to create catalog records for that work and images of it. Administrative metadata (data used in managing and administering information resources) and technical metadata (for example, data to record digital image file properties) are excluded except where relevant to a discussion of descriptive metadata. For example, the guide often makes the distinction between controlled fields and fields used for display. Although the guide is system independent, it sometimes recommends using one or both types of fields within a local database based upon the needs of the cataloging institution. CCO includes elements used to describe both works and images, but does not include elements that involve administrative metadata. For example, Chapter 3: Physical Characteristics covers the physical characteristics of the work but not of the image, because physical characteristics of the image such as its size and format fall within the realm of technical metadata.

CCO covers many types of cultural works, including architecture, paintings, sculpture, prints, manuscripts, photographs and other visual media, performance art, archaeological sites and artifacts, and various functional objects from the realm of material culture. CCO is designed for museum collections, visual resources collections, archives, and libraries with a primary emphasis on art and architecture. CCO is not intended for natural history or scientific collections.

The research for CCO began with a review of the literature, emphasizing cataloging applications and best practice. Critical elements from the *VRA Core 3.0* and from *Categories for the Description of Works of Art (CDWA)* were included. A summary of practice related to each element was compiled from the sources under review. Whenever possible, recommendations were based on common practice. The survey of literature produced a short list of published sources consisting of data dictionaries, museum documentation manuals, and standard library and archival sources. To obtain unpublished manuals, a call went out to various electronic discussion lists requesting local manuals and guidelines; these were also used in the initial evaluation of materials.

Some elements were eventually rejected on the grounds that they dealt more with administrative, technical, or structural metadata relating to assets than with descriptive metadata relating to works and their images. The elements that were retained were grouped according to purpose and formed the basis for the nine chapters that comprise Part 2 of this manual.

Both the form and content for the guide underwent rigorous editorial review, as well as the critique of an advisory committee representing all of the various target communities, including library, archival, museum, and visual resources professionals.



Part ONE

General Guidelines

I. HOW TO USE THIS GUIDE

The Cataloging Cultural Objects (CCO) guide is not a metadata element set per se. The elements it covers refer to areas of information in a cataloging record that may be mapped to various metadata element sets such as VRA Core, CDWA, and CDWA Lite (and, by extension, to MARC and Dublin Core, and the like, because those element sets can be mapped to VRA and CDWA.¹ CCO is a broad document that includes rules for formatting data, suggestions for required information, controlled vocabulary requirements, and display issues.

CCO is organized in three parts. Part 1 contains guiding principles for basic cataloging issues such as minimal descriptions, Work and Image Records, complex works, item-level cataloging and collection-level cataloging, controlled vocabularies, and authority control. Part 2 is divided into nine chapters. Each chapter discusses one or more metadata elements and begins by describing the relationships between the elements contained in the chapter. Chapters are subdivided into sections representing the various elements. Each element is defined and includes information such as whether it is controlled, repeatable, or required, its uses, and examples. Part 3 discusses the authorities, including recommended elements and rules for building authorities. The appendices include a glossary, bibliography, and an index. In addition, the CCO Web site provides additional examples and ancillary materials.

The CCO guide is intended to advise in planning, implementing, and using databases and local cataloging rules. It is also intended to be a reference during cataloging, not necessarily to be read from cover to cover. The content and layout of the chapters in Part 2 and of the authorities in Part 3 are intended to facilitate the

use of the manual as a reference work. As far as is possible, the structure of each chapter in these sections is the same. Repetition of selected information from chapter to chapter is intended to aid the cataloger so that repeatedly turning back and forth between chapters is not necessary. However, to avoid repeating large blocks of information, the text occasionally refers the user to a pertinent section or chapter elsewhere in the guide.

In the cataloging rules sections, the tone of the text is prescriptive. Many issues are complex, however, and variation in the requirements and capabilities of different institutions is unavoidable. Therefore, in the discussion and presentation of data sections, the guide is less prescriptive and instead makes recommendations, explaining the ramifications of using one approach over another. In all cases, **CCO recommends that each institution analyze, make, and enforce local rules to allow information to be retrieved, repurposed, and exchanged effectively and efficiently.**

CCO and AACR

The *Anglo-American Cataloguing Rules* (AACR) were originally intended primarily for describing books; adaptations have been made for graphic materials and archival collections. Occasionally, AACR has been applied to works of art, but the rules fall short of the specific and idiosyncratic needs for describing works of art, architecture, cultural objects, and their images. Although CCO acknowledges AACR rules, it does not seek to conform to them, because it is a different standard for a different audience and different materials. For those who use AACR, CCO can be a complement or partner to AACR, supplementing established AACR rules.

Ten Key Principles of CCO

The following ten important principles of CCO form the foundation of this guide:

1. Establish the logical focus of each Work Record, whether it is a single item, a work made up of several parts, or a physical group or collection of works. Clearly distinguish between Work Records and Image Records.
2. Include all the required CCO elements.
3. Follow the CCO rules. Make and enforce additional local rules to allow information to be retrieved, repurposed, and exchanged effectively.
4. Use controlled vocabularies, such as the Getty vocabularies and the Library of Congress authorities.
5. Create local authorities that are populated with terminology from standard published controlled vocabularies as well as with local terms and names. Structure local authorities as thesauri whenever possible. Record and document decisions about local authorities.
6. Use established metadata standards, such as the *VRA Core Categories* or *Categories for the Description of Works of Art*.
7. Understand that cataloging, classification, indexing, and display are different but related functions.

8. Be consistent in establishing relationships between works and images, between a group or collection and works, among works, and among images.
9. Be consistent regarding capitalization, punctuation, and syntax. Avoid abbreviations, but when necessary, use standard codes and lists for abbreviations (for example, the ISO abbreviations for countries).
10. For English-language information systems and users, use English-language data values whenever possible.

II. WHAT ARE YOU CATALOGING?

To catalog a work is to describe what it is, who made it, where it was made, how it was made, the materials of which it was made, and what it is about. A related task is classifying the work; Chapter 7: Class discusses classification. Display and indexing are related to cataloging; these issues are discussed at the end of every chapter and in general terms here in Part 1, under Database Design and Relationships: Display and Indexing.

Before beginning the task of descriptive cataloging, a cataloger must ask a basic but potentially complex question: What am I cataloging? This question refers to the relationship between a work and its parts, and between a work and the images that represent it.

To make a coherent record, the cataloger must clearly understand the parameters of the work in question. Is the catalog record about a single painted canvas or an altarpiece made up of many panels? Is it about a monolithic sculpture or an installation of various works? Is it about a single built structure or a building composed of various parts that were constructed at significantly different times? Is it about a single drawing on one piece of paper, a volume of drawings in an album or sketchbook, or a group of archival materials comprising drawings, computer diskettes, videotapes, and photographs?

Works may be complex, consisting of multiple parts, or they may be created in series. Are you cataloging a part of a work that belongs to a larger whole? For example, a museum may own only one panel of a triptych or one page from a manuscript. An institution may own one engraving that comes from a published series of engravings. Does the cataloger create a record for the series or the whole, even if the museum only owns a part? When cataloging numerous works in a collection or a series of archival objects belonging to a group, can a record for the entire collection suffice, or should some objects in the collection be cataloged individually? See Related Works for a detailed discussion.

Perhaps you are cataloging images and the works represented in them. In the simplest of cases, the work is no longer in hand, but has been captured in a photograph. For example, imagine a photograph intended to document an original two-dimensional painting (that is, a photograph that contains the entire work and nothing more). Such images may take form in any number of media, be it a slide, a digital image, or, in this case, a photograph. Now imagine that the photographer

had stepped back fifteen feet, expanded the perspective, and instead of a photograph of a painting, it becomes a photograph of a painting on a wall of a building with a sculpture in the foreground. The photograph is no longer a simple image of a single work; the photograph now represents a complex layer of information open to subjective interpretation.

A photographic image, particularly of three-dimensional works, can shift or obscure the emphasis by adding other works in the picture frame or by changing the perspective captured in the view. The lighting of the work in the image may alter its appearance. An especially knotty but not uncommon example can be found in the archives of the Institute of Fine Arts at New York University. The institute owns a 35-mm slide copied from a lantern slide of a photograph by Erwin Panofsky, a distinguished 20th-century art historian. The photograph is of a 15th-century Dutch manuscript page that depicts a 2nd-century Roman sarcophagus. What is the work? What is the subject? Who is the artist?

In this example, a cataloger might be tempted to consider Panofsky the creator because the original photograph was taken by an identifiable and well-known individual, albeit not an individual known as a photographer. But the question of authorship depends on the larger question with which the cataloger must begin: What am I cataloging? The photograph has the potential to be both an art work in itself worthy of cataloging and a documentary image depicting a separate work of art. If the cataloger chooses to catalog the photograph by Panofsky, the work is the photograph, the creator is Panofsky, and the subject is the manuscript. If the cataloger chooses to catalog the manuscript, the work is the manuscript, the creator is unknown, and the subject is the Roman sarcophagus. Panofsky is the creator of the image and could be recorded as such in a creator field in the Image Record. The answer to the question "What am I cataloging?" sets in motion the rest of the choices made in the cataloging process and helps to distinguish data about the work from data about the image.

III. WORKS AND IMAGES

CCO recommends making a clear distinction between the work and the image. It is important to make a distinction at the outset of cataloging because many of the same types of data elements used to document the work are also used to document the image. If the distinction is not clearly drawn, the results of a search can produce inaccuracies and confusion for the end user. It can also make it difficult to migrate or export the data to another system.

What Is a Work?

In CCO, a work is a distinct intellectual or artistic creation limited primarily to objects and structures made by humans, including built works, visual art works, and cultural artifacts. Built works are architecture, other structures, or a man-made environment, typically large enough for humans to enter, usually serving a practical purpose, being relatively permanent and stable, and usually considered to have aesthetic value. Visual arts are physical objects meant to be perceived primarily through the sense of sight, created by the use of skill and imagination, and exhibit an aesthetic of a quality and type that would be collected by art

museums or private collectors. A contemporary form such as performance art is considered a visual art, but the performing arts and literature are not. Cultural artifacts are physical objects produced or shaped by human craft, especially tools, weapons, ornaments, or other items that inherently give cultural clues about the person (and culture) who made or used them, and are further characterized by being of archaeological or historical interest and of the type collected by museums or private collectors.²

Works may be monumental, attached to other works, collected by art museums, held by ethnographic, anthropological, or other museums, or owned by private collectors. Works include architecture, landscape architecture, other built works, objects such as paintings, sculptures, murals, drawings, prints, photographs, furniture, ceramics, tools, costume, textiles, other decorative or utilitarian objects, or any other of thousands of types of artistic creations and other cultural remains. Performance art, installations, and site-specific works are included. Excluded are literary works, music, performing arts, language arts, culinary arts, science, religion, philosophy, and other intangible culture.

A work may be a single item or made up of many physical parts. Also note that a Work Record may be made for a physical or virtual collection of individual items.

What Is an Image?

An image is a visual representation of a work. It typically exists in photomechanical, photographic, or digital format. In a typical visual resources collection, an image is a slide, photograph, or digital file. A visual resources collection may own several images of a given work. Images do not include three-dimensional physical models, drawings, paintings, or sculptures, which are works in their own right.

If one work is depicted in another work (for example, if a cathedral is depicted in a painting), the cathedral is the subject of the painting (the painting is not an image of the cathedral); if a separate Work Record is made for the cathedral, it may be linked to the record for the painting as a Related Work (not as Work-Image).

Likewise, if one work is a study for another work, records for the two works may be linked as Related Works, not as Work-Images.

