



Treasury Board of Canada
Secrétariat

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du Canada

Workshop B: Application Profiles

**Canadian Metadata Forum
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Canada 



Workshop Overview

- What is a metadata application profile?
- Creating and using metadata application profiles
- Government of Canada evolving thinking on metadata application profiles
- Maintenance issues
- Conclusions
- It's your turn



What Is a Metadata Application Profile?

- Context: metadata-related definitions
- Characteristics of a metadata application profile
- Purposes
- APs and DCAPs



Metadata Element Definitions

- DCMI: “An element is a property of a resource. As intended here, "properties" are attributes of resources -- characteristics of a resource, such as a Title, Publisher, or Subject. Elements are formally defined terms which are used to describe attributes and properties of a resource.”
- ISO 11179: “Data that defines and describes other data.”



Metadata Element Definitions /2

- Composed of:

Name = Value

- Examples:

Title Life of Pi

Publisher Random House

Language English



Metadata Element Set Definition

- Government of Canada: “A collection of metadata elements.”
- Examples:
 - Dublin Core Metadata Element Set (DCMES)
 - IEEE Learning Object Metadata (LOM)
 - Global Locator Information Service (GILS)



Metadata Application Profile Definitions

- Rachel Heery (UKOLN): “Application profiles consist of data elements drawn from one or more namespace schemas combined together by implementers and optimised for a particular local application.”
- DCMI: “A set of metadata elements, policies, and guidelines defined for a particular application. The elements may be from one or more element sets, thus allowing a given application to meet its functional requirements by using metadata from several element sets including locally defined sets. [...]”



Metadata Application Profile Characteristics

An application profile:

- May draw on one or more existing sets;
- Is meant to meet local needs;
- Cannot introduce new data elements;
- May specify permitted schemes and values; and
- Can refine standard definitions.*

(Source: Heery)

*warning



Why Create a Metadata Application Profile?

- “It is rare that requirements of a particular project or site can all be met by any one standard ‘straight from the box.’” (Source: Baker)
- No “one size fits all” standard:
 - Different starting points
 - Different functional requirements
 - Different levels of granularity for different things
 - Different views of reality (Source: Hillman)



APs and DCAPs

- Dublin Core Application Profiles (DCAPs) are simply metadata application profiles that borrow one or more elements from the Dublin Core Metadata Element Set.
- Not all APs are DCAPs.
- CanCore is an AP of the LOM.
- A DCAP is designed to promote interoperability within the constraints of the Dublin Core model.
- Challenges to mix elements from different elements sets with different abstract models.

(Source: Hillman, Heery and CEN)



Creating and Using Metadata Application Profiles

- Types and components
- Influences on development
- Best practices for creating elements, encoding schemes, syntax schemes
- Interoperability issues



Types of Metadata Application Profiles

- Application profiles can be expressed in:
 - Human-readable form (most common)
 - Machine-readable form
- Types differ in:
 - Format of presentation
 - Content
 - Usage



Components of a Metadata Application Profile

- Identification and definition of the:
 - application profile itself
 - elements and element refinements
 - encoding schemes (a.k.a. value domains, permissible values)
- Usage guidelines*

* Optional



Metadata Application Profile Attributes

- Identifying
 - Term URI, Name, Label, Defined By
 - Definitional
 - Definition, Comment, Type of Term
 - Relational
 - Refines, Refined by, Encoding Scheme For, Has Encoding Scheme, Similar to
 - Conditions of Application
 - Obligation, Condition, Datatype, Occurrence
- (Source: CEN)

Example:

Term URI	http://purl.org/dc/elements/1.1/creator
Name	Creator
Label	Creator
Defined by	http://purl.org/dc/elements/1.1/
Definition	An entity primarily responsible for making the content of the resource.
Comment	Where the Government of Canada is the creator, include, at a minimum, the government department or agency responsible for the content of the information resource....
Type of term	Element
Refined by	-
Has encoding scheme	For names within the Government of Canada, use: Titles of Federal Organizations; Government Electronic Directory Service (GEDS)
Obligation	Mandatory
Datatype	String
Occurrence	Repeatable





Functions of a Metadata Application Profile

- Document metadata properties and other terms;
- Provide usage information;
- Enable re-use of metadata;
- Encourage the creation of interoperable metadata applications; and
- Promote the development of best practices and standards for metadata.



