



Tool Library Metadata Application Profile

 Powered by VRA Core 4.0
VRA Logo Credit: Visual Resource Association, (n.d.)

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Description

The Tool Library Metadata Application Profile (TLM) is the result of a final project for LIS-60637: Metadata Architecture and Implementation. Tool and object lending library services are steadily growing. Now, with the development of software that aids in tracking and cataloging tools, such resources are seeing a 100 to 1000 percent increase in circulation statistics (Hamilton, 2021). This makes tool metadata a relevant and interesting use case to explore.

Visual Resources Association (VRA) Core 4.0 is a natural fit for tool metadata. It is constructed around describing works of art and culture, which is a truly diverse and demanding type of content to describe with metadata. Almost every desired element was achievable in VRA Core 4.0. See Appendix B for reference on how VRA elements match the predefined needs of the use case. Only two custom elements were supplemented. These are used to describe the type of power needed for the tool, and what consumable resources are required for the tool, such as batteries, staples, grommets, etc.

Name Spaces

vra <https://www.loc.gov/standards/vracore/vra-strict.xsd>

tlm [###](#)

VRA Core 4.0 References

Note that TLM follows all VRA Core 4.0 nested structure conventions. All TLM records are created as a VRA *work* resource. For reference on this full structure, see Appendix A or visit VRA Core 4.0's documentation.

Full Element Outline:

https://www.loc.gov/standards/vracore/VRA_Core4_Outline.pdf

Element Description & Tagging:

https://www.loc.gov/standards/vracore/V23.0RA_Core4_Element_Description.pdf

TLM Application Profile Elements

Brand	
Label	Brand
Term Name	title Attributes: <i>type</i>
URI	https://www.loc.gov/standards/vracore/vra-strict.xsd#title
Definition	The title or identifying phrase given to a Work or an Image. For complex works or series the title may refer to a discrete component or unit within the larger entity (a print from a series, a panel from a fresco cycle, a building within a temple complex) or may identify only the larger entity itself. Record multiple titles in repeating instances of the title element. Indicate the preferred title with <code>pref="true"</code> and alternate titles with <code>pref="false"</code> . For an Image record this category describes the specific view of the depicted Work or Collection, and corresponds to the CCO View Description.
Implementation	Optional Repeatable
Comment	This element is used to define the brand name, if known.
Value Space Control	The value for type attribute must be brandName. Value is a simple text string, transcribed from tool or documentation.
Example	<pre><titleSet> <display>Craftsman</display> <title type="brandName">Craftsman</title> </titleSet></pre>

Consumable Resources Required	
Label	Resources Required
Term Name	consumableResources
URI	https://###consumableResources
Definition	Custom elements used to denote any resources the tool required for use. This can include things like batteries, staples, thread, etc.
Implementation	Not Required Repeatable
Comment	Use this element only when required. If specifying that batteries, fuel, or other energy sources are required, use the power element to specify what type.
Value Space Control	Free-text description.

Example	<pre> <consumableResourcesSet> <display>Requires waxed hemp thread for spool.</display> <consumableResource>Waxed Hemp Thread </consumableResource> </consumableResourcesSet> </pre>
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Date	
Label	Date
Term Name	date Attributes: <i>type, source, dataDate, href</i>
URI	https://www.loc.gov/standards/vracore/vra-strict.xsd#date
Definition	Date or range of dates associated with the creation, design, production, presentation, performance, construction, or alteration, etc. of the work or image. Dates may be expressed as free text or numerical. The boolean circa attribute may be added to either subelement to indicate an approximate date. For image records, the date element refers to the view date, if known. See CCO Chapter 4: Stylistic and Chronological Information for a more thorough discussion of dates (Eklund, 2007).
Implementation	Optional Repeatable
Comment	Use date to specify relevant date details about the tool. See example for reference on how date element is used in VRA Core 4.0 guidelines.
Value Space Control	<p>Date information should follow VRA guidelines and adhere to ISO 8601 http://www.cl.cam.ac.uk/~mgk25/iso-time.html</p> <p>Date information can come from packaging, object inscription, or any other source such as tool catalogs.</p> <p>Date type attribute can include the following (from VRA data values): creation, restoration, view, design, or other.</p> <p>For examples from VRA documentation, follow this link.</p>
Example	<pre> <dateSet> <display></display> <date type="creation" source="Product Container" dataDate="1989-01-22"> </dateSet> </pre>

Description	
Label	Description
Term Name	description
URI	https://www.loc.gov/standards/vracore/vra-strict.xsd#description
Definition	A free-text note about the Work, Collection, or Image, including comments, description, or interpretation, that gives additional information not recorded in other categories. For element-specific notes, use the optional notes subelement (Eklund, 2007).
Implementation	Not Required Non-repeatable
Comment	This element is used to record a free text description of the tool. Describe colors, additional content, and other items that do not fit into predefined elements here.
Value Space Control	---
Example	<pre><descriptionSet> <display>Antique ball-peen hammer with a rusted mallet and worn handle.</display> <description>Antique ball-peen hammer with a rusted mallet and worn handle.</description> </descriptionSet></pre>