A photograph of a work may also be treated as either a work of art or an image, depending on the stature of the photographer and the aesthetic or historical value of the photograph. For example, the photograph *La Tour Eiffel* by the well-known French photographer Brassai depicts the Eiffel Tower at night. This photograph would typically be treated as a work of art, not simply as an image documenting the Eiffel Tower. In contrast, another photograph purchased from a commercial source depicting the same structure would probably be treated as a photographic documentation of the Eiffel Tower, recorded in an Image Record and linked to the Work Record for the Eiffel Tower as an architectural work.

Further considerations in distinguishing between work and image may involve the element of time. Note that the designation of an item as an image (that is, a surrogate for a work) versus a work may change over time. Consider an example at the Victoria and Albert Museum. The museum may have a digital image of a 19th-century photograph; in the photograph is depicted a plaster cast of the ancient Roman work, the *Column of Trajan*. Such plaster casts were originally

made to serve as surrogates for the original works for the purpose of teaching, although they are now regarded by the museum as works in their own right. The 19th-century photograph was originally intended to be a surrogate for the plaster cast (and by extension, for the *Column of Trajan*), but that photograph is also now considered a work in its own right. What are the relationships between images and works in this example? In the most straightforward solution, the digital image is an image (surrogate) for the photograph, which is a work; the subject of the photograph is the plaster cast, which is a work; the subject of the plaster cast is the *Column of Trajan*, which is also a work.

Relationships between Work and Image Records

In a relational database structure, a record for the image would be linked to a record for the work and therefore would be linked to information about the work. The work may be linked to multiple images (for example, when there is more than one image of the work), and the image may be linked to multiple works (for example, when more than one work appears in the same image). The relational database model enables the cataloger to record work and image information in the appropriate places and clearly make the distinction between the work and the image. Although the Panofsky example is complicated by the fact that the photograph could be considered either a work or an image of a work, once the initial decision has been made, the cataloging is fairly straightforward. Today, most cataloging institutions use a relational database to catalog cultural works and their images; there are many software programs available for creating such an information system.

Cataloging Images of Complex Works

Cataloging images of complex works presents certain challenges. Consider the example of how to catalog a dozen images of Ghiberti's *Gates of Paradise*. This set of doors is on the east entrance to the Baptistery of San Giovanni in Florence, Italy. Taken as a whole, the work comprises ten large panels depicting various Old Testament scenes and numerous other, smaller panels and figures. The first decision involves whether to create a Work Record for the doors separate from the record for the Baptistery. In this case, the cataloger would probably create a separate Work Record for the doors because they have a different creator, different physical characteristics, different dates, and a different style than the Baptistery. The record for the doors should be linked in a part-whole relationship to the record for the Baptistery. The cataloger must next decide how to catalog the dozen images of the doors, including views of the door as a whole and details of the different panels of the doors. The panels are not physically separate from the door, but each depicts a different scene from the Old Testament. Each panel could be treated as a separate work; however, that may not be necessary, given that the panels have not been separated physically, are by the same artist, and are composed of the same materials. In this case, Image Records for each panel could be linked to the single Work Record for the doors, and each Image Record could include a view subject (see Chapter 9) that notes which particular scene is depicted in a given image.

Cataloging Images of Architecture

Current practice in visual resources collections admits several approaches to cataloging images of the built environment. The following three approaches may be combined as required in a single database, choosing one or another depending upon the situation at hand.

One approach creates a single Work Record for the building, to which Image Records for exterior views, interior views, details, and the like are linked. This method works well for fairly simple buildings or structures.

Another approach creates a Work Record for the building, to which Image Records for various views and details of the built work are linked. Separate Work Records for each plan, model, or other analytical or interpretive documents are created, and Image Records are linked to the various Work Records as appropriate (for example, images for the plan could be linked to the appropriate Work Record for the plan). This strategy works well when the documents about a building are themselves important.

A third approach virtually divides the building into pieces, making several Work Records for one building, including, for example, a Work Record for the building as a whole, and additional Work Records for each significant element, such as a chapel, portal, dome, and so on. This approach can be useful when cataloging large numbers of images of a complex built work.

Determining which approach to use in a given situation depends on the size of the building, how complex it is in structure, or how many components it contains on the one hand, and, on the other hand, how many images the cataloger has to describe. The goal is to determine how the user can best virtually “see” the building by using the various images of it in a collection. In the example of cataloging two hundred images of a large cathedral with many components, the cataloger might make separate Work Records for the exterior, the interior, the windows, and the frescoes, all linked as parts of the whole cathedral. If an individual chapel or room is architecturally important or designed by another architect or at a different date than the rest of the building, then a separate Work Record should be made for the room. In another example, if the cataloger has in hand only a few images of a particular building—for instance, of the Rotunda at the University of Virginia—a single Work Record for the Rotunda may suffice, and Image Records for views of exteriors, interiors, and details can be linked to the single Work Record. Note that this approach would not be as effective if the collection acquired more images of the Rotunda.

See also Related Works below.

IV. MINIMAL DESCRIPTIONS

Another basic question confronting the cataloger is “How much information should a catalog record contain?” The focus of cataloging should be twofold: promoting good access to the works and images coupled with clear, accurate descriptions that users will understand. This can be achieved with either a full cataloging record or a minimal cataloging record, so long as the cataloger follows standards and the descriptive cataloging is consistent from one record to another.

In determining how much information should be included, the answer depends upon several factors, including the types of materials being documented and the function, role, and purpose served by the documentation. Even among institutions with similar collections and similar objectives, practice may vary depending on the time, knowledge, and expertise of catalogers, the database structure and information system design, end-user needs and expectations, and long-established institutional practice.

Cataloging Depth: Specificity and Exhaustivity

Cataloging depth is often discussed in terms of specificity and exhaustivity, generally referring to the precision and quantity of terms applied to a particular element in the record. Specificity refers to the degree of precision or granularity used in description. For example, the cataloger would ideally choose the most specific term to describe an architectural work, such as *campanile* rather than the more general *tower*. Exhaustivity refers to the degree of depth and breadth that the cataloger uses in description. These are expressed by using a large number of terms or a more detailed description. For example, a cataloger might write "black-and-white photographs used to create a collage on graph paper, along with photocopies and typewritten texts," as opposed to "mixed media." In general, the greater the level of specificity and exhaustivity in catalog records, the more valuable the records will be for researchers. However, practical considerations often limit the ability of cataloging institutions to meet this goal. Cataloging institutions should establish local rules and guidelines regarding the level of specificity to be applied by catalogers for each element. See also Core Elements and Minimal Records below. **CCO recommends the following considerations to assist the cataloging institution in making decisions about minimal cataloging.**

Size and Requirements of the Collection

The size of the collection may play a role in limiting the levels of specificity and exhaustivity employed by any given institution. An institution that is cataloging a large collection may not have the need or resources to record extensive and specific information for every work. On the other hand, a small institution may be constrained by not having access to specific information; for example, a repository may not have a conservation laboratory to supply accurate analysis of measurements and materials. Even within a single collection, different levels of specificity and exhaustivity may be dictated by the works themselves. For example, one sculpture may have been cast of a single material, so simply stating the name of the material is sufficient (for example, *bronze*), and another may be composed of several materials applied with various processes that should be recorded (for example, *cast resin with oak veneer, gold leaf and paint applied, mounted on a carved wooden base*).

Focus of the Collection

The scope and focus of a given collection may dictate the types and specificity of required terminology. A collection that has a large variety of different types of works may have little need to record very specific information for each work. A specialized collection will require more specific information in order to distinguish one work from another. For example, an institution that holds three tapestries

in a large general collection would probably need less specific information about those few than would a museum that specialized in tapestries and other textiles.

Expertise of the Catalogers and Availability of Information

The content of the records in any given information system will necessarily reflect the level of subject expertise of the catalogers. Catalogers may not be experts on the works being cataloged. Catalogers of visual resources collections may not have access to some information about the work. In any case, catalogers should never use a specific term unless they have the research, documentation, or expertise to support that use. It is better to use a broader term when there is uncertainty. For example, a cataloger should call a material *stone* rather than *banded slate* if he or she is unsure of the specific material. Local rules should be established regarding default values for required elements for which no information is available.

Expertise of the Users

The display information and the retrieval capability of the information should accommodate the expectations and knowledge of the intended users of the information system. Many institutions must satisfy a wide range of users, from the scholarly expert to the novice first-time visitor to the museum or Web site. Also consider whether or not your institution's information will be available in a larger pool of data along with records from other institutions. For example, consider if it will be contributed to one or more consortia or available for searching in a federated environment or union catalog. If so, your cataloging will need to be specific enough to allow your records to remain meaningful in the context of a larger information repository.

Technical Capabilities

Keep in mind that a good data structure and the data with which you populate the data elements are critical investments; your data will need to survive through a succession of computer systems over time. Ideally, the technical environment will not dictate cataloging practice. However, in the real world, technical concerns may limit or enhance cataloging in various ways. For example, if it is not possible to link to hierarchical authorities, it may be necessary for catalogers to enter both specific and general terms in each record to allow access, which may differ from traditional bibliographic practice. (In the context of CCO, linking refers to the process of establishing a relationship between two information objects, typically between two records or between values in an authority file and a field in a record.) That is, if the medium of a work is *etching* and *etching* is not linked to the broader term *print* in an authority, it may be necessary to explicitly enter both *etching* and *print* in the Work Record.

Core Elements and Minimal Records

Specificity and exhaustivity are also issues in another sense: when considering the depth and breadth of the record itself. Just as a museum or visual resource collection should set rules for a minimal number of terms to be assigned to each element in a catalog record, it should also mandate a minimal set of elements in the record, such as creator information, title of the work, and date of execution

of the work. From the standpoint of end-user access, greater depth and breadth of cataloging are highly desirable; but from a practical point of view, this is not always possible because of the limitations of time, human resources, and the ability to locate and verify information.

Although the practice of employing both specificity and exhaustivity in creating a record is encouraged, consistency in the way the data is expressed is more important than the amount of data in the record. There can be no universal rule about the depth of cataloging as it pertains to either the number of terms used in a single element or the number of elements needed to construct a record; however, **CCO recommends using standard descriptive elements as outlined in the VRA Core Categories or the CDWA core categories as a basis for constructing a minimal record.** How these core metadata elements are used in building a cataloging database, and how the information is parsed for display in public access interfaces or printed labels, may require different local solutions than those presented in CCO.

How to Establish Core Elements

CCO discusses a subset of elements from the VRA *Core Categories*, which in turn are a subset of the CDWA metadata elements. The core elements in CCO comprise the most important descriptive information necessary to make a record for a work and an image. The chapters in Part 2 address cataloging issues related to all of the core elements for descriptive metadata (administrative metadata is not covered). Each chapter indicates which core elements are required and which are recommended (but not required). Minimal records contain the minimum amount of information in the minimum set of elements, as defined by the cataloging institution. **CCO recommends that a minimal record should include most if not all core metadata elements; a minimal record should contain data values for all of the required core elements whenever possible.** CCO does not prescribe cataloging depth and recognizes that not all institutions will require or have access to all of the data needed to complete a core record.

What should the cataloger do if core information is limited or not available? When an element is indicated as required, this means that the element is strongly recommended. However, it is recognized that occasionally data for any element may be missing during the cataloging process. It is then up to the cataloging institution to determine how to deal with missing data. Possibilities include using a value such as *unavailable*, *unknown*, or *not applicable*; making the value NULL on the database side; or leaving the field blank entirely and supplying data for missing values at the public access end. How these situations are implemented is a local decision and may vary from institution to institution.

The chapters in Part 2 describe what to do when core information for various elements is unavailable. In some cases, data may be supplied by the cataloger; for example, a cataloger might create a descriptive title if the title is not known. In other cases, the cataloger may use a broader term when more specific information is not known (for example, recording *metal* instead of *bronze* for the material). In yet other cases, no data of any kind is available, as described in the paragraph above.

