

MINT to EDM

Using Carare-MINT to create a mapping to EDM

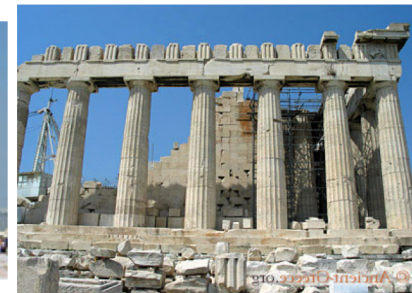


this tutorial

- a hands-on session creating a mapping in MINT
- using examples and images from:
- <https://www.carare.eu/pro/training-hub/working-carare-services/>

example dataset

- <https://www.carare.eu/pro/training-hub/working-carare-services/EuPhoto-Extended2>
- 5 files in XML
- Describing 5 photographs
- With some additional metadata



metadata - structure

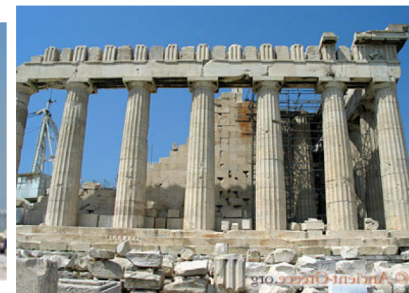
<tns:ImageMetadata>

<tns:AdministrativeMetadata> ...

<tns:DescriptiveMetadata> ...

<tns:RetrievalMetadata> ...

</tns:ImageMetadata>



MINT - log in


- <https://pro.carare.eu/>
- click Services > Mint
- click CARARE MINT Service




The screenshot shows the login interface for the MINT4all Ingestion Server. At the top center is a logo consisting of a blue shield with a white 'D' shape inside, followed by the text 'MINT4all Ingestion Server'. Below the logo are two input fields: 'Username:' and 'Password:'. Each field is contained within a light blue rounded rectangular box. Underneath the password field are two buttons: 'Submit' and 'Reset', both in a grey rounded rectangular box. Below the buttons are two links: '[I want to register](#)' and '[I forgot my login/password](#)', both in blue text.

My workspace

← ↻ MINT Home ↩ ↪



europeana
carare project

 **MINT FOR ALL**

MINT services compose a web based platform designed and developed to facilitate aggregation initiatives for cultural heritage content and metadata in Europe. ...[\(read more\)](#)

My workspace	▶
My account	▶
Administration	▶
Locks	▶
Data reports	▶
Data statistics	▶

import metadata

The screenshot displays the MINT Home web interface, divided into three main sections: MINT Home, My workspace, and Start Import.

- MINT Home:** Contains a navigation menu with items like 'My workspace', 'My account', 'Administration', 'Locks', 'Data reports', and 'Data statistics'. Below the menu are sections for 'Recent mappings' and 'Recent annotations'.
- My workspace:** Provides an overview of datasets and offers options to 'Import new archive' or 'Create empty dataset'. It includes a 'Filter by Organization' dropdown set to 'PANORAMA LABORATORY' and a 'No imports' section.
- Start Import:** The active section for uploading data. It features several options:
 - Local upload:** Includes a 'Upload a file' button and a checkbox for 'This is a CSV upload'.
 - Remote FTP/HTTP Upload:** A radio button option.
 - OAI URL:** Includes a 'Give link to OAI repository' field, 'From Date' and 'To Date' (YYYY-MM-DD) fields, and an 'OAI SET' dropdown.
 - Namespace Prefix:** A field for specifying the namespace.
 - Upload for Organization:** A dropdown menu currently set to 'PANORAMA LABORATORY'.
 - Parent organization upload support:** A checkbox for 'This import conforms: --Select schema--' with a note: 'Select this option in addition to your import method in case your upload already conforms to the selected schema and no mapping is necessary.'
 - This is a json upload:** A checkbox option.At the bottom of the 'Start Import' section are 'Submit' and 'Reset' buttons.

exercise – upload file

- upload the file EuPhoto-Extended2.zip
- as a local upload
- without an import schema

The screenshot displays the MINT workspace interface, divided into three main sections: 'MINT Home', 'My workspace', and 'Start Import'.

