DC TAP

Dublin Core Tabular
Application Profile

https://github.com/dcmi/dctap

DCMI Application Profiles WG

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… and others. Thank you!

A profile

A profile is the definition of a metadata practice that constrains structures, properties and values. A profile is a reuse of vocabulary terms that have been previously defined.

Profile purpose

- Document a community practice
  - For humans
  - For machines
- Input to data creation forms
- Translate to data validation methods
- Manage selection from data sources

TAP functions

- Define metadata structure
- Define constraints
  - cardinality
  - data types
  - value constraints
- Provide readability
  - labels
  - notes
- Note: designed with RDF metadata in mind, but is not limited to RDF metadata

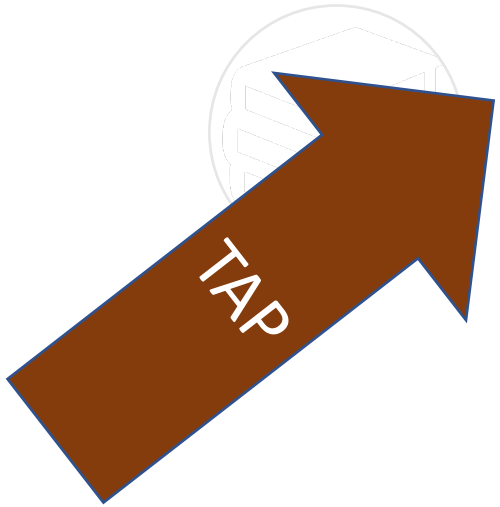
The "meta" problem

1. Vocabulary and structure for a profile

2. A profile that describes one's metadata and constraints

3. Instance data that conforms to the profile

The "meta" problem



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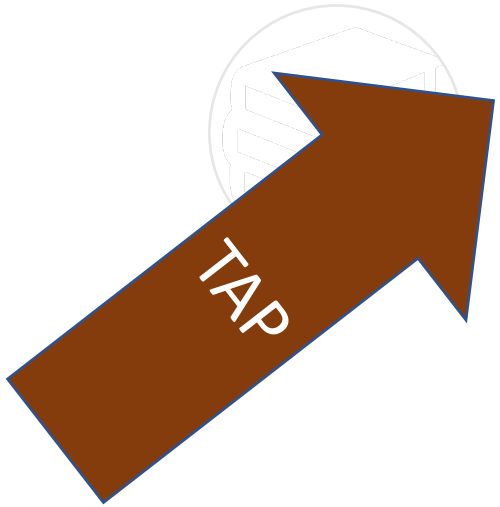
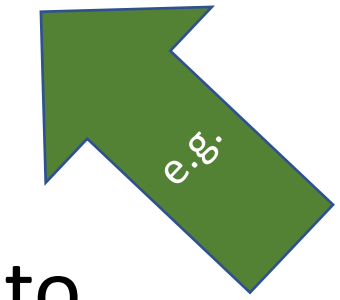
The "meta" problem



1. Vocabulary and structure for a profile

2. A Profile that describes one's metadata and constraints



3. Instance data that conforms to the profile

DC Tabular Application Profile
12 elements

- shapeID
  - shapeLabel
- propertyID
  - propertyLabel
  - note
  - mandatory
  - repeatable
  - valueNodeType
  - valueDatatype
  - valueConstraint
  - valueConstraintType

DC TAP 12 elements in a table

shapeID	shapeLabel	propertyID	propertyLabel	mandatory	repeatable	valueNodeType	valueDataType	valueShape
book	Book	dct:creator	Author	true	true			person
		dct:title	Title	true	false	LITERAL	xsd:string	
		dct:date	Year of publication	false	false	LITERAL	xsd:year	
person	Author	foaf:name	Name	true	false	LITERAL	xsd:string	
		foaf:mbox	Email	false	false	IRI		
		dct:date	Birth year	false	false	LITERAL	xsd:year	