On the other hand, what if the CCO core elements are insufficient to allow the cataloging institution to fully describe works in their collection? **CCO recommends beginning with the VRA Core Categories or CDWA core metadata elements as a basis for building a minimal record, to which additional elements of information from CDWA may be added as needed.** Although the CCO core elements map to the CDWA core categories, CDWA contains elements that are not included in CCO; some institutions may require elements that go beyond the scope of both. For example, a museum cataloger may have an abundance of information about the work, its provenance, or its conservation history that neither the VRA Core Categories nor the CDWA core metadata elements sufficiently cover. Institutions should add elements as needed for their requirements.

Elements for a Work Record

For a list of CCO elements, see the beginning of Part 2. Given the diversity of cultural works described by catalogers, no single set of minimal elements could suffice in all cases. For example, different information is needed to identify and describe works from various cultures and time periods. African tribal art will require different elements than Islamic manuscripts; ancient art will require different elements than performance art. CCO recommends the following types of information as essential for minimal records of all cultural works.

Creative Responsibility and Creation Contexts

Information about the creation of the work is required. Who created the work? If a creator is not named or identified, what is the culture of origin for the work? Where was the work created? When was it created?

Descriptive and Identifying Information

Catalogers should provide enough information to establish what the work is and to distinguish it from other works. What is it and what is it called? What is its work type and title? Where is it located? What is its subject? Of what materials is it made?



Chapters 1 through 8 in Part 2 list the recommended elements, and advise how to fill in values for those elements and what to do when minimal information for a given required core element is not known. See Part 2 for a full list of elements. A brief list of the elements in each chapter follows:

Chapter 1: Object Naming

- Work Type
- Title

Chapter 2: Creator Information

- Creator
- Creator Role

Chapter 3: Physical Characteristics

- Measurements
- Materials and Techniques
- State and Edition
- Additional Physical Characteristics

Chapter 4: Stylistic, Cultural, and Chronological Information

- Style
- Culture
- Date

Chapter 5: Location and Geography

- Current Location
- Creation Location
- Discovery Location
- Former Location

Chapter 6: Subject

- Subject

Chapter 7: Class

- Class

Chapter 8: Description

- Description
- Other Descriptive Notes

Elements for an Image Record

Most of the essential information about an image of a work will be documented in the administrative metadata (for example, repository information or identification numbers for digital or analog assets) and technical metadata (for example, image size, image format), which are outside the scope of this guide. CCO discusses descriptive metadata, including the following minimal information about the image that is essential to the end user:

View Information

View information is required for images. What is the description of this particular view of the work? A three-dimensional work, for example, might have several images representing multiple views.



Chapter 9 discusses required and recommended descriptive elements for the view represented in images: View Description, View Type, View Subject, and View Date.

Elements for a Group, Collection, or Series Record

The record for a group, collection, or series may have the same fields as a Work or Image Record, but a group, collection, or series record should be flagged (like Work and Image Records) with Record Type so that it is clear to the user that this is an aggregate record, not a record for a single work. Records for individual works or images can be hierarchically linked as part of the group, collection, or series record.

V. RECORD TYPE

CCO recommends using a Record Type element, although this is administrative rather than descriptive metadata and therefore outside of the scope of this manual.

Record Type indicates the level of cataloging, based on the physical form or intellectual content of the material. As a preliminary step in cataloging the work, determine the cataloging level that is appropriate to both the work and the goals of the cataloging institution. For visual resources catalogers, recommended Record Types are image, work, and collection. For catalogers of museum objects, see the definitions and discussion in *Categories for the Description for Works of Art: Object/Work—Catalog Level*, where the terms *item*, *volume*, *group*, *subgroup*, *collection*, *series*, *set*, and *component* are suggested. Also consult *Describing Archives: A Content Standard* for terminology for archival groups.

VI. RELATED WORKS

In the context of CCO, Related Works are those having an important conceptual relationship with each other; records for Related Works are linked to each other in the database. Related Works may be relevant for works with parts (for example, a triptych), works of architecture, collections of works, and works in a series.

It is important to record works that have a direct relationship to the work of art or architecture being cataloged, particularly when the relationship may otherwise not be apparent. For example, works by the same artist or with the same subject need not be linked as Related Works on that basis alone; however, when one of these works is preparatory for another, this special relationship should be recorded, if possible. Whole-part relationships should always be recorded.

The following discussion focuses on intrinsic and extrinsic relationships between Work Records. Other records in a database may also be extrinsic to a Work Record, including records for images, bibliographic sources, and authorities. Note that, although authority files contain information that is extrinsic to the work at hand, information in authority files is considered essential to understanding the work being cataloged. See Works and Images above and Authority Files and Controlled Vocabularies below.

Intrinsic Relationships

In the context of CCO, an intrinsic relationship is a direct relationship between two works. **CCO recommends that catalogers distinguish between intrinsic and extrinsic relationships.** An intrinsic relationship is essential and must be recorded to enable effective searches. An extrinsic relationship, on the other hand, is not essential; although doing so may be informative, the cataloger need not identify the extrinsic relationship during the cataloging process.

Creating relationships between related works may be required when cataloging complex works, which are works that consist of several parts or that have complicated physical or conceptual relationships to other works. Complex works require special consideration. It may be necessary to make separate records for the parts

of a work and the work as a whole, linked through hierarchical relationships (see Database Design and Relationships below).

Whole-Part Relationships between Works

Whole-part relationships, also known as larger entity-component or parent-child relationships, are intrinsic relationships. Complex works often require separate Work Records for the parts as well as for the whole. In this type of relationship, a part cannot be fully understood without its whole; the part inherits much of its information from the whole. Architectural complexes, manuscripts, and triptychs are examples of works requiring whole-part relationships.

CCO recommends creating separate Work Records for each part and for the whole when the information for the whole varies significantly from the information for the part. The purpose is to present the information clearly and distinctly, and to provide effective access to the parts as well as to the whole.

How does a cataloger know when to create separate records for the parts of a work? To some extent this depends on the type of work being cataloged and the policies of the cataloging institution, but **CCO recommends creating separate records when each part of a work contains enough unique information that it would be difficult to delineate the information in a single record.** Repositories will need to consider when separate records may be necessary to manage the works. Both museums and image collections will need to consider how separate records may aid in the retrieval of the information and its display to the end user. Criteria can include whether the artist, dates, style, media, or location differ between the whole and the parts of a work. For example, for an ancient Greek amphora with a lid, one Work Record may be sufficient to describe both components, because the artist, media, dates, and location are the same for both parts, although the dimensions are different for the vessel and its lid. In another example, a suite of furniture designed by Frank Lloyd Wright for a particular room may be described as a unit in a Work Record for the suite; however, individual Work Records for each chair and table may also be required if retrieval on the individual items is necessary—the cataloger must decide. For a 15th-century Korean landscape diptych in which each panel is a different size, has a different subject, was painted by a different artist in a different decade and in different media and later mounted together in a diptych, it would obviously be useful to create three separate records: for the diptych as a whole and for each panel as a part. Altarpieces, such as the *Isenheim Altarpiece* by Matthias Grünewald, are examples of works for which the parts may require individual, detailed, and complex treatment by the cataloger. This altarpiece is composed of several painted and carved panels arranged in two sets of folding wings, which can be displayed in three different views with complex iconographical subjects.

Decisions are not always self-evident. For example, in works where the creator is unknown, as is often the case with architectural decoration, determining whether the relationship between the decoration and the building is intrinsic or extrinsic can depend upon one's point of view; but access should be the primary consideration. Whether the decoration requires a separate record depends on whether essential elements of description such as the creator, title, and materials and techniques of the decoration differ significantly from the whole structure.

If the cataloging institution owns only a part of a work, or an image for a part of a work, it may still wish to make a record for the whole, because without a record for the whole, critical information may be lost to the end user (for example, the original location, ownership, overall dimensions, subject matter, and provenance of the whole). In addition, because the part can inherit information from the whole (for example, the title of the whole), making a record for the whole and linking it to the record for the part provides important context and improves access.

Group and Collection Relationships

When separate records are made for a group of works or a collection and its parts, the relationships between a group and its parts are intrinsic relationships. On the other hand, when it is impractical to make separate records for individual Related Works, a single record may be made for a group or collection of works. This same process may be used for a group or collection of related images as well.

Groups and collections may be cataloged similarly because they are both aggregates of items. Group- or collection-level records may be made for works or for images.

Group- or collection-level cataloging is often undertaken to gain initial control over a large body of works. For example, a museum or other collecting institution may make a collection record for a large, newly acquired collection of prints, drawings, rare books, or artifacts. In later cataloging phases, the institution may create more detailed, individual records for some or all of the works in the group or collection.

Arranging Work Records into collections may also be useful when virtually reconstructing a historical arrangement of works, which may be physically dispersed in various geographic locations today. In a database, clustering Work Records or Image Records can be automatic when a search on a certain term in a given field brings together all the works or images indexed with that term. However, clustering can also be pre-determined by the cataloger by arranging items in groups, ensuring that a search yielding a large number of results may be displayed in a logical order.

If separate records are made for individual items and for the group or collection of which they are a part, the item records should be linked as part of the group or collection record. The same recommendation applies to collections of images.

Series Relationships

A relationship between an individual work and its series is intrinsic, because the work is best understood in the context of the series. Works done in series may require separate records for each part (the works) and for the whole (the series). Works done in series may include prints, photographs, paintings, sculptures, or installation art. Records for works in a series may require recording a particular chronological sequence.

CCO recommends making separate Work Records for each item in the series and for the entire series whenever possible. However, this may be impractical for large series, or for an institution that does not own all the works in the series. Practices vary among user groups. Museums may create a record for the series so that they will have access to all the necessary information for the series as well as for the work or works in their own collection (see also Group and Collection

Relationships above); visual resources repositories frequently do this as well. How the records are linked, searched, and displayed depends upon the needs and capabilities of the local information system, but a search on the whole series should retrieve the parts, just as the record for a part should also refer back to the whole. Some institutions do not have the resources to make separate records for the series and its parts; they typically make reference to the series by using a collective series title or otherwise referring to the series in the title in the Work Record rather than through separate, linked records for the series. See Chapter 1: Object Naming.

Components and Architectural Works

If multiple parts of an architectural work or any work with components are cataloged separately, the relationship between the whole and the parts is intrinsic.

Issues associated with cataloging complex works are particularly pronounced when cataloging the built environment and other works composed of components (multiple parts). Whether to conceptually subdivide an architectural structure or other work into multiple components for cataloging purposes is a subjective decision that the cataloger must make before cataloging begins. Some criteria that can help the cataloger with that decision include the relative importance of the various components, whether the components were designed by different creators, whether they were built in different periods, and whether users are likely to search for individual components.

Decisions about how to catalog works of architecture, other works with multiple parts, and images of these things are not always straightforward. Architectural structures may contain multiple rooms or components within a single building as well as multiple buildings within a single complex. Several different architects may have built or modified a single structure over a long period. This information may be captured in a single image or in a series of images. There may also be analytical or interpretive documents for the building (for example, a plan or model) that are works in their own right with separate Work Records.

A building or other complex work may be considered to be a whole consisting of parts, and thus records for built works and other works with components may be related in a hierarchy. For example, the dome and façade of a basilica may be cataloged as parts of the whole basilica; the records for the dome and façade may be hierarchically linked to the record for the whole basilica. Furthermore, a building has interior and exterior spaces and may be part of a larger complex of buildings. In the examples below, whole-part relationships are expressed by indentation.