Dimensions	
Label	Dimensions
Term Name	measurements Attributes: <i>type, unit, extent</i>
URI	https://www.loc.gov/standards/vracore/vra-strict.xsd#measurement
Definition	The physical size, shape, scale, dimensions, or format of the Work or Image. Dimensions may include such measurements as volume, weight, area or running time. If the measurements do not describe the entire work or image, use the extent attribute to specify the part of the work being measured. The unit used in the measurement must be specified (Eklund, 2007).
Implementation	Required Repeatable
Comment	This element is used to record the height, width, depth and weight of the tool. Measure at the longest point for height, widest point for width, and shallowest point for depth (if a variation in width exists). Round to the nearest tenth.

Value Space Control	<p>type attribute: depth, height, length, size, weight, width</p> <p>unit attribute: Refer to ISO standard for units and measures: http://ts.nist.gov/WeightsAndMeasures/Publications/appxc.cfm. Values should follow standard 2-letter abbreviations without punctuation (Example: cm) (Eklund, 2007)</p> <p>TLM preference is for metric units.</p>
Example	<pre><measurementsSet> <display>3 cm (H) x 36 cm (W), 680 g</display> <measurements type="height" unit="cm">3 </measurements> ... </measurementsSet></pre>

Markings	
Label	Markings
Term Name	inscriptionSet Attributes: <i>type</i> Subelements: <i>position</i> , <i>text</i>
URI	https://www.loc.gov/standards/vracore/vra-strict.xsd#inscriptionSet
Definition	All marks or written words added to the object at the time of production or in its subsequent history, including signatures, dates, dedications, texts, and colophons, as well as marks, such as the stamps of silversmiths, publishers, or printers. The location of this text or symbol may be specified by the position subelement. If a translation of the text into the language of the catalog record is also provided, include in a repeated element with the text type of translation (Eklund, 2007).
Implementation	Not Required Repeatable
Comment	This element is used to record markings and inscriptions on the tool that are not identified by brandName or title.
Value Space Control	Free-text description.
Example	<pre><inscriptionSet> <display>Scratched into the handle.</display> <inscription> <position>Across length of shaft.</position> <text type="text" xml:lang="en" >George's Hammer</text> </inscription> </inscriptionSet></pre>

Material Types	
Label	Material Types
Term Name	material Attributes: <i>type, vocab, refid</i>
URI	https://www.loc.gov/standards/vracore/vra-strict.xsd#material
Definition	The substance of which a work or an image is composed.
Implementation	Required Repeatable
Comment	This element is used to record markings and inscriptions on the tool that are not identified by brandName or title.
Value Space Control	Follow VRA guidance and prefer AAT values . Specify the predominant material the tool is composed of. The type attribute should be set to type="medium".
Example	<pre> <materialSet> <display>Metal screwdriver with plastic handle.</display> <material type="medium" vocab="AAT" refid="300014572">plastic alloy</material> <material type="medium" vocab="AAT" refid="300010920">stainless steel</material> </materialSet> </pre>

Power Type	
Label	Power Type
Term Name	powerType
URI	https://###powerType
Definition	Element used to describe the type of power that a tool needs.
Implementation	Not Required Repeatable
Comment	Use this element only when required. If a consumableResource element is used for an energy source, power element is required.
Value Space Control	Specify type of source required, followed by comma separated quantity details. Use units as outlined in VRA specifications, adhering to ISO standards in the comma separated details. See the example for guidance.
Example	<pre> <powerTypeSet> <display>Standard 120V outlet source required. Cord included.</display> <powerType>Electrical outlet, 120 V</powerType> </powerTypeSet> </pre>

Tool Name	
Label	Title
Term Name	title Attributes: <i>type, pref</i>
URI	https://www.loc.gov/standards/vracore/vra-strict.xsd#title
Definition	The title or identifying phrase given to a Work or an Image. For complex works or series the title may refer to a discrete component or unit within the larger entity (a print from a series, a panel from a fresco cycle, a building within a temple complex) or may identify only the larger entity itself. Record multiple titles in repeating instances of the title element. Indicate the preferred title with <code>pref="true"</code> and alternate titles with <code>pref="false"</code> . For an Image record this category describes the specific view of the depicted Work or Collection, and corresponds to the CCO View Description.
Implementation	Required Non-repeatable
Comment	This element is used to define the name of the tool. This element is required. If a name is unknown, use <code>type=descriptive</code> to describe the tool in a short sentence.
Value Space Control	The value for <code>type</code> attribute must be either <i>descriptive</i> or <i>popular</i> . Use <code>type="descriptive"</code> when a title is unknown, use <code>type="popular"</code> if using a commonly known name for the tool. Value is a simple text string, transcribed from tool, documentation, or recorded from common knowledge.
Example	<pre><titleSet> <display>Phillips Head Screwdriver</display> <title type="popular">Phillips Head Screwdriver</title> </titleSet></pre>