MINT Home: Features the 'europeana carare project' logo and a 'MINT FOR ALL' section. The 'MINT FOR ALL' section states: 'MINT services compose a web based platform designed and developed to facilitate aggregation initiatives for cultural heritage content and metadata in Europe... (read more)'. A navigation menu includes 'My workspace', 'My account', 'Administration', 'Locks', 'Data reports', and 'Data statistics'. Below this is a 'Recent mappings' section with entries like 'Mapping: EDM Dataset: test.xml'.

My workspace: Titled 'My workspace', it provides an overview of datasets per organization and uploader. It includes buttons for 'Import new archive' and 'Create empty dataset'. Filter options are set to 'Organization: CARARE' and 'User: -- All uploaders --'. A search bar is present with the text 'Search your items'. A list of items is shown, including 'ariadne_greylit_split.zip', 'Amarna.xml.zip', and 'CARARE_JAEN_2018_05_28_fixed_uris.zip', each with a status icon (green checkmark or globe) and navigation controls (Prev, 1, Next).

Start Import: Titled 'Import', it shows the 'Local upload' method selected. The file 'EuPhoto-Extended2.tgz' (1.3KB) is being uploaded. The 'Upload for Organization' is set to 'CARARE'. The 'This import conforms' dropdown is set to '--Select schema--'. At the bottom, there are 'Submit' and 'Reset' buttons.

dataset statistics

- look at the statistics for this dataset

The screenshot displays the MINT workspace interface, which is divided into three main sections: a left sidebar, a central workspace, and a right-hand panel.

- Left Sidebar:** Features the Europeana logo and the text "MINT FOR ALL". Below this, it lists navigation options: "My workspace" (highlighted in blue), "My account", "Administration", "Locks", "Data reports", and "Data statistics".
- Central Workspace:** Titled "My workspace", it provides an overview of datasets. It includes options to "Import new archive" and "Create empty dataset". There are filters for "Organization" (set to "CARARE") and "User" (set to "-- All uploaders --"). A search bar labeled "Search your items" is present, along with pagination controls showing "Prev", "1", and "Next". A list of datasets is shown at the bottom, with "EuPhoto-Extended2.tgz" highlighted in blue and marked with a green checkmark.
- Right-Hand Panel:** Titled "Dataset Options" for "EuPhoto-Extended2.tgz", it shows the status "Data Upload successful" and a "Show details" link. Below this, there are several menu items: "Define Items", "Dataset Statistics" (highlighted in blue), "Show log", "Delete Data Upload", and "Downloads".

exercise – statistics

- notice that tns:Identifier has unique values for all five files

The screenshot displays a web application interface with three main panels: 'My workspace', 'Dataset Options', and 'Dataset Stats'.

My workspace: Shows an overview of datasets per organization and per uploader. It includes filters for Organization (set to 'CARARE') and User (set to '-- All uploaders --'). A search bar is present with the text 'Search your items'. Below the search bar, there are navigation buttons 'Prev' and 'Next', and a list of datasets with 'EuPhoto-Extended2.tgz' selected and marked with a green checkmark.

Dataset Options: Shows the selected dataset 'EuPhoto-Extended2.tgz' with a status of 'Data Upload successful'. It includes a 'Show details' link and a list of actions: 'Show all items' (5 items), 'Mappings', 'Transform', 'Define Items' (checked), 'Dataset Statistics' (selected), 'Show log', and 'Delete Data Upload'. There is also a 'Downloads' section.