Example

[for a monastery complex in Bulgaria]

Rila Monastery

..... *Cloisters*

..... *Church of the Birth of the Blessed Virgin*

..... *Dome*

..... *Façade*

..... *Tower of Hreljo*

Former structures, designs that were never built, and architectural competitions may also be linked through whole-part relationships. For further discussion of these issues, see the Architectural Drawings Advisory Group's *Guide to the Description of Architectural Drawings*.³

Examples

[for the basilica in the Vatican, Italy]

Saint Peter's Basilica

..... *Old Saint Peter's* (original structure, 324-1451)

..... *New Saint Peter's* (current structure, 1451-present)

..... *Façade*

..... *Dome*

..... *Piazza*

[for a memorial in Washington, DC]

Lincoln Memorial

..... *Structure* (as built)

..... *Competition* (1908-1909)

..... *Competition* (1911-1912)

The built environment often involves architectural complexes in which each building is significant in itself, yet all are related in some manner. In these cases, individual Work Records should be made for each building and a separate record should be made for the complex, linking records together through whole-part relationships.

Analytical and interpretive documentation, such as plans, sketches, renderings, models, and historical photographs of buildings can be cataloged as individual works with their own Work Records. If an institution actually owns such materials, certainly it will make separate records for the plans, sketches, and so forth. If models, drawings of plans, and the like have known creators and other descriptive information, catalogers typically should treat them as separate individual works. An example would be the plan of Amiens Cathedral by Robert de Luzarches, the French architect, master builder, and military engineer. If the building is also being cataloged, the models, plans, sketches, and other related materials should be linked as extrinsic Related Works.

Extrinsic Relationships

An extrinsic relationship is defined as one in which two or more works have a relationship that is informative, but not essential. That is, the described work and the referenced work can stand independently. The relationship is not essential either physically or logically in identifying either of the works. Such a relationship can be equated with a *see also* reference in a bibliographic record. Examples of extrinsic relationships are a preparatory sketch for a later work, a work copied after another work, or a work referenced within another work. Whereas extrinsic relationships enhance information about a work, some institutions may find it unnecessary to identify them.

Extrinsic relationships are generally temporal, conceptual, or spatial. Temporal relationships often include preparatory works such as models, studies, or plans.

Perugino's study for the *Adoration of the Magi* or Antonio da Sangallo the Younger's model for Saint Peter's are examples of such preparatory works. Conceptual relationships may have a temporal element, for example, with works done after rather than before the original work, such as works that clearly reference other works while not necessarily being copies of them. Examples include Rubens's copy of Titian's *Bacchanal*, Gauguin's self-portrait that includes his painting *The Yellow Christ* as part of the background, or Duchamp's *L.H.O.O.Q.*, which borrows another work, Leonardo da Vinci's *Mona Lisa*, and changes it. An extrinsic relationship can also be the result of a spatial association, such as two or more works intended to be seen together, the Gilbert Stuart portraits of George and Martha Washington being a prime example.

Displaying Relationships between Works

Relationships should be displayed in a way that is clear to the end user. Relationships may display differently depending upon the context, such as in hierarchical displays, in the record for the work, and in lists. See also *Categories for the Description of Works of Art: Related Works*.

Hierarchical Display

A hierarchical display, using indentation, may be used to display whole-part relationships. In the example below, the titles (see Chapter 1) of the works appear in a hierarchical display.

Examples

[for a Japanese tea set]

- Old Kutani Porcelain Tea Set
 - Jar with Strainer
 - Hot Water Coolant Boat
 - Tea Caddy
 - Tea Pot and Lid
 - Five Cups and Saucers

[for a series of prints by Jacques Callot]

- Small Miseries of War Series
 - Camp Scene
 - Attack on the Highway
 - Destruction of a Convent
 - Plundering and Burning a Village
 - The Peasants Avenge Themselves
 - The Hospital

[for a built work, Notre Dame, Paris]

- Notre Dame
 - Interior
 - Exterior
 - West Front and Towers
 - Transepts

Display in a Work Record

In a Work Record, whole-part and other relationships are described as Related Works. When records for works are linked, data for these Related Works may be concatenated from one record to form a display in the other. In the examples below, in the Work Record, the preferred Title, Work Type, and Creator display elements of the Related Work are concatenated for display.

Examples

[for display in the record for an illumination of the *Flight into Egypt*]

Related Work:

Relationship Type: part of

Related Work [concatenated label]:

Ruskin Hours; prayer book; unknown French; ca. 1300; J. Paul Getty Museum (Los Angeles, California, United States); MS. LUDWIG IX 3

[for display in the record for the Camp Scene print by Jacques Callot]

Related Work:

Relationship Type: part of

Related Work [concatenated label]:

Small Miseries of War; series; designed and etched by Jacques Callot (French, 1592-1635); 1632-1633, published 1635; Paris (France)

[for display in the record for Notre Dame, Paris]

Related Work:

Relationship Type: larger context for

Related Work [concatenated label]:

Transepts; transepts; architects Jean de Chelles (French, died ca. 1270) and Pierre de Montreuil (French, ca. 1200-ca. 1264); ca. 1250-1267; Notre Dame (Paris, France)

[for display in the record for a 16th-century drawing by Giovanni Antonio Dosio; the Pantheon could also be recorded under the Subject element]

Related Works:

Relationship Type: depicted in

Related Work [concatenated label]:

Pantheon; rotunda; unknown Roman architect for the emperor Hadrian; begun in 27 BCE, rebuilt 118/119-125/128; Rome (Italy)

Relationship Type: preparatory for

Related Work [concatenated label]:

Pantheon; engraving; design by Giovanni Antonio Dosio (Italian, 1533-after 1609), printmaker Giovanni Battista de' Cavalieri (Italian, ca. 1525-1601); published 1569; in *Urbis Romae aedificiorum illustrium quae supersunt reliquiae*, Florence (Italy)

VII. DATABASE DESIGN AND RELATIONSHIPS

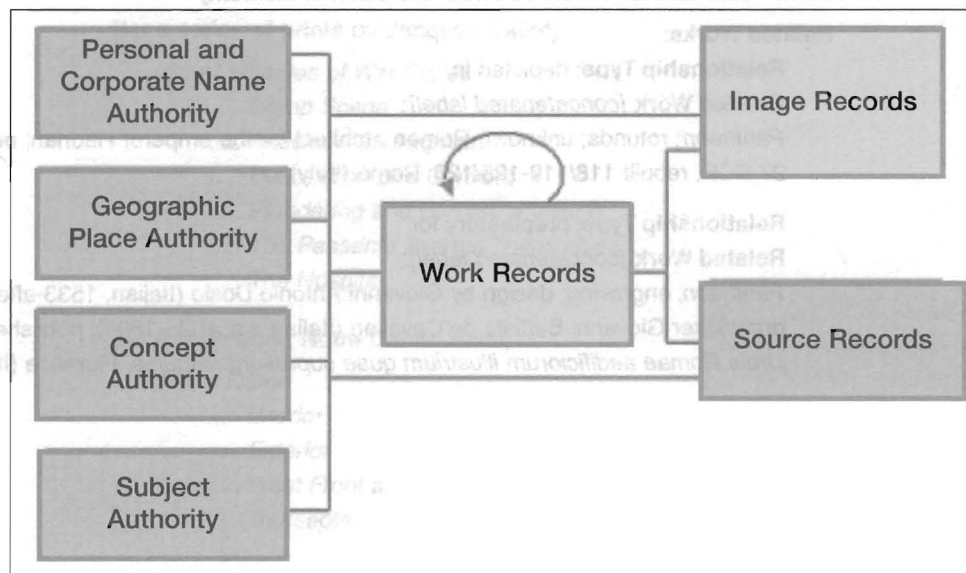
The CCO guidelines have been carefully crafted to be useful in a variety of database settings and designs. Keep in mind that the scope of CCO is limited for the most part to descriptive data (and the metadata elements that contain the data) about cultural objects and images of those objects. CCO does not discuss administrative and technical metadata, though clearly these must also be accommodated in a cataloging system.

Database Design

Because of the complexity of cultural information and the importance of Authority Records, CCO recommends using a relational database. A relational database provides a logical organization of interrelated information (for example, data about works and images, authority files, and so on) that is managed and stored as a single information system. A data structure should provide a means of relating works to each other, works to images, and works and images to authorities. When records of the same type are related, they have a reciprocal relationship. Hierarchical relationships between records of the same type should be possible. Referencing unique numeric identifiers is a common way to express relationships in an information system. The specifics of how records are linked and related is a local database design issue, which this guide does not explicitly discuss.

The simple entity relationship diagram in Figure 1 illustrates how works may be related to other works, and how works may be related to images, sources, and authorities. A given authority file may be used to control terminology in multiple elements (for example, the Concept Authority will control Work Type, Materials, and the like). Also, a given element may use controlled terms from multiple authorities (for example, the Subject element of a work may use terms from several authorities).

Figure 1
Entity Relationship Diagram for CCO



Types of Relationships

Whenever a relationship (called a *link* in CCO) is made between two Work Records, a Work and an Image Record, or a field in a Work Record and a term in an Authority Record, a relationship is being expressed. Relational databases can be designed to accommodate hierarchical and other relationships.

Hierarchical Relationships

Many relationships are hierarchical; they express broader or narrower (parent-child) contexts between two things; hierarchical relationships are typically whole-part or genus-species relationships between entities that are of the same type: hierarchical relationships may be made from works to works, images to images, or a record in one authority file to another record in the same authority file. A hierarchy imposes order and structure on description. As shown in the example of the *Gates of Paradise*, the doors are part of the Baptistery building. In the example of a related Authority Record for the materials of the bronze doors, *bronze* is a child or type of *metal*. When data is presented in a hierarchical display (using indentation, as in the examples just given), it helps users navigate the information space and understand the relationships between entities.

The information system should allow for the establishment of polyhierarchical relationships, meaning that each child in the hierarchy may have multiple parents. For example, in the Geographic Place Authority, the city of Siena may need to be linked as a child of its modern parent Italy as well as to a historical parent, Etruria.

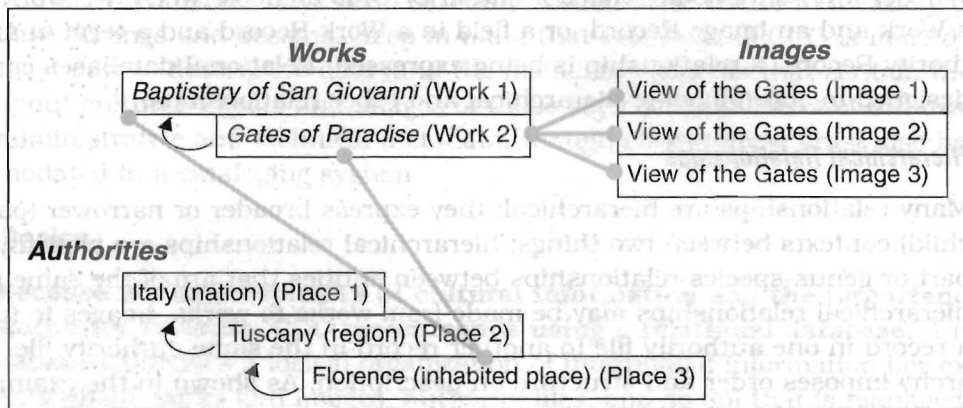
Building the Relationships

Hierarchical and other relationships can exist in the same information system. Several distinctions need to be made when building such relationships into a database. First are the relationships between works and images of those works; then are relationships between works and other works; then come relationships between works and authority file records; and last are relationships between authority file records within the same authority file. For example, a database can be set up to have records for a whole work and a part of a work that have a hierarchical relationship; multiple images may have relationships to one or both of those entities. Figure 2 shows the relationships among the works and images for Lorenzo Ghiberti's *Gates of Paradise*. The *Gates* are part of the whole Baptistery, and the images of the *Gates* are linked to the Work Record for the *Gates*.

Hierarchical relationships can be used in authority files to indicate broader and narrower contexts, thus facilitating consistency in cataloging and enhancing searching for end users, as in the example for Florence, Italy, from the Geographic Place Authority.