Some Influences on the Development of a Metadata AP

- Business requirements
- Audience
- Creator's perspective
- Existing standards, guidelines



Best Practices for Choosing Metadata Elements / Schemes

1. Define your requirements.
2. Use elements from existing standards;* use existing encoding schemes,* syntax schemes.
3. If nothing suitable:
 - i. Borrow from other implementations.*
 - ii. Create your own, according to standards.

(*Note warning on next slide)





Interoperability Warning

When looking at other metadata element sets and encoding schemes, consider:

- Context
- Structure
- Semantic equivalency



Other Interoperability Choices

- Crosswalks/Mapping



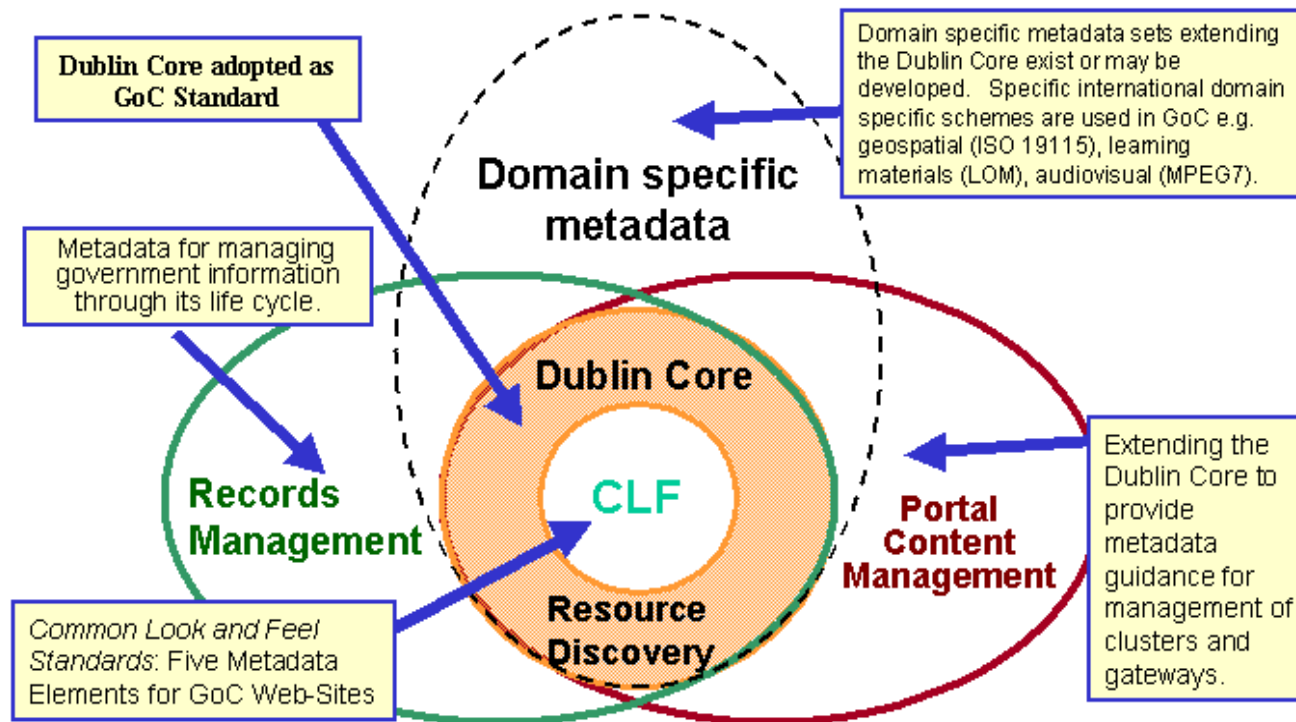


GC Evolving Thinking on Metadata Application Profiles

- Warning: Evolving Thinking!
- TBITS 39.1: Adoption of the Dublin Core as GC core metadata standard for resource discovery.
- Need for a DCAP to meet GC needs...
 - Mandatory elements:
DC:Title / DC:Creator / DC>Date / DC:Language / DC:Subject.
 - Value constraints:
DC:Creator / DC>Date / DC:Language / DC:Subject /
DC:Coverage / DC:Type / DC:Format / DC:Audience.

GC Evolving Thinking on Metadata Application Profiles /2

Government of Canada Metadata Framework





GC Evolving Thinking on Metadata Application Profiles /3

- No easy answer to our problems!
- No single, master or even shared (DC)AP.
- Pressure to align metadata developments with a wider business architecture for the GC and exploration of ISO 11179 as an approach for constructing metadata elements: 3 layers
 1. **Semantic interoperability layer:** Concepts for elements are defined according to business needs, elements are defined using the ISO 11179-3 attributes or are selected from existing (standardized) element sets.
 2. **Business interoperability layer:** Relationships between elements are established.
 3. **Application layer:** An application profile is developed by adding business rules or constraints.

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GC Evolving Thinking on Metadata Application Profiles /4

- What do you borrow:
 - The semantic of the element;
 - Its relationship to the other elements within the element set;
 - The constraints assigned to it?
- Borrow from the first layer (element set).
- Our guidance to federal departments and agencies is still evolving, but we will likely provide advice on how to define elements and build APs, so that all use a common standard (ISO 11179) and methodology.



Maintenance Issues