Dataset Stats: Displays the statistics for the selected dataset. The table below shows the results:

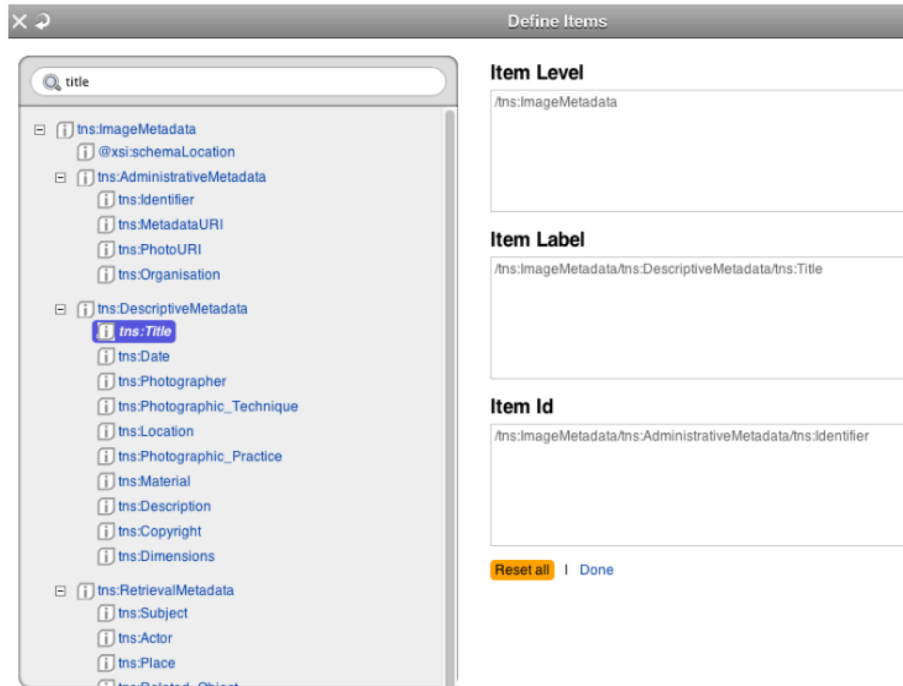
Xpath	Count	Distinct	Length
tns:imageMetadata	5		
@xsi:schemaLocation	5	1	55
tns:AdministrativeMetad...	5		
tns:Identifier	5	5	8.6
tns:MetadataURI	5	5	58.6
tns:PhotoURI	5	5	60.6
tns:Organisation	5	1	4
tns:DescriptiveMetadata	5		
tns:Title	5	5	15.8
tns>Date	5	1	10
tns:Photographer	5	1	15
tns:Photographic_...	5	1	14
tns:l ocation	5	1	14

define items

The image shows a split-screen interface. The left panel, titled 'My workspace', contains a description, two buttons ('Import new archive' and 'Create empty dataset'), and two filter dropdowns ('Filter by Organization: DANS' and 'Filter by User: -- All uploaders --'). The right panel, titled 'Dataset Options', shows details for 'EuPhoto-Extended2.tgz.tgz' with a status of 'Data Upload successful'. A menu is open with 'Define Items' highlighted in orange, along with other options like 'Dataset Statistics', 'Show log', 'Delete Data Upload', and 'Downloads'.

Before you can make a mapping you need to Define the Item level in your dataset

exercise – defining the items



The screenshot shows a web interface titled "Define Items". On the left is a tree view of metadata classes under the namespace "tms:ImageMetadata". The "tms:Title" class is selected and highlighted in blue. On the right, there are three input fields for defining the item:

- Item Level:** /tms:ImageMetadata
- Item Label:** /tms:ImageMetadata/tms:DescriptiveMetadata/tms:Title
- Item Id:** /tms:ImageMetadata/tms:AdministrativeMetadata/tms:Identifier

At the bottom of the form, there are two buttons: "Reset all" (in orange) and "Done".