How do these various sets of relationships interact within a single information system? In the Figure 2 example, each box represents a record. Hierarchical relationships are indicated with indentation. Other relationships are indicated with connecting lines. The Work Record for the *Gates of Paradise* will include fields that convey to the user that the doors exist within the broader context of the building and in the geographical place, Florence. The Work Record for the doors is linked to the Work Record for the building, and both records can be linked to the record for

Figure 2
Links between Works, Authorities, Images



Florence from the geographic authority file. If the database employs a hierarchical model in the geographic authority file, the fact that Florence is in Tuscany and Italy can be carried into the Work Record. This type of functionality not only saves time for the cataloger (who won't have to type *Italy* every time he or she uses the term *Florence* in a Work Record), but also allows users to find everything in Italy or in Tuscany without having to specify Florence and every other town in Tuscany in a search. For a full explanation and examples, see Chapter 5: Location and Geography.

Relationship Type and Reciprocity

CCO recommends that relationships between entities be reciprocal. Relationships should be reciprocal so that a search on one entity can lead to the other. Reciprocity is most easily accomplished when reciprocal relationship capabilities have been built into the information system. The relationships between entities may be one-to-one, many-to-one, or many-to-many.

CCO recommends that the type of relationship between the work being cataloged and the related work be indicated. Whole-part hierarchical relationships may be made apparent by using indentation in displays. Other relationships may require explanation by noting the type of relationship between two entities. For example, a portrait of the master of a manor may be linked as a pendant of a matching companion portrait of the mistress of the manor. The Relationship Type may vary depending upon the point of view. For example, a drawing may be linked as a *study for* a particular tapestry. From the tapestry's record, the tapestry may be linked as being *based on* the drawing. A sculpture of Shiva and Parvati may be *part of* a Hindu temple; from the temple's record, the temple is the *larger context for* the sculpture. A relationship may be historical, as when a sculpture of a winged bull-lion was *formerly part of* the *Palace of Ashurnasirpal II*.

Figure 3 contains sample relationship types. To reduce redundancy in the illustration, reciprocal relationships are not listed twice (for example, *preparatory for*—*based on* is not listed again from the other point of view, *based on*—*preparatory for*, though the relationships would be reciprocal from both points of view in a real application).

Figure 3
Table of Relationship Types

RELATIONSHIP TYPE	RECIPROCAL RELATIONSHIP TYPE
<i><hierarchical - group - collection - series to parts></i>	
part of	larger context for
formerly part of	formerly larger context for
<i><general - default></i>	
related to	related to
<i><a work and its components></i>	
component of	component is
<i><works that are related as steps in the creation process></i>	
preparatory for	based on
study for	study is
model for	model is
plan for	plan is
printing plate for	printing plate is
prototype for	prototype is
<i>others as required</i>	
<i><works designed to be displayed together></i>	
pendant of	pendant of
mate of	mate of
partner in set with	partner in set with
<i>others as required</i>	
<i><works copied after or depicting other works></i>	
depicts	depicted in
copy after	copy is
facsimile of	facsimile is
derived from	source is
<i><work to image relationships></i>	
image of	depicted in

Repeatable Fields

CCO recommends that certain fields be repeatable. These refer, in the context of CCO, to categories of information for which there may be multiple data values. For example, there may be multiple media used to create a work, each of which should be recorded in a separate instance of the appropriate field, or related by multiple links to the authority file that controls the terminology for media. Related fields may be designated to repeat as a set.

Display and Indexing

Display issues refer to how the data looks to the end user in the database, on a Web site, on a wall or slide label, or in a publication. Information for display should be in a format that is easily read and understood by end users. In the context of this guide, indexing refers to how data is indexed (that is, what indexing terms are assigned to it), sorted, and retrieved. Such indexing should be a conscious activity performed by knowledgeable catalogers who consider the retrieval implications of their indexing terms, and not by an automated method that simply parses every word in a free-text field into indexes.

Controlled Fields vs. Free-Text Fields

CCO recommends that the database accommodate both controlled fields and free-text fields. Controlled fields contain indexing terms—that is, key data values drawn from standard vocabularies and formatted to allow for successful retrieval. Free-text fields communicate nuance, uncertainty, and ambiguity to end users.

The primary function of an indexed field is to facilitate end-user access. Access is improved when controlled vocabularies are used to populate database fields, because authorized terms have been checked against synonyms and broader and narrower terms and therefore are more likely to be used consistently throughout the database; consistency makes for more efficient retrieval. Ideally, the indexing terms will be linked to controlled vocabularies stored in controlled lists or authority files.

Consistency is less important for a free-text field than for a controlled field, but still desirable. Although free-text fields by definition contain uncontrolled terminology, the use of terminology that is consistent with the terms in controlled fields is recommended for the sake of clarity. Using a consistent style, grammar, and sentence structure is also recommended. To make the creation of free-text fields less labor-intensive, databases can be constructed so that values in related controlled fields may be passed into the free-text field, and then edited as necessary by the cataloger.

Display Issues

CCO recommends that data be recorded according to the various requirements of display and indexing. Display issues relate to the choice of fields or subfields appropriate for display to different end users, and to how the data looks to the end users.

Because a database may contain sensitive information that must be restricted or administrative information that is of no interest to most users, making decisions about which fields are appropriate for display to given user groups is necessary. The database design should allow for different displays of data depending on the needs of the user group. This is a matter to be settled at the local level, and is therefore not discussed at length in this guide.

Display usually refers to how the data appears to the end user in the database, on a Web site, on a wall or slide label, or in a publication. The information in controlled fields is not always user-friendly, because it may need to be structured in a way that facilitates retrieval or machine manipulation (required for sorting,

arithmetic calculations, and the like). Information intended for display, however, should be in a format that is easy for the end user to read and understand.

Information for display may in some cases be expressed in a free-text field, and in other cases it may be concatenated or otherwise displayed from controlled fields. In many instances, the controlled terms are self-explanatory, and can be displayed as they are, or concatenated with other terms. For example, a preferred geographic place name and the broader hierarchical contexts for the place may be drawn from the Geographic Place Authority and concatenated for display in the linked Work Record's Creation Location element. It is recommended that indexing terms for a given data element display even when the data element also includes a free-text note. (Free-text notes will always display, because they explain the context of terms used in indexing.) Some systems allow moving by hyperlinks from the indexing terms to other Work Records indexed with the same terms. Even when the system lacks this functionality, displaying the indexing terms helps familiarize end users with the indexing vocabulary.

Do not let display or technical constraints drive the database design. **CCO recommends good and versatile database design and consistent cataloging rules.**

When planning a database design and rules for data entry, do not allow immediate display demands to dictate database structure or data entry practice. For example, as a general rule, how information or images display in one context (for example, a slide label or a "light table" presentation tool) should be secondary to consistent and accurate cataloging. Consistent cataloging will facilitate dealing with display issues at the time and in the future. Allowing local display issues or the limitations of the current computer system to drive how the database is designed or how information is input may offer short-term solutions to some problems, but will make migrating and sharing data more difficult over the long term.

How to Decide on a Database Design

There are several key issues to keep in mind when designing and constructing a database for cultural objects and images: What is the purpose of the database? Who are the users it is intended to serve? Will it allow you to properly manage your data?

If a museum is cataloging works in its own collection, the primary focus is on documenting the object or work itself. Museum cataloging can also be used to generate descriptions for wall labels, publications, and Web pages. For example, a detailed physical description, including measurements to the nearest millimeter, may be critical for museum description. A museum record may require fields to describe inscriptions on works, fields that distinguish between the materials of different parts of the work, and fields that describe in detail the history and provenance of the work. Emphasis is on the work itself, not a particular image of the work. Of course, the museum will probably document the work through images (often called media in museum collection management systems), but the number and variety of images will differ from the number and variety in an image collection. The primary components in a database for cataloging museum works would include a Work Record, Authority Records, and in many cases one or more Image (or Media) Records.

In a visual resources collection, the primary focus of cataloging is to describe and provide access to image content. For example, subject description might be more important than a detailed physical description of the work depicted in a visual resources collection. Each Work Record may have many images linked to it. In addition, many images will be supplemental to the work—used to support access to some aspect of the work, set the work within a stylistic, geographical, or chronological context—but may not depict the work itself. In this type of collection, the image often serves a variety of purposes. A detailed description of the image may be important to the end user, and this should be reflected in the structure of the database. For example, it may be important to distinguish between the overall subject matter of the whole work and the detail of that subject in a specific image; consequently, there may be subject fields in both the Work and Image Records. The primary components in a database for cataloging images would include a Work Record, an Image Record, and one or more Authority Records.

These scenarios may vary from institution to institution, but they illustrate the importance of designing a database to accommodate the descriptive data point of view. Regardless of the information system or data model, CCO provides guidance for the choice of terms and how they are formatted. In doing this, CCO can help pave the way for sharing descriptive data among museums and image collections.

What Is the Purpose of the Database?

The term *database* is generic; a database can be built to accommodate any type of information. Within the context of cultural objects and images, databases constitute the basis of cataloging tools, collection management systems, presentation tools, and digital asset management tools. Any one of these can be built as a local or as a shared system. How these different databases work together is referred to as *interoperability*. In an ideal world, there would be one integrated database that provided all users with all functionalities. In reality, most organizations have several databases or software products that are used to fulfill a variety of needs, from collection management to digital asset management to presentation of high-resolution images, and so on.

CCO focuses on the types of data typically used in a cataloging tool—primarily the so-called descriptive metadata—that is, data used to describe and identify cultural works and images. Collection management systems and digital asset management systems also require other types of metadata—data that defines structure or assists in the administration of a resource, data about the way a work may be displayed, financial information about the work, data about the exhibition and loan history of a work, technical information about an image file, and so on.

The goal of the types of databases referred to in this manual is to facilitate indexing, identification, and discovery of the works or images in a particular collection or collections. Another goal is to facilitate the ongoing documentation of works (for example, to track the history of the titles of a work). Publishing data and presenting it to end users is often done by migrating it from the cataloging system to special presentation and public access databases before it is made available to end users. Typically, these kinds of systems focus on searching, browsing, and displaying the cataloged resources. For example, the presentation tool that faculty members use to show images in the classroom will probably

be a separate database from the cataloging tool used to describe those images. To limit the public's access to sensitive data and to provide more nonspecialist language and access, a museum's collection on the Web typically has a public interface that is different from the staff's interface to the collection management system. Publishing and presenting data to end users involves a complex set of issues dealing with the user interface, search engines, and design, which are outside the scope of this guide; however, the CCO guidelines make exporting the descriptive metadata and repurposing it easier and more efficient.

Cataloging Tool

Until recently, many organizations relied on a simple cataloging tool to record the descriptive data for works and images. A cataloging tool focuses on content description and labeling output (for example, slide labels or wall labels). Today, a cataloging tool is often part of a more complex collection management system.

Collection Management System

For a database to manage a collection, be it a digital or a physical collection, a simple cataloging tool is inadequate. For example, in a museum setting, a museum collection management system (CMS) is appropriate. A CMS is a database system that allows a museum to track various aspects of its collections, including acquisitions, loans, and conservation. Nonetheless, a large part of a typical CMS is the cataloging module. CCO provides guidance for the cataloging component of the CMS (that is, regarding descriptive data about the works in the collection).

Digital Asset Management System

A digital asset management (DAM) system is a tool for organizing digital media assets for storage, preservation, and retrieval. Digital asset management tools sometimes incorporate a descriptive data cataloging component, but they tend to focus on managing workflow for creating digital assets (digital images and audio clips, for example) and managing rights and permissions.

Online Catalog

An online catalog allows end users to search for and view data and images. Many museums now make online catalogs containing part or all of their collections available to museum visitors or the general public. Such catalogs may also include consolidated collections from several institutions.

VIII. AUTHORITY FILES AND CONTROLLED VOCABULARIES

Authority control is critical in the online environment. Authority control is a system of procedures that ensures the consistent use and maintenance of information in database records. Procedures include recording and validating terminology using controlled vocabulary and authority files. The purpose of authority control is to ensure consistency at the cataloging level, and that the user searching a database can find material and relate it to other material in the database efficiently.