Tabular format

shapeID	shapeLabel	propertyID	propertyLabel	mandatory	repeatable	valueNodeType	valueDataType	valueShape
book	Book	dct:creator	Author	true	true			person
		dct:title	Title	true	false	LITERAL	xsd:string	
		dct:date	Year of publication	false	false	LITERAL	xsd:year	
person	Author	foaf:name	Name	true	false	LITERAL	xsd:string	
		foaf:mbox	Email	false	false	IRI		
		dct:date	Birth year	false	false	LITERAL	xsd:year	


propertyID
dct:creator
dct:title
dct:date
dct:publisher
Only propertyID is required

Add data type

propertyID	valueDataType
dct:creator	xsd:string
dct:title	xsd:string
dct:date	xsd:year
dct:publisher	xsd:string

Include labels and notes

propertyID	propertyLabel	note
dct:creator	Author	name in natural order
dct:title	Title	take title from the cover
dct:date	Date of publication	year only

Cardinality

propertyID	valueDataType	mandatory	repeatable
dct:creator	xsd:string	true	true
dct:title	xsd:string	true	false
dct:date	xsd:year	true	false
dct:publisher	xsd:string	false	false

Creating shapes for "things" described in the metadata

shapeID	shapeLabel	propertyID	valueDataType	valueShape
book	Book	dct:creator		person
		dct:title	xsd:string	
		dct:date	xsd:year	
person	Author	foaf:name	xsd:string	
		sdo:birthDate	xsd:year	

Shape

shapeID	shapeLabel	propertyID	propertyLabel	mandatory	repeatable	valueNodeType	valueDataType	valueShape
book	Book	dct:creator	Author	true	true			person
		dct:title	Title	true	false	LITERAL	xsd:string	
		dct:date	Year of publication	false	false	LITERAL	xsd:year	
person	Author	foaf:name	Name	true	false	LITERAL	xsd:string	
		foaf:mbox	Email	false	false	IRI		
		dct:date	Birth year	false	false	LITERAL	xsd:year	

A group of statement constraints that share a subject node and are identified with the same shapeID.

Statement constraint

shapeID	shapeLabel	propertyID	propertyLabel	mandatory	repeatable	valueNodeType	valueDataType	valueShape
book	Book	dct:creator	Author	true	true			person
		dct:title	Title	true	false	LITERAL	xsd:string	
		dct:date	Year of publication	false	false	LITERAL	xsd:year	
person	Author	foaf:name	Name	true	false	LITERAL	xsd:string	
		foaf:mbox	Email	false	false	IRI		
		dct:date	Birth year	false	false	LITERAL	xsd:year	

A statement constraint consists of a property and any rules that constrain the property and its value.

"Book" shape

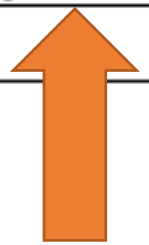
shapeID	shapeLabel	propertyID	valueDataType	valueShape
book	Book	dct:creator		person
		dct:title	xsd:string	
		dct:date	xsd:year	
person	Author	foaf:name	xsd:string	
		sdo:birthDate	xsd:year	

"Person" shape

shapeID	shapeLabel	propertyID	valueDataType	valueShape
book	Book	dct:creator		person
		dct:title	xsd:string	
		dct:date	xsd:year	
person	Author	foaf:name	xsd:string	
		sdo:birthDate	xsd:year	

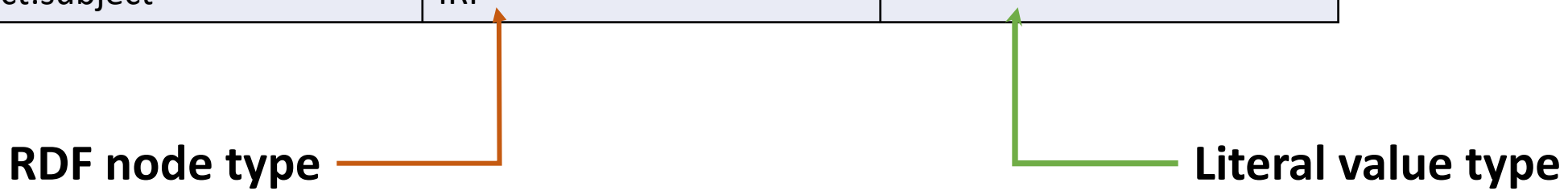
Linking shapes

shapeID	shapeLabel	propertyID	valueDataType	valueShape
book	Book	dct:creator		person
		dct:title	xsd:string	
		dct:date	xsd:year	
person	Author	foaf:name	xsd:string	
		sdo:birthDate	xsd:year	