In this exercise you will define:

- the level at which item records begin in your dataset
 - A unique identifier for each item
 - A unique label for each item (this may be the identifier)
- Once completed click done



dataset options

Click on the name of the dataset in your workspace and then:

- Show items to see the records in their native form
- In the next exercise you will create a mapping

create new mapping

The image shows a screenshot of a web application interface with two main panels: 'Dataset Options' and 'Mappings'.

Dataset Options Panel:

- Header: Dataset Options
- Dataset Name: buccinTrombone.xml
- Status: Data Upload successfull
- Actions:
 - Show all items (1 Items)
 - Mappings** (highlighted)
 - Transform
 - Define Items (with a green checkmark)
 - Dataset Statistics
 - Show log
 - Delete Data Upload

Mappings Panel:

- Header: Mappings
- Filters: Locked mappings, Shared mappings
- Actions:
 - Create new mapping** (highlighted)
 - Upload mapping
 - Upload XSL
- Filter by Organization: DANS
- Section: Recent mappings

exercise – create mapping

- Give the mapping a name – it is a good idea to specify the filename, the schema that you are mapping to and the date of the mapping, for example “CARAREphoto_EDM_14Sept2020”
- select 'EMD' as the target schema

The screenshot displays a web application interface for creating a new mapping. The interface is divided into three main sections: 'Dataset Options', 'Mappings', and 'New mapping'.

- Dataset Options:** Shows a dataset named 'EuPhoto-Extended2.tgz' with a status of 'Data Upload successfull'. It includes a 'Show details' link and a list of actions: 'Show all items' (5 items), 'Mappings', 'Transform', 'Define Items' (with a green checkmark), 'Dataset Statistics', 'Show log', 'Delete Data Upload', and 'Downloads'.
- Mappings:** Features a 'Create new mapping' button (highlighted in blue), 'Upload mapping', and 'Upload XSL' buttons. It also includes a 'Filter by Organization' dropdown menu set to 'CARARE'.
- New mapping:** A form for creating a new mapping with the following fields:
 - Mapping Name:** CARAREphoto_EDM_14Sept2020
 - Create with schema:** EDM (selected from a dropdown menu)
 - Enable automatic mappings
 - Submit** and **Reset** buttons

Europeana Data Model

core concepts

- the provided cultural heritage object
- all properties from Dublin Core and Dublin Core terms
- properties from to EDM
- the web resource that is the digital representation
- subset of properties from Dublin Core and Dublin Core terms

the editor

The screenshot displays the 'the editor' interface for a mapping project. The top navigation bar includes 'My workspace', 'Dataset Options', 'Mappings', and the current mapping name 'Mapping: CARAREphoto_EDM_14Sept2020 (EDM)'. Below this, a blue header bar shows the mapping title and organization details: 'Organization: CARARE' and 'Created: 2020-09-14 17:45:10.354'. On the right side of the header, there are buttons for 'Preview', 'Navigation', 'Preferences', and 'Help'.

The main workspace is divided into two panels. The left panel, titled 'Search in input s', contains a search bar and a list of input datasets, including 'tns.ImageMetadata'. The right panel displays a table of mappings for the 'rdf:RDF' dataset. Each row represents a different class, with a 'structural' type selected in a dropdown menu. The classes listed are:

Class	Type	Actions
edm:ProvidedCHO	structural	+ ?
edm:WebResource	structural	+ ?
edm:Agent	structural	+ ?
edm:Place	structural	+ ?
edm:TimeSpan	structural	+ ?
skos:Concept	structural	+ ?
ore:Aggregation	structural	+ ?
pr15:License	structural	+ ?
svcs:Service	structural	+ ?