Details regarding how authorities are constructed and how they interact with each other and with Work and Image Records are critical issues that must be decided by the cataloging institution. There is no single answer that will serve all institutions. Each cataloging institution must devote sufficient time and resources to proper analysis and working out of solutions. The purpose of this discussion is to highlight issues, not to suggest a single solution that will work for every institution.

Authority Files

Authority files contain the terminology used in cataloging Work and Image Records. In the context of CCO, an authority file contains records for persons, places, things, and other concepts related to the works and images being cataloged. Such information is important for retrieval of the Work or Image Record, but it is more efficiently recorded in separate authority files rather than in the Work or Image Records themselves. The advantage of storing such ancillary (and frequently repeated) information in an authority file is that this information need be recorded only once, and it may then be linked to all appropriate Work and Image Records, rather than being repeated in each pertinent Work or Image Record. In a database with full authority control capability and functional links between records, another advantage is that changing or correcting a preferred name or heading in the Authority Record will automatically update the name or heading in the associated Work and Image Records. **CCO recommends using authority files for selected metadata elements to facilitate efficient cataloging and retrieval.**

In an authority file, records for persons, places, and other concepts may contain terms and names for the concept, with one term or name identified as the preferred term and the others considered variant terms. The record may contain other information as well; for example, in a personal and corporate name authority, the birth and death dates of a person would be included. The authority files described in this section are ideally structured as thesauri.

Controlled Vocabulary

A controlled vocabulary is an organized arrangement of words and phrases used to index content and to retrieve content by browsing or searching. It typically includes preferred and variant terms and has a limited scope or describes a specific domain. Controlled vocabulary is a broader concept than authority file, encompassing authority files as well as other controlled lists of terminology. For some elements or fields in the database, a controlled list may be sufficient to control terminology, particularly where the terminology for that field is limited and unlikely to have synonyms or ancillary information. Controlled vocabularies can be simple lists of unique preferred terms; they can be sets of equivalent terms for the same concept (synonym rings); they can include preferred and nonpreferred terms; they can identify hierarchies of terms (taxonomies); and they can include all of these characteristics in addition to having semantic relationships among terms and other concepts (thesauri). Various types of controlled vocabularies are defined below.

Controlled List

A controlled list is a simple list of terms used to control terminology. If well constructed, in such a list each term will be unique; terms will all be members of the same class; terms will not overlap in meaning; terms will be equal in granularity-specificity; and terms will be arranged either alphabetically or in some other logical order.

Synonym Ring File

A synonym ring file contains sets of terms that are considered equivalent.

Taxonomy

A taxonomy is an orderly classification for a defined domain.

Subject Headings

Subject headings are words or phrases used to indicate the content of something; pre-coordination of terminology is a characteristic of subject headings. That is, subject headings typically combine several unique concepts in a single string (for example, *medieval bronze vessels* combines a period, a material, and an object type in one heading).

Thesaurus

A thesaurus is a semantic network of unique concepts, including relationships between synonyms, broader and narrower contexts, and other related concepts. Thesauri may be monolingual or multilingual. Thesauri may have the following three relationships between terms:

EQUIVALENCE RELATIONSHIPS

Relationships between synonymous terms or names for the same concept, typically distinguishing preferred terms (descriptors) and nonpreferred terms (variants). For example, *Georgia O'Keeffe* and *Mrs. Alfred Stieglitz* refer to the same artist and the former name is preferred; *still life* and *nature morte* refer to the same concept and the former term is preferred in English; *Vienna* and *Vindobona* refer to the same city and the former name is the preferred current name in English (*Vindobona* is a historical name).

HIERARCHICAL RELATIONSHIPS

Broader and narrower (parent-child) relationships between concepts. Hierarchical relationships are generally either whole-part (*Nogales*, for example, is a part of *Veracruz*, which is part of *Mexico*) or genus-species (*bronze* is a type of *metal*). Relationships may be polyhierarchical, meaning that each child may be linked to multiple parents.

ASSOCIATIVE RELATIONSHIPS

Relationships between closely related concepts that are not hierarchical because they are not whole-part or genus-species. There may be many types of associative relationships. For example, in an associative relationship between artists,

Katsushika Hokusai was the teacher of *Katsushika Taito II*; their relationship is teacher-student.

Methodology for Creating a Controlled Vocabulary

Throughout this guide, we recommend which data elements need controlled vocabularies and which of those vocabularies should be authority files in the form of thesauri. Controlled vocabularies should be customized so that they work well with the specific situation and the specific collection or collections at hand. Each institution should develop a strategy for creating controlled vocabularies customized for its specific collection. On the other hand, if the collection is being queried in a consortial or federated environment, controlled vocabularies should be customized for retrieval across different collections; the requirements will be different and the terminology will be broader or narrower in scope depending on the particular situation.

Answering the following questions is crucial in creating controlled vocabularies to meet your institution's needs. What do you want your controlled vocabulary to do? Is it for use by a cataloger or by a search engine, or will the same vocabulary be used for both? In an ideal situation, a vocabulary for cataloging will contain expert terminology and at the same time will be designed to encourage the greatest possible consistency among catalogers by limiting choices of terminology according to the scope of the collection and the focus of the field being indexed. In contrast, a vocabulary for retrieval will typically be broader and will contain more nonexpert, and even "wrong," terminology, such as misspelled words or incorrect but commonly used terms. In a strictly structured vocabulary intended for cataloging, equivalence relationships should be made only between terms and names that have genuine synonymy or identical meanings. On the other hand, a vocabulary for retrieval may link terms and names that have near-synonymy or similar meanings in order to broaden results and improve retrieval. For practical reasons, many institutions will have to use the same vocabulary for both cataloging and retrieval, thus requiring a compromise between the two approaches. Will the vocabulary be used for navigation? Vocabularies that are intended to help end users browse collections online should be very simple and aimed at the nonexpert audience rather than at specialists.

Focus and Scope of the Terminology

What terms do you need in the vocabulary? A good strategy is to begin with published vocabularies, such as the Getty vocabularies or the Library of Congress authorities, and then customize them for local use to reflect your specific collection.⁴ In addition, access by the cataloger to terminology should be customized for each particular field in the Work or Image Record. For example, when filling in values for the materials field, ideally catalogers should not have access to the styles and periods terms from the AAT, because excluding access to extraneous terms reduces the possibility for errors in indexing. However, note that access to terms should not be limited too narrowly. For example, a collage or other such work may be made of other works, so terminology generally reserved for Work Type, such as *photograph*, may also be a material in a collage. With what terms will your end users be familiar? These requirements must be accommodated as well.

Granularity in the Terminology

How much granularity or specificity should you use in customizing the vocabulary and in indexing with the vocabulary? The more similarity among items in your collection, the more specific your vocabulary will need to be and the more granularity should be used in indexing with that vocabulary. For example, if you are cataloging a specialized collection of furniture, the terminology used to index them will be much more specific than if you have only one or two pieces of furniture in a more general collection.

You should also keep in mind how your items will be retrieved in a consortial environment with other collections, and therefore include basic indexing terms appropriate to more general retrieval as well as specific terms that work well in your local environment. It is particularly important to include broader terms when a thesaurus will not be used in retrieval or when the general term in a thesaurus is not necessarily a parent of the more specific term. The general term *still life*, for example, will not be a broader term to the specific term *flowers* in a thesaurus, so both should be included in the Work Record.

Maintaining the Vocabulary

Terminology for art and material culture may change over time. Vocabularies need to be living, growing tools. What methodology will you use for keeping up with changing terminology? If it is possible to contribute terminology to a published vocabulary (such as the Getty vocabularies or the Library of Congress authority files), you should make a plan to submit new terms; this will of course have an impact on workflow, and must be taken into consideration.

Technical Considerations

What technology will you use and how will authority files, lists, and other controlled vocabularies be integrated into the rest of your system? These are critical questions that depend on local needs and resources.

How to Create Authority Records

Once you decide on the requirements and characteristics of the authority files required by your institution, the next step is to populate them with appropriate records. CCO recommends using standard, published authority information where possible, and then supplementing the authority file to make it collection specific, as determined by your institution's unique requirements. Throughout this guide, published sources of terminology are recommended for the given authority file or element. Such sources may include published vocabularies.

Where it is necessary to make new Authority Records, use standard, published sources for the terms or names and other information. Appropriate sources are suggested throughout this guide. Cite the sources for your information in the Authority Record. If the name or term does not exist in a published source, construct the names according to the *Anglo-American Cataloguing Rules* or other rules, as indicated throughout this guide. Among synonyms, flag one of the terms or names as preferred. This will be the term or name that can be automatically designated by algorithm in displays. It should be the one most commonly used in

scholarly literature in the language of the catalog record, which in the United States is English. If sources disagree on the preferred form, go down the list of preferred sources (in the terminology section of each authority chapter) and use the name or term found in the source highest in the list of preferred sources.

Cataloging vs. Retrieval Issues

In building a database and in cataloging, you should ideally follow the best design theory and the best editorial practice. However, if either the cataloging or retrieval system is less than ideal, you will need to adjust your rules to accommodate the inadequacies of your information system or software, particularly concerning controlled vocabularies and authorities. A few of the issues surrounding the use of vocabularies in retrieval are discussed below.

Using Variant Terms and Names for Retrieval

Ideally, your controlled fields in the Work Record will be linked to authorities that include variant terms and names for the person, place, or things described in the Work Record, and you will also use the variants for retrieval. If this is not true, you should explicitly include the most important variants in the Work Record.

Using the Hierarchy for Retrieval

Ideally, your controlled fields will be linked to hierarchical authority files, and the hierarchies will also be used for retrieval. If this is not true, you should explicitly include broader contexts for your terms in the Work Record.

Case Insensitivity in Retrieval

Your retrieval system should accommodate end-user queries, no matter what case they use. For example, if an end user searches for *Bartolo Di Fredi* or *BARTOLO DI FREDI*, he or she should retrieve records containing the name *Bartolo di Fredi*. If your retrieval system does not accommodate such variations, you should add these variants to your Authority Record or to the Work Record (if you do not have an authority file).

Diacritics in Retrieval

Your retrieval system should accommodate both the end user's use of diacritics and punctuation and his or her omission of diacritics and punctuation. For example, if the end user searches for *Jean Simeon Chardin* without the hyphen and diacritic, he or she should retrieve records containing the name *Jean-Siméon Chardin*. If this is not the case, you should add these variants to your Authority Record, or to the Work Record if you do not have an authority file.

Singular and Plural in Retrieval

Your retrieval system should accommodate either the singular or plural form of the term or any other grammatical variant. For example, if an end user searches for plural *portals*, all records containing the term *portal* should be included in the results. Your retrieval system will ideally incorporate stemming, a feature that retrieves the term and all its grammatical variants: For example, stemming on *frame* would also retrieve *frames*, *framing*, and *framed*. If your system does not

accommodate such variations, you should add the variants to your Authority Record or, if you do not have an authority file, to the Work Record.

Compound Terms and Names in Retrieval

Your retrieval system should accommodate compound terms and names spelled with or without a space. For example, an end user's search for *Le Duc* should retrieve records containing both *Charles Leduc* and *Johan le Duc*.⁵ If your retrieval system does not accommodate such variations, you should add these variants to your Authority Record or to the Work Record (if you do not have an authority file).

Inverted or Natural Order in Retrieval

Your retrieval system should accommodate end users' use of terms and names in either natural or inverted order. For example, a search on *Arthur Wellesley, Duke of Wellington* should retrieve records containing *Wellesley, Arthur, Duke of Wellington*.⁶ If your system does not accommodate such variations, you should add the variants to your Authority Record or to the Work Record (if you do not have an authority file).