- Using namespaces
- “Publishing” a metadata application profile
- Managing a metadata application profile
- Using a metadata registry



XML Namespace

- An XML namespace is a collection of names, identified by a URI reference, that are used in XML documents as element types and attribute names.

(Source: DCMI Glossary)



Role of a Namespace

A namespace can:

- Identify the management authority for an element set;
- Support the definition of unique identifiers for elements; and
- Uniquely define particular data element sets or vocabularies.

(Source: Heery)



“Publishing” a Metadata Application Profile

Making a metadata application profile publicly available:

- Provides information about the application profile and promotes its use;
- Presents an authoritative version; and
- Indicates the proper use of the namespace(s).



Managing a Metadata Application Profile

This includes defining and documenting:

- Responsibility for maintenance
- A review and update process
- Version control
- Contact information



Using a Metadata Registry

- A metadata registry can be used to manage metadata elements, encoding schemes, and concepts associated with them.
- ISO 11179 provides standards and guidelines for managing metadata in a registry.



Conclusions

Metadata-related challenges:

- Maturity of the technology
- Maturity of the organizations
- Maturity of the thinking within the metadata community

- ✓ Keep going!
- ✓ Share!
- ✓ Push!



Conclusions /2

GC-related challenges:

- Lack of common understanding and approach;
 - ✓ Communicate!
 - ✓ Participate in working groups!
 - ✓ Test case!
- Language requirements;
 - ✓ Be aware!
 - ✓ Work in both languages in parallel!



Conclusions /3

- Return on investment (ROI);
 - ✓ Advocate for!
 - ✓ Explain and prove!
- Pressure to align metadata with enterprise architecture (EA);
 - ✓ Collaborate with EASD!
 - ✓ Go back to school!
- Limitations of DC to meet our needs.
 - ✓ Join committees and be part of the solution!



It's Your Turn

- Questions
- Information Exchange





For Further Information

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Visit our Web site:

http://www.tbs-sct.gc.ca/im-gi/meta/meta-cdn_e.asp





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Application profiles

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CanCore

URL: <http://www.cancore.ca/>

Metadata Object Description Scheme (MODS)

URL: <http://www.loc.gov/standards/mods/>





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