My workspace Dataset Options Mappings Mapping: CARAREphoto_EDM_14Sept2020 (EDM)

CARAREphoto_EDM_14Sept2020
EDM

Organization: CARARE
Created: 2020-09-14 17:45:10.354

Search in input schema

- tns:ImageMetadata
 - @xsi:schemaLocation
 - tns:AdministrativeMetadata
 - tns:Identifier
 - tns:MetadataURI
 - tns:PhotoURI
 - tns:Organisation
- tns:DescriptiveMetadata
- tns:RetrievalMetadata

rdf:RDF

- edm:ProvidedCHO
- edm:WebResource
- edm:Agent
- edm:Place
- edm:TimeSpan
- skos:Concept
- ore:Aggregation
- pr15:License
- svcs:Service

input schema area

- it shows all elements of the input schema
- the 'plus' elements can be expanded
- the 'I' show some statistics in the right-pane
- elements in green have unique values across the source files

mapping area

The screenshot shows a web application window titled "Mapping: CARAREphoto_EDM_14Sept2020 (EDM)". The interface includes a top navigation bar with buttons for "Preview", "Navigation", "Preferences", and "Help". Below the navigation bar, there is a list of classes and their mappings. The classes are listed on the left, and their mappings are shown in a central column. The class "edm:WebResource" is highlighted in yellow. Each class has a "structural" mapping. On the right side of each class, there are icons for expanding/collapsing, attributes, bookmarks, and help text.

Class	Mapping	Actions
rdf:RDF	structural	Expand, Attributes, Bookmark, Help
edm:ProvidedCHO	structural	Expand, Attributes, Bookmark, Help
edm:WebResource	structural	Expand, Attributes, Bookmark, Help
edm:Agent	structural	Expand, Attributes, Bookmark, Help
edm:Place	structural	Expand, Attributes, Bookmark, Help
edm:TimeSpan	structural	Expand, Attributes, Bookmark, Help
skos:Concept	structural	Expand, Attributes, Bookmark, Help
ore:Aggregation	structural	Expand, Attributes, Bookmark, Help
pr15:License	structural	Expand, Attributes, Bookmark, Help
svcs:Service	structural	Expand, Attributes, Bookmark, Help

- 'plus' on the left-hand side expands the element
- '@' opens the attributes
- 'star' adds a bookmark
- 'plus' on the right-hand side duplicates the element
- '?' opens the help text

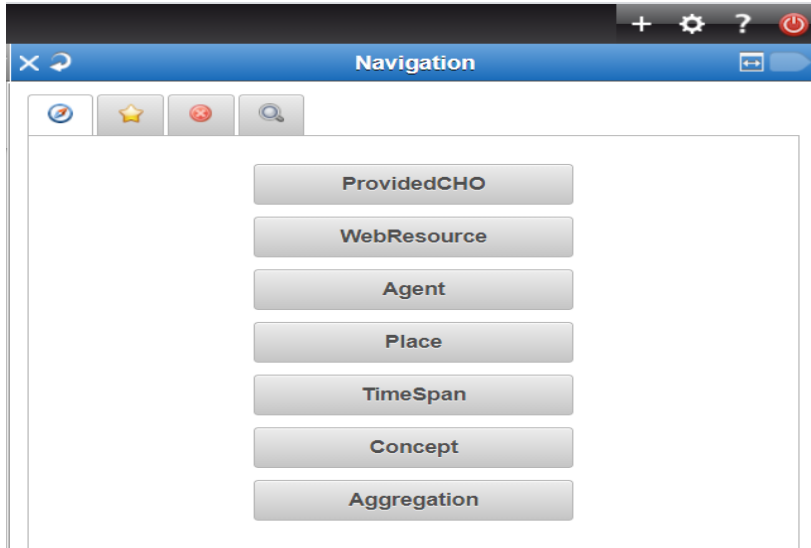
exercise – mapping the title

Map as follows:

- map tns:Title to dc:title
- tns:Title edm:ProvidedCHO/dc:title
- navigate in the input schema to the tns:Title
- tns:ImageMetadata/tns:DescriptiveMetadata/tns:Title
- expand the ProvidedCHO and locate dc:title
- drag the tns:Title to the dc:title

The screenshot shows the Protege software interface for mapping ontologies. The main window displays a list of properties from the target schema (dc:title, dc:subject, dc:type, dcterms:alternative) and the source schema (tns:Title). The tns:Title property is being mapped to the dc:title property. A yellow tooltip shows the path: / tns:ImageMetadata / tns:DescriptiveMetadata / tns:Title.