Source Authority

A Source Authority is a bibliographic authority file. It is important to credit sources from which data in the Work, Image, and Authority Records is obtained, whether the source is a publication, a Web site, or the unpublished opinion of an expert. Using a Source Authority is strongly recommended. Use existing bibliographic records if possible. Alternatively, elements for a Source Authority file are described in CDWA. Whether or not a Source Authority is used, record citations consistently, using a free-text note if necessary (see Chapter 8: Description).

Elements for the Source Authority File

Elements in a Source Authority file could include title, author, publisher, place of publication, year of publication, and a variety of other fields for bibliographic information. In addition, Source Authority records could point to full bibliographic records in an online library catalog.

A simpler authority file for sources could include fewer elements, such as a full citation combining author, title, and publication information in a single field and a brief citation to be used for concise displays.

Example

[a simple Source Authority record, with two elements: Full Citation and Brief Citation]

Full Citation: Thieme, Ulrich, and Felix Becker, editors. *Allgemeines Lexikon der bildenden Künstler von der Antike bis zur Gegenwart*. 37 vols. Reprint, Leipzig: Veb E.A. Seemann Verlag, 1980-1986.

Brief Citation: Thieme-Becker, *Allgemeines Lexikon der Künstler* (1980-1986).

The brief citation may be used for display in the linked records. The page element would be in the record linked to the source, not in the Source Record itself. That is, each page reference is specific to the Work and Image Records, and to the Personal and Corporate Name, Subject, Geographic Place, and Concept Authorities,

and so on, not to the source itself. As a result, Source Authority records can be used many times over.

Example

[a source reference and page number as it is displayed in a Personal and Corporate Name Authority record]

Sources:

Bolaffi, *Dizionario dei pittori italiani* (1972-1976) [*linked to Source Record*]

Union List of Artist Names (1988-) [*linked to Source Record*]

Thieme-Becker, *Allgemeines Lexikon der Künstler* (1980-1986) [*linked to Source Record*]

Page: 13:408 ff. [*field in the Personal and Corporate Name Authority record*]

Rules for the Source Authority

Record information in the Source Authority or in free-text source notes consistently, using the rules in CDWA, AACR, and the *Chicago Manual of Style*.

Other Authorities

See Part 3 for a discussion of the other four authorities, including recommended elements and rules:

A.1 Personal and Corporate Name Authority

A.2 Geographic Place Authority

A.3 Concept Authority

A.4 Subject Authority

IX. EXAMPLES OF WORK RECORDS

Examples of Work Records are included below. See additional examples at the end of each chapter in Part 2. In the examples, *controlled* refers to values controlled by an authority file, controlled list, or other rules (for example, rules for recording dates). *Link* refers to a relationship between a Work Record and an Authority Record, between two Work Records, or between Image and Work Records. All links are controlled fields. In the examples that follow, the Related Work Records are abbreviated for the sake of brevity. All Work Records should be as complete as possible. See the various chapters in Part 2 for discussions of the metadata elements and whether they should be controlled. In all examples in this manual, both within and at the end of each chapter, data values for repeatable fields are often separated by bullet characters.

Figure 4

Work Record for a Single Work: Baroque Painting⁷

Required and recommended elements are marked with an asterisk.

Work Record	Work Record	Work Record
■ Class [controlled]: paintings • European art		
■ *Work Type [link to authority]: painting		
■ *Title : <i>Vase of Flowers</i> Title Type : preferred		
■ *Creator display : Jan van Huysum (Dutch, 1682-1749)		
*Role [link]: painter *Role [link]: Huysem, Jan van		
■ *Creation Date : 1722		
[controlled]: Earliest : 1722; Latest : 1722		
■ *Subject [links to authorities]: still life • flowers • urn • ledge • crown of thorns plant • tulips • roses • bird's nest • insects • beauty • transience • life • death • senses • Vanitas • Passion of Christ		
■ *Current Location [link to authority]: J. Paul Getty Museum (Los Angeles, California, United States) ID : 82.PB.70		
■ *Measurements : 79.4 x 60.9 cm (31 1/4 x 24 inches)		
[controlled]: Value : 79.4; Unit : cm; Type : height Value : 60.9; Unit : cm; Type : width		
■ *Materials and Techniques : oil on panel		
Material [link]: oil paint • panel (wood)		
■ Style [link to authority]: Rococo		
■ Description : The subject is a still life of flowers spilling onto a ledge, some decaying and being eaten by insects. It represents the senses of sight and smell; the decay and broken stems symbolize the transient nature of life, youth, and beauty; the ledge pushed up to the picture plane resembles the ledge seen in posthumous portraits, thus symbolizing death. The crown of thorns flower at the top symbolizes the Passion of Christ.		
■ Description Source [link]: J. Paul Getty Museum. <i>Handbook of the Collections</i> . Los Angeles: J. Paul Getty Museum, 1991; Page : 115.		



CREDIT: The J. Paul Getty Museum (Los Angeles, California, United States), Jan van Huysum (Dutch, 1682-1749). *Vase of Flowers*. 1722. Oil on panel, 31 1/4 x 24 inches (79.4 x 60.9 cm). 82.PB.70. © The J. Paul Getty Trust.

Figure 5

Work Record for a Collection of Works: Cartes-de-visite⁸

Required and recommended elements are marked with an asterisk.

Work Record

- **Class** [controlled]: photographs • European art
- ***Work Type** [link to authority]: cartes-de-visite
- ***Title**: Peruvian Portrait Cartes-de-Visite | **Title Type**: preferred
- ***Creator display**: Eugenio Courret (French, active ca. 1861-ca. 1900 in Peru) and Courret Hermanos (Peruvian, active 1863-ca. 1873)
 - ***Role** [link]: photographer | [link]: Courret, Eugenio
 - ***Role** [link]: studio | [link]: Courret Hermanos
- ***Creation Date**: ca. 1870-ca. 1880 | [controlled]: **Earliest**: 1860; **Latest**: 1890
- ***Subject** [link to authorities]: portraits • travel • Peru (South America) • veiled women • matador • Native Andean • soldier • camp follower • mother and child
- ***Current Location** [link to authority]: Getty Research Institute, Research Library, Special Collections (Los Angeles, California, United States) | **ID**: 91-F46
- ***Material and Techniques**: cartes-de-visite (photographs)
 - Technique** [link]: cartes-de-visite
- ***Measurements**: 11 items, 9 x 8 cm each (3 1/2 x 3 1/8 inches)
 - [controlled]: **Value**: 9; **Unit**: cm; **Type**: height | **Value**: 8; **Unit**: cm; **Type**: width || **Extent**: items; **Value**: 11; **Type**: count
- **Inscriptions**: versos read: E. Courret, Fotógrafo, 197 Calle de la Union (Mercaderes), 71 Calle del Palacio, Lima, República Peruana, Exposición 1869 Medalla de Honor, Exposición 1872 Medalla de Oro (9 items); Courret Hermanos, [same address], with monogram; E. Courret, Fotógrafo, Lima, República Peruana, Exposición.
- **Description**: Studio portraits in cartes-de-visite format. 3 tapadas (veiled women); a matador; 9 images of indigenous Andeans, including a soldier and his rabona (camp follower), and a mother and child
- **Related Work**:
 - Relationship Type** [controlled]: part of
 - [link to related Work Record]: Cities and Sites Cartes-de-visite; collection; Eugenio Courret, Burton Brothers, Charles Leinack, and others; 1854-ca. 1905; Special Collections, Research Library, Getty Research Institute (Los Angeles, California, United States); no. ZCDV 2

Figure 6

Work Records for Related Works: African Masks⁹

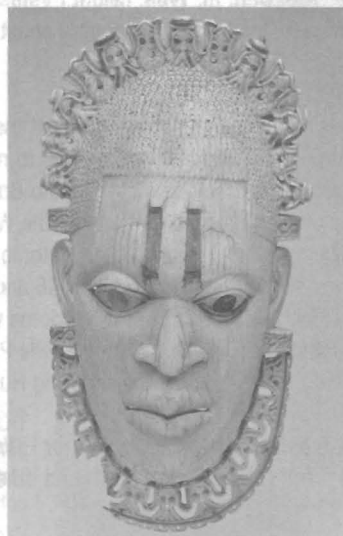
Required and recommended elements are marked with an asterisk.

Work Record

- **Class** [controlled]: sculpture • costume • African art
- ***Work Type** [link to authority]: mask
- ***Title**: Pendant Mask: lyoba | **Title Type**: preferred
- ***Creator display**: unknown Nigerian, Court of Benin, for Oba Esigie (King of Benin, 1404-1550)
 - *Role** [link]: artist | [link]: unknown Nigerian
 - Role** [link]: patron | [link]: Oba Esigie
- ***Creation Date**: early 16th century | [controlled]:
Earliest: 1500; **Latest**: 1530
- ***Subject** [link]: religion and mythology • apparel • human figure • female • face • ceremonial object • lyoba (queen mother)
- **Culture** [link]: Nigerian
- ***Current Location** [link to authority]: Metropolitan Museum of Art (New York, New York, United States) | **ID**: 1978.412.323
- ***Measurements**: 23.8 cm (height) (9 3/8 inches) | [controlled]: **Value**: 23.8; **Unit**: cm; **Type**: height
- ***Materials and Techniques**: ivory, iron, copper
 - Material** [link]: ivory • iron • copper
- **Style** [link to authority]: Edo (African)
- **Description**: Believed to have been produced in the early 16th century for the Oba Esigie (1404-1550), the king of Benin, to honor his mother, Idia. The Oba may have worn it at rites commemorating his mother
- **Description Sources** [link]:
 - Metropolitan Museum of Art online. <http://www.metmuseum.org> (accessed February 1, 2004)
 - British Museum online. <http://www.thebritishmuseum.ac.uk> (accessed February 9, 2005)
- **Related Work**:
 - Relationship Type** [controlled]: pendant of [link to Work Record]: Ivory Mask; unknown Benin; probably 16th century; British Museum (London, England), Ethno 1910.5-13.1

Work Record

- **Class** [controlled]: sculpture • costume • African art
- ***Work Type** [link to authority]: mask
- ***Title**: Ivory Mask
- ***Creator display**: unknown Nigerian, Court of Benin, for Oba Esigie (King of Benin, 1404-1550)
 - *Role** [link]: artist | [link]: unknown Nigerian
 - Role** [link]: patron | [link]: Oba Esigie
- ***Creation Date**: probably 16th century | [controlled]:
Earliest: 1590; **Latest**: 1599
- ***Subject** [link]: religion and mythology • apparel • human figure • female • face • ceremonial object • lyoba (queen mother)
- ***Current Location** [link to authority]: British Museum (London, England) | **ID**: Ethno 1910.5-13.1
- ***Measurements**: 24.5 x 12.5 x 6 cm (9 3/4 x 4 7/8 x 2 3/8 inches)
 - [controlled]: **Value**: 24.5; **Unit**: cm; **Type**: height | **Value**: 12.5; **Unit**: cm; **Type**: width | **Value**: 6; **Unit**: cm; **Type**: depth
- ***Materials and Techniques**: ivory | **Material** [link]: ivory
- **Source** [link to authority]: British Museum online (accessed February 17, 2004)
- **Related Work**:
 - Relationship Type** [controlled]: pendant of [link to Work Record]: Pendant Mask: lyoba Metropolitan Museum (New York, New York, United States); 1978.412.323



CREDIT: Pendant Mask: lyoba, 16th century; Edo, court of Benin; Nigeria; ivory, iron, copper; H. 9 3/8 in. (23.8 cm) view #3; Metropolitan Museum of Art, Michael C. Rockefeller Memorial Collection, Gift of Nelson A. Rockefeller, 1972 (1978.412.323). Photograph © 1995 Metropolitan Museum of Art.

Figure 7

Work Records for Related Works: Whole/Part Relationships for Renaissance/Baroque Basilica
Required and recommended elements are marked with an asterisk.