References

- Eklund, Jan. (2007, April 5). VRA Core 4 element description. *VRA Core Schemas and Documentation*. https://www.loc.gov/standards/vracore/VRA_Core4_Element_Description.pdf
- Hamilton, S. (2021). What's mine is yours: The history of U.S. tool-lending libraries. *School of Information Student Research Journal*, 11(1). <https://doi.org/10.31979/2575-2499.110104>
- Visual Resources Association. (n.d.). *VRA logo* [Image]. <http://vraweb.org/>

Appendix A

TLM XML example, following VRA Core 4.0 nested structure.

```
<?xml version="1.0" encoding="UTF-8"?>
<metadata xmlns:tlm="http://###">
<vra xmlns="http://www.vraweb.org/vracore4.htm"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.vraweb.org/vracore4.htm http://www.loc.gov/standards/vracore/vra-
strict.xsd">
<!-- begin VRA Core 4.0 elements -->
  <work id="proto_04" source="Ryan Spellman" refid="04">

    <titleSet>
      <display>Ball-peen Hammer</display>
      <title type="popular" pref="true" xml:lang="en">Ball-peen Hammer</title>
      <title type="popular" pref="false" xml:lang="en">Machinist's Hammer</title>
    </titleSet>

    <materialSet>
      <display>Wooden handle with metal head.</display>
      <material type="medium" vocab="AAT" refid="300010900">metal</material>
      <material type="medium" vocab="AAT" refid="300011914">wood</material>
    </materialSet>
    <!--
    <dateSet>
      <display>Unknown</display>
      <date type=""></date>
    </dateSet>
    -->
    <descriptionSet>
      <display>
        Aged hammer with no indication of manufacturer or date. Wooden handle is scuffed
        and metal head is rusted. Red, yellow, and white paint traces are on the handle.
      </display>
      <description>
        Aged hammer with no indication of manufacturer or date. Wooden handle is scuffed
        and metal head is rusted. Red, yellow, and white paint traces are on the handle.
      </description>
    </descriptionSet>
    <!--
    <inscriptionSet>
      <display>None</display>
      <inscription>
        <position></position>
        <text type="text" xml:lang="en"></text>
      </inscription>
    </inscriptionSet>
    -->
    <measurementsSet>
      <display>32 cm (H) x 9 cm (W) x 3 cm (D), 436.6 g </display>
      <measurements type="height" unit="cm">32</measurements>
      <measurements type="width" unit="cm">9</measurements>
      <measurements type="depth" unit="cm">3</measurements>
      <measurements type="weight" unit="g">436.6</measurements>
    </measurementsSet>

    <!-- begin TLM elements -->
    <tlm:consumableResourcesSet>
      <tlm:display>None</tlm:display>
      <tlm:consumableResource>None</tlm:consumableResource>
    </tlm:consumableResourcesSet>

    <tlm:powerTypeSet>
      <tlm:display>Manual</tlm:display>
      <tlm:powerType>Manual</tlm:powerType>
    </tlm:powerTypeSet>
    <!-- end TLM elements -->
  </work>
</vra>
<!-- end VRA Core 4.0 elements -->
```

Appendix B

TLM Application Profile requirements and solutions, using VRA Core 4.0 and two custom elements.

Desired Elements	Actual Elements from Schemas	Schema Details
Weight	measurements type unit extent	<p>VRA Core 4.0, unrestricted</p> <p>Namespace: https://www.loc.gov/standards/vracore/vra.xsd</p> <p>Website: https://www.loc.gov/standards/vracore/schemas.html</p> <p>Element Outline: https://www.loc.gov/standards/vracore/VRA_Core4_Outline.pdf</p> <p>Element Description and Tagging Examples: https://www.loc.gov/standards/vracore/VRA_Core4_Element_Description.pdf</p>
Dimensions	measurements type unit extent	
Description	description source	
Title	title type (can include attribute of <i>creator</i> or <i>descriptive</i> or <i>inscribed</i> or <i>owner</i> or <i>popular</i> or <i>other</i>)	
Brand	title type (attribute <i>brandName</i>)	
Material(s)	material type vocab refid	
Color(s)	Satisfied by the description element.	
Acquisition Date	date source dataDate	
Additional Content	Satisfied by the description element.	
Markings	inscriptionSet position text	
Consumable Resources Required	consumableResources	TLAP (custom elements)
Power	powerType	