Property	Mapping
dc:source	unmapped
dc:subject	unmapped
dc:title	tns:Title
dc:type	unmapped
dcterms:alternative	unmapped



navigation pane

- You can also use the navigation pane to find an element in the target schema (that you want to map the source element to)

EDM – Provided CHO

Mapping: CARAREphoto_EDM_14Sept2020 (EDM)

Organization: CARARE
Created: 2020-09-14 17:45:10.354

Preview

Navigation

Preferences

Help

rdf:RDF

structural

edm:ProvidedCHO

structural

dc:contributor

unmapped

dc:coverage

unmapped

dc:creator

unmapped

dc:date

unmapped

dc:description

unmapped

dc:format

unmapped

dc:identifier

unmapped

dc:language

unmapped

exercise – mapping the properties

Map as follows:

tns:Identifier edm:ProvidedCHO/dc:identifier
tns:Title edm:ProvidedCHO/dc:title
tns:Description edm:ProvidedCHO/dc:description
tns:Place edm:ProvidedCHO/dc:spatial
tns:Subject edm:ProvidedCHO/dc:subject
tns:Related_Object
edm:ProvidedCHO/dc:relation
tns:Organization edm:ProvidedCHO/dc:rights
tns:Material edm:ProvidedCHO/dc:format
tns:Date edm:ProvidedCHO/dcterms:created
tns:Photographer edm:ProvidedCHO/dc:creator
"IMAGE" edm:ProvidedCHO/edm:type

The screenshot shows a mapping tool interface for the project "CARAREphoto_EDM_14Sept2020 (EDM)". The interface includes a search bar for the input schema, a list of input schema properties on the left, and a list of output schema properties on the right. The output schema is "rdf:RDF" and is currently in "structural" mode. The mapping table shows the following mappings:

Input Property	Output Property	Status
edm:ProvidedCHO	edm:ProvidedCHO	mapped
dc:contributor	unmapped	unmapped
dc:coverage	unmapped	unmapped
dc:creator	tns:Photographer	mapped
dc:date	unmapped	unmapped
dc:description	tns:Description	mapped
dc:format	tns:Material	mapped
dc:identifier	tns:Identifier	mapped

preview

Preview

Preview Options

Select a mapping:
CARAREphoto_EDM_14Sept2020

Select item views for the first and second column:
Item Mapped Item

Remember selected views

Item

The Parthenon
Parthenon South Peristyle
Caryatids
Parthenon
Parthenon East Pediment

Prev 1 Next Show: 151001000

- to preview the results of your mapping click on the preview button at the top of the mapping editor window.
- the preview options will appear on the right-hand side of the screen.
- use this to select the previews that you would like to see

preview & validation

The screenshot shows a software interface for previewing and validating XML data. The interface is divided into several sections:

- Preview Options:** Contains a dropdown menu for selecting a mapping (currently set to "CARAREphoto_EDM_14Sept2020") and a section for selecting item views for the first and second columns (currently set to "Item" and "Mapped Item").
- Item:** A table listing items, with "The Parthenon" selected. Below the table is a search bar labeled "Search everything".
- Mapped Item:** A text area displaying the XML content of the selected item. The XML is an RDF document with a namespace for administrative and descriptive metadata. It includes information about the creator (Petros Katsaros), the description (The west facade of the Parthenon), the format (High Quality Paper), and the location (Athens, Greece).
- Validation:** A green message box stating "XML is valid based on EDM".

```
<?xml version="1.0" encoding="UTF-8"?>
<tns:ImageMetadata xmlns:tns="http://www.example.org/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
<tns:AdministrativeMetadata>
  <tns:Identifier>108_0851b</tns:Identifier>
  <tns:MetadataURI>http://www.image.ntua.gr/~nsimou/
  <tns:PhotoURI>http://www.image.ntua.gr/~nsimou/Eul
  <tns:Organisation>IVML</tns:Organisation>
</tns:AdministrativeMetadata>
<tns:DescriptiveMetadata>
  <tns>Title>The Parthenon</tns>Title>
  <tns:Date>2013-09-14</tns:Date>
  <tns:Photographer>Petros Katsaros</tns:Photograph
  <tns:Photographic_Technique>Digital Camera</tns:Pl
  <tns:Location>Athens, Greece</tns:Location>
  <tns:Photographic_Practice>The photo was taken fo
  <tns:Material>High Quality Paper</tns:Material>
  <tns:Description>The west facade of the Parthenon
  <tns:Copyright>Ancient-Greece.org</tns:Copyright>
  <tns:Dimensions>400x323</tns:Dimensions>
  <tns:Actor>
    <tns:ActorName>Actor One</tns:ActorName>
    <tns:ActorRole>Role One</tns:ActorRole>
  </tns:Actor>
  <tns:Actor>
    <tns:ActorName>Actor Two</tns:ActorName>
    <tns:ActorRole>Role Two</tns:ActorRole>
  </tns:Actor>
</tns:DescriptiveMetadata>
<tns:RetrievalMetadata>
  <tns:Subject>Ancient Greece</tns:Subject>
  <tns:Subject>The Parthenon</tns:Subject>
  <tns:Actor>Unknown</tns:Actor>
  <tns:Place>Greece</tns:Place>
  <tns:Place>Athens</tns:Place>
  <tns:Related_Object>108_0853</tns:Related_Object>
  <tns:Related_Object>108_0868</tns:Related_Object>
  <tns:Related_Object>108_0874b</tns:Related_Object>
  <tns:Related_Object>108_0874f</tns:Related_Object>
</tns:RetrievalMetadata>
</tns:ImageMetadata>
```