Work Record
<ul style="list-style-type: none">■ Class [controlled]: architecture • European art■ *Work Type [link]: basilica■ *Title: Saint Peter's Basilica Title Type: preferred Title: St. Peter's Basilica Title Type: alternate Title: New Saint Peter's Title Type: alternate Title: San Pietro in Vaticano Title Type: alternate■ *Creator display: designed and constructed by a long series of architects, including Donato Bramante (Italian, 1444-1514), Raphael Sanzio (Italian, 1483-1520), Antonio da Sangallo the Elder (Italian, ca. 1455-1534), Michelangelo Buonarroti (Italian, 1475-1564), Giacomo della Porta (Italian, 1532/1533-1602/1604), Carlo Maderno (Italian, ca. 1556-1629), and Gian Lorenzo Bernini (Italian, 1598-1680)<ul style="list-style-type: none">*Role [controlled]: architect [link]: Bernini, Gian Lorenzo*Role [controlled]: architect [link]: Bramante, Donato*Role [controlled]: architect [link]: Buonarroti, Michelangelo*Role [controlled]: architect [link]: Fra Giocondo*Role [controlled]: architect [link]: Ligorio, Pirro*Role [controlled]: architect [link]: Maderno, Carlo*Role [controlled]: architect [link]: Peruzzi, Baldassare*Role [controlled]: architect [link]: Porta, Giacomo della*Role [controlled]: architect [link]: Sangallo, Antonio da, the elder*Role [controlled]: architect [link]: Sangallo, Giuliano da*Role [controlled]: architect [link]: Sanzio, Raphael*Role [controlled]: architect [link]: Sansovino, Andrea*Role [controlled]: architect [link]: Vignola, Giacomo da■ *Creation Date: designs begun 1451, constructed 1506-1615, piazza finished 1667 [controlled]: Qualifier: design; Earliest: 1451; Latest: 1667 Qualifier: construction; Earliest: 1506; Latest: 1615 Qualifier: piazza; Earliest: 1667; Latest: 1667■ *Subject [links to authorities]: architecture • religion and mythology • Saint Peter (Christian iconography) • cathedral • Papal power■ *Current Location [link]: Vatican City (Rome, Italy)■ *Measurements: height of dome: 138 m (452 feet); length of main structure: 187 m (615 feet) [controlled]: Value: 138; Unit: m; Type: height Value: 187; Unit: m; Type: length■ *Materials and Techniques: load-bearing masonry construction Material [link]: masonry Technique [link]: bearing walls■ Style [link to authority]: Renaissance • Baroque■ Description: A three-aisled Latin cross with a dome at the crossing. The basilica had a long building history and many architects: It was begun under Pope Julius II in 1506 to replace Old Saint Peter's, and completed in 1615 under Paul V. The original plan was a Greek cross by Donato Bramante; when he died in 1514, Leo X commissioned Raphael, Fra Giocondo, and Giuliano da Sangallo to continue the Work, changing the Greek-cross plan to a Latin cross with three aisles separated by pillars. Raphael died in 1520; Antonio da Sangallo the Elder, Baldassare Peruzzi, and Andrea Sansovino continued the Work. Sangallo died in 1546 and Paul III commissioned Michelangelo as chief architect. Michelangelo died in 1564, when the drum for the dome was nearly complete. Pirro Ligorio and Giacomo da Vignola continued the Work. Under Gregory XIII, Giacomo della Porta was put in charge of the Work. [and so on]■ Description Source [link]: Millon, Henry A., and Craig Hugh Smyth. <i>Michelangelo architect</i>. Milan: Olivetti, 1988.■ *Related Work:<ul style="list-style-type: none">Relationship Type [controlled]: larger context for [link to Related Work]: <i>Dome of Saint Peter's</i>; dome; Michelangelo Buonarroti (Italian, 1475-1564) and others; designed mid-1550s, constructed late 16th century; Saint Peter's Basilica (Vatican City, Rome, Italy)

Work Record

- **Class** [controlled]: architecture
- ***Work Type** [link]: dome
- ***Title**: Dome of Saint Peter's | **Title Type**: preferred
- ***Creator display**: designed by Michelangelo Buonarroti (Italian, 1475-1564), design revised by Giacomo della Porta (Italian, born 1532 or 1533; died 1602)
 - ***Role** [controlled]: architect | [link to Personal and Corporate Name Authority]: Buonarroti, Michelangelo
 - ***Role** [controlled]: architect | **Extent**: revisions to design | [link]: Porta, Giacomo della
 - ***Role** [controlled]: architect | **Extent**: revisions to design | [link]: Fontana, Domenico
- ***Creation Date**: designed mid-1550s, constructed late 16th century
 - [controlled]: **Extent**: design; **Earliest**: 1530; **Latest**: 1570 | **Extent**: construction; **Earliest**: 1451; **Latest**: 1600
- ***Subject** [link to authorities]: architecture • dome
- ***Current Location** [link to authority]: Saint Peter's Basilica (Vatican City, Rome, Italy)
- ***Measurements**: diameter: 42 m (138 feet); height of dome: 138 m (452 feet) above the street, 119 m (390 feet) above the floor
 - [controlled]: **Qualifier**: exterior; **Value**: 138; **Unit**: m; **Type**: height || **Qualifier**: interior; **Value**: 119; **Unit**: m; **Type**: height | **Value**: 42; **Unit**: m; **Type**: diameter
- ***Materials and Technique**: brick, with iron chain compression ring
 - Material** [link]: brick | **Technique** [link]: compression reinforcement
- **Description**: The brick dome uses four iron chains for a compression ring; it is buttressed by the apses and supported internally by four massive piers more than 18 m thick. Bramante's original floor plan called for the dome over a Greek cross plan. Michelangelo designed the dome; after his death Giacomo della Porta and Domenico Fontana executed the dome, altering the shape to make it steeper and taller than Michelangelo's design. The dome was finally completed under Sixtus V; Gregory XIV ordered the erection of the lantern.
- ***Related Work**:
 - Relationship Type** [controlled]: part of | [link to Related Work]: *Saint Peter's Basilica*; basilica; Donato Bramante (Italian, 1444-1514) and others; designs begun 1451, constructed 1506-1615; Vatican City (Rome, Italy)



CREDIT:
Saint Peter's Basilica—Dome,
Vatican City (Rome, Italy)
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Figure 8

Work Record for a Work and Related Images: 19th-Century Parliament Buildings

Required and recommended elements are marked with an asterisk.

Work Record

- **Class** [controlled]: architecture • European art
- ***Work Type** [link to authority]: parliament buildings
- ***Title**: Houses of Parliament | **Title Type**: preferred
 Title: Westminster Palace | **Title Type**: alternate
 Title: Westminster New Palace | **Title Type**: alternate
- ***Creator display**: architects: Charles Barry (English, 1795-1860), assisted by Augustus Welby Northmore Pugin (English, 1812-1852)
 ***Role** [link]: supervising architect | [link]: Barry, Charles
 ***Role** [link]: associated architect | [link]: Pugin, Welby Northmore
- ***Creation Date**: construction on current structure was begun in 1837, the cornerstone was laid in 1840, and work was finished in 1860
 [controlled]: **Earliest**: 1837; **Latest**: 1860
- ***Subject** [link to authority]: architecture • government • parliament
- **Style** [link]: Gothic Revival
- **Culture** [link]: British or English
- ***Current Location** [link to authority]: London (England)
- ***Measurements**: Victoria Tower: 102 m (height) (336 feet); Saint Stephen's Tower (Big Ben): 97.5 m (height) (320 feet) | [controlled]: **Extent**: greatest height; **Value**: 102; **Unit**: m; **Type**: height
- ***Materials and Techniques**: cut stone, bearing masonry | **Material** [link]: stone | **Technique** [link]: load-bearing walls • dimension stone
- **Description**: Possibly site of a royal palace of the Danish king of England, Canute. Site of the palace of Edward the Confessor in the 11th century, enlarged by William I the Conqueror. Badly damaged by fire in 1512; House of Commons met in Saint Stephen's Chapel by 1550, the Lords used another apartment of the palace. A fire in 1834 destroyed much of the palace. Construction on current structure dates 1837-1860. The Commons Chamber was destroyed in an air raid in World War II, reopened in 1950.
- **Related Images**:
 [links to Image Records]: 2345 (exterior view, facing west) • 2346 (exterior view, facing southwest)

Image Record

- **Image Number**: 2345
- ***View Description**: exterior view facing west with north end of House of Parliament, including Big Ben and view from Westminster Bridge
- ***View Type** [link]: exterior view, partial view
- ***View Subject**: clock tower • facade • Westminster Bridge (London, England) • Big Ben (Tower clock)
- ***View Date** [controlled]: 1980
- **Related Work** [link to Work Record]: *Houses of Parliament*, parliament buildings; Charles Barry (English, 1795-1860), assisted by Augustus Welby Northmore Pugin (English, 1812-1852); begun 1837, finished 1860; London (England)

Image Record

- **Image Number**: 2346
- ***View Description**: exterior view facing southwest with north end of Houses of Parliament
- ***View Type** [link]: exterior view • oblique view • partial view
- ***View Subject**: north facade • lamppost
- ***View Date** [link]: 1980
- **Related Work** [link to Work Record]: *Houses of Parliament*, parliament buildings; Charles Barry (English, 1795-1860), assisted by Augustus Welby Northmore Pugin (English, 1812-1852); begun 1837, finished 1860; London (England)

CREDIT: Houses of Parliament, North End and Houses of Parliament, North End, including view of Big Ben. View from Westminster Bridge

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Notes

1. See *Metadata Standards Crosswalks* http://www.getty.edu/research/conducting_research/standards/intrometadata/3_crosswalks/index.html.
2. *Work* in CCO is more concrete than *work* as defined in FRBR (Functional Requirements for Bibliographic Records), which is a bibliographical framework developed by a committee of the International Federation of Library Associations (IFLA) and published in 1998 (<http://www.ifla.org/VII/s13/frbr/frbr.pdf>). The work in CCO is usually a physical entity, whereas that in FRBR is an abstraction or intellectual entity, such as a literary work or a musical composition.
3. Porter, Vicki, and Robin Thornes. *Guide to the Description of Architectural Drawings*. New York: G.K. Hall, 1994 (updated version at http://www.getty.edu/research/conducting_research/standards/fda/). Architectural works are discussed as Authority Records in the built works authority chapter, though the same principles and examples apply to a work of architecture cataloged as a work in its own right.
4. Getty Vocabulary Program. *Art & Architecture Thesaurus (AAT)*, *Union List of Artist Names (ULAN)*, and *Getty Thesaurus of Geographic Names (TGN)*. Los Angeles: J. Paul Getty Trust, 1988-. http://www.getty.edu/research/conducting_research/vocabularies/. Library of Congress Authorities. *Library of Congress Name Authorities*. Washington, DC: Library of Congress. <http://authorities.loc.gov/>.
5. This and most of the other retrieval issues discussed in this section may be handled by normalizing (removing spaces, punctuation, diacritics, and case sensitivity) both the user's query string and the terms or names in the vocabulary being used for retrieval. This is, of course, a technical issue, but it has—or should have—an impact on cataloging practice.
6. These name variations could be created by establishing algorithms that use the comma as a pivot to create new variations of names and terms; this would be used behind the scenes in retrieval only, and would not be visible to the end user (because some of the variants thus created will be nonsense).
7. This example is intended to illustrate metadata elements discussed in this manual. Field names and data values in the example do not necessarily represent the record for this work in the Getty Museum's database.
8. This example is intended to illustrate metadata elements discussed in this manual. Field names and data values in the example do not necessarily represent the record for this Work in the database for the Getty Research Institute, Research Library, Special Collections.
9. This example is intended to illustrate metadata elements discussed in this manual. Field names and data values in the example do not necessarily represent the records for this work in the museums' databases.