RDF nodes and literal property values

propertyID	valueNodeType	valueDataType
dct:creator	BNODE	
dct:title	LITERAL	xsd:string
dct:date	LITERAL	xsd:year
dct:subject	IRI	



Value constraints

shapeID	shapeLabel	propertyID	valueDataType	valueShape	valueConstraint
book	Book	dct:creator		person	
		dct:title	xsd:string		
		dct:date	xsd:year		
		dc:subject	xsd:string		History
person	Author	rdf:type			foaf:Person
		foaf:name	xsd:string		
		sdo:birthDate	xsd:year		

Value constraint types

Value constraint types

- Beyond single constraint strings
  - IRI stems (value from this vocabulary)
  - pick lists (strings or URIs or URI stems)
  - patterns
  - language tags

valueConstraint	valueConstraintType
http://id.loc.gov/	uriStem
/^[0-9]{1,2}-?[0-9]{0,2}$/	pattern
red,green,blue	picklist
@en,@fr,@sp	languageTag

Some other details

How to handle multiple values in a table cell

- IRI, BNODE
- red,blue,green
- @en,@fr,@sp

- Multiple values are "OR" functions
- AND and NOT are more difficult and currently out of scope

Some other details

Boolean values

- true/false
- 1/0

Other uses would need to be conveyed to potential users of the profile

Close, but unresolved

Recording namespaces and their prefixes

prefix	namespace
dc	http://purl.org/dc/elements/1.1/
foaf	http://xmlns.com/foaf/

dc:subject
foaf:name

Close, but unresolved

TAP Vocabulary

```
<http://example.org/dctap#shapeLabel>
  a rdfs:Property ;
  rdfs:label "Shape label"@en ;
  skos:definition "A brief human-readable label for the shape."@en ;
  rdfs:isDefinedBy <http://example.org/dctap#>  .

<http://example.org/dctap#propertyID>
  a rdfs:Property ;
  rdfs:label "Property identifier"@en ;
  skos:definition "The IRI of a vocabulary term defined in an RDF-compatible vocabulary."@en ;
  rdfs:isDefinedBy <http://example.org/dctap#>  .

<http://example.org/dctap#propertyLabel>
  a rdfs:Property ;
  rdfs:label "Property label"@en ;
  skos:definition "A brief human-readable label for the property."@en ;
  rdfs:isDefinedBy <http://example.org/dctap#>  .
```

https://github.com/dcmi/dctap/blob/main/dctap.ttl

Unresolved but needed functions

i18n

- How can we internationalize the table (and its contents)?

Out of scope (for now)

Interaction between properties or shapes (and, or, not)

- e.g. foaf:name OR (foaf:familyName AND foaf:givenName)
- e.g. mandatory Professor shape or TA shape per course
- some can be done with structure but that's limited

Tabular designs requiring multiple "sheets"

Out of scope (for now)

Open/closed

- Open = other properties or shapes are allowed
- Closed = only what is in the template is allowed
- Shape level? profile level? both?

Some DC TAP resources

Github repository: https://github.com/dcmi/dctap/

Examples: https://github.com/dcmi/dctap/tree/main/examples

Please participate

Open and respond to issues on github
Join the mailing list
Offer data to be profiled
Offer profiles to be TAP'd

Questions? Comments?

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person	Author	foaf:name	Name	true	false	LITERAL	xsd:string	
		foaf:mbox	Email	false	false	IRI		
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