XML is valid based on EDM

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF
  xmlns:crm="http://www.cidoc-crm.org/rdfs/cidoc_crm_
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:edm="http://www.europeana.eu/schemas/edm/"
  xmlns:foaf="http://xmlns.com/foaf/0.1/"
  xmlns:one="http://www.openarchives.org/one/terms/"
  xmlns:owl="http://www.w3.org/2002/07/owl#"
  xmlns:rdaGr2="http://rdvocab.info/ElementsGr2/"
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
  xmlns:skos="http://www.w3.org/2004/02/skos/core#"
  xmlns:svcs="http://rdfo.org/sioc/services#"
  xmlns:wgs4_pos="http://www.w3.org/2003/01/geo/wgs8
  <edm:ProvidedCHO rdf:about="108_0851b">
    <dc:creator>Petros Katsaros</dc:creator>
    <dc:description>The west facade of the Parthenon<
    <dc:format>High Quality Paper</dc:format>
    <dc:identifier>108_0851b</dc:identifier>
    <dc:relation>108_0853</dc:relation>
    <dc:relation>108_0868</dc:relation>
    <dc:relation>108_0874b</dc:relation>
    <dc:relation>108_0874f</dc:relation>
    <dc:rights>IVML</dc:rights>
    <dc:subject>Ancient Greece</dc:subject>
    <dc:subject>The Parthenon</dc:subject>
    <dc:title>The Parthenon</dc:title>
    <dc:type>IMAGE</dc:type>
    <dc:terms:created>2013-09-14</dc:terms:created>
    <dc:terms:spatial>Greece</dc:terms:spatial>
    <dc:terms:spatial>Athens</dc:terms:spatial>
    <edm:type>IMAGE</edm:type>
  </edm:ProvidedCHO>
</rdf:RDF>
```


EDM – WebResource

Mapping: CARAREphoto_EDM_14Sept2020 (EDM)

Organization: CARARE
Created: 2020-09-14 17:45:10.354

Preview

Navigation

Preferences

Help

⊖	☆ rdf:RDF	structural	⊕ ?
⊕ ⊙	☆ edm:ProvidedCHO	structural	⊕ ?
⊖ ⊙	☆ edm:WebResource	structural	⊕ ?
⊙	☆ dc:creator	unmapped	⊕ ?
⊙	☆ dc:description	unmapped	⊕ ?
⊙	☆ dc:format	unmapped	⊕ ?
⊙	☆ dc:rights	unmapped	⊕ ?
⊙	☆ dc:source	unmapped	⊕ ?
⊙	☆ dcterms:conformsTo	unmapped	⊕ ?
⊙	☆ dcterms:created	unmapped	⊕ ?

exercise mapping the WebResource

Map as follows:

tns:Dimensions edm:WebResource/dc:extent

tns:Copyright edm:WebResource/dc:rights

(Copyright:) tns:Photographer

edm:WebResource/dc:creator

tns:PhotographicPractice

edm:WebResource/dc:description

tns:PhotoUri edm:WebResource/@about

- put the phrase "Copyright: " before the dc:rights element
- map the PhotoUri to the 'about' attribute of the WebResource

Mapping: CARAREphoto_EDM_14Sept2020 (EDM)

Organization: CARARE
Created: 2020-09-14 17:45:10.354

Search in input schema

Source Property	Target Property
edm:ProvidedCHO	structural
edm:WebResource	structural
@rdf:about	tns:PhotoURI
dc:creator	tns:Photographer
dc:description	tns:Photographic_Practice
dc:format	unmapped
dc:rights	tns:Copyright
dc:source	unmapped
dcterms:conformsTo	unmapped

EDM -aggregation

- to link the ProvidedCHO and the WebResources
- aggregatedCHO links to the ProvidedCHO
- isShownBy links to the image WebResource

```
<edm:aggregatedCHO rdf:resource="the about of the ProvidedCHO"/>  
<edm:isShownBy rdf:resource="the about of the image WebResource"/>
```

exercise – create the ORE aggregation

- click the '@' of the ProvidedCHO and then
- In rdf:about map tns:Identifier (the identifier of the ProvidedCHO)
- Click the '@' of the ore:Aggregation
- in rdf:resource map tns:Identifier and then the plus button
- Add the suffix #ORE (to differentiate the identifier of the aggregatedCHO from the ProvidedCHO)

exercise - aggregation

- `tns:identifier ore:Aggregation/@about` (suffix with "#ORE")
- `"CARARE" ore:Aggregation/edm:provider`
- `tns:Organization ore:Aggregation/edm:dataProvider`
- `"CC-BY 3.0" ore:Aggregation/edm:rights/@resource`
- `tns:MetadataUri ore:Aggregation/edm:hasView/@resource`
- `tns:PhotoUri ore:Aggregation/edm:isShownBy/@resource`
- `tns:PhotoUri ore:Aggregation/edm:object/@resource`

The screenshot shows the Protege software interface for mapping the `CARAREphoto_EDM_14Sept2020` schema. The main window displays a list of properties and their mappings to the `tns` namespace. The properties are listed on the left, and the mappings are shown in the main area.

Property	Mapping
<code>ore:Aggregation</code>	<code>structural</code>
<code>@rdf:about</code>	<code>tns:Identifier</code>
<code>edm:aggregatedCHO</code>	unmapped
<code>@rdf:resource</code>	<code>tns:Identifier</code>
<code>edm:dataProvider</code>	<code>tns:Organisation</code>
<code>edm:hasView</code>	unmapped
<code>@rdf:resource</code>	<code>tns:PhotoURI</code>
<code>edm:isShownAt</code>	unmapped
<code>edm:isShownBy</code>	unmapped
<code>@rdf:resource</code>	<code>tns:PhotoURI</code>

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