# **USER MANUAL**

This document presents the MINT mapping tool functionality, part of it can be found at <a href="http://mint.image.ece.ntua.gr/">http://mint.image.ece.ntua.gr/</a> that is the MINT web page. However this section is the first documentation of the MINT-mapping tool that has been implemented within the EUScreenXL project including MINT's latest developments. It is divided in 4 sub-sections that correspond to the main actions that a content provider has to perform before submitting his/her content to Europeana.

User organization and registration.

Import of metadata.

Mapping.

Transformation – Publication to Europeana.

#### **USER & ORGANIZATION REGISTRATION**

The very first step that each provider has to make is to register himself/herself and also his/her institution – organization to the MINT mapping tool. The managers or the technical experts of the organizations that participate in the EUScreenXL are suggested to follow the next steps.

- 1. User registration without and organization to register themselves
- 2. Organization Registration & Management to register their organization(s)
- 3. User management (& User creation under an organization by its administrator) to create accounts for the users that work for their organization(s).

On the other hand the annotators of the organizations that participate in the EUScreenXL are advised to register themselves under an existing organization. If the organization they work for is not yet registered, then they are suggested to contact the manager or the technical expert of their organization.

#### 1 USER REGISTRATION

User registration can be done in two ways.

Self-registration from MINT Mapping Tool – The user registers himself/herself directly.

User creation under an organization by its administrator — The organization's administrator creates an account for a user.

### 1.1 Self-registration from MINT Mapping Tool

A user can register himself/herself by clicking on the blue link "I want to register" that appears in the start page of MINT http://mint-projects.image.ntua.gr/EUScreenXL



Figure 1". MINT Ingestion Server

This link directs to the following form that has to be filled in for registration.

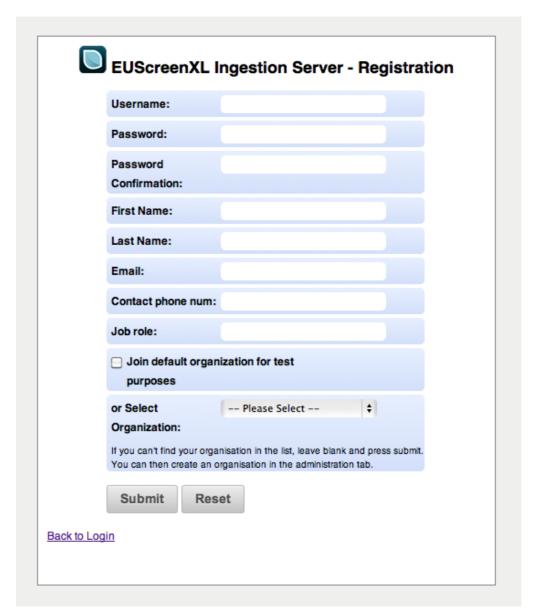


Figure 1": Registration form

### At this point you can

Join the default organization (NTUA) for test purposes – This option was implemented for dissemination purposes and it is recommended to people that do not participate in the EUScreenXL project and they just want to check the functionality of the MINT mapping tool.

Select one of the existing organizations – This option is recommended to users that work for an organization that participates in the EUScreenXL project. If you select an organization from the drop down list, an email will be sent to its administrator to assign you access rights.

The organization has not been registered yet – This option is recommended to users that work for an organization that participates in the EUScreenXL project, but it has not been registered. By leaving the selected organization blank (i.e. set to "-- Please Select –") you can register and then create an organization.

### 1.1.1 User registration without an organization

After registering without an organization you are logged in to MINT. On the left, under the pane MINT Home -that is the central functionality pane of MINT mapping tool- the following options appear

My workspace – By selecting it you can manage your imports. At this point it is not activated because you are registered under no organization, and therefore the creation of an organization is first required.

My account – By selecting it you can edit your account details.

Administration – By selecting it you can create an organization and users that work for it.

*Locks* – By selecting it you can unlock mappings locked by other users. Not available at this point

*Mint Documentation* – By selecting it you are directed to the MINT documentation page.

At this point you have to create an organization by clicking on the Administration button and then selecting "Create new organization" as shown below (see Section Organization Registration & Management).

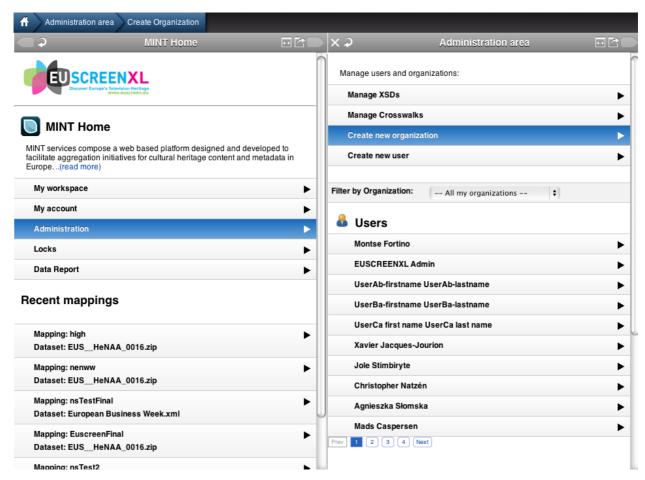


Figure 1": Create organization

#### User registration under an existing organization

After registering under an existing organization you are logged in to MINT. On the left, under the pane MINT Home -that is the central functionality pane of MINT mapping tool- the following options appear.

My account – By selecting it you can edit your account details.

*Mint Documentation* – By selecting it you are directed to the MINT documentation page.

Note that at this point only these options appear because the administrator of the organization you registered for has not assigned access rights to you.

### 1.1.2 User management (& User creation under an organization by its administrator)

For creating a new user or activating a user registered for the organization you are administrating log in to MINT mapping tool and select "Administration" for the MINT Home pane. This opens the Administration Area in which you can create new users, new organizations and also edit or delete the existing users and organizations.

For creating a new user select "Create new user" and then fill in the following form that appears. A user can have one of the following roles.

**Administrator**: This user can create/update/delete users and children organizations for the organization he/she is administering. He/She can also perform uploads and all available data handling functions provided by the system.

**Annotator**: This user can upload data for his/her organization (and any children organizations) and perform all available data handling functions (view items, delete items, mappings etc) provided by the system, apart from final publishing of data.

**Annotator & Publisher**: This user has all the rights of an annotator as well as rights to perform final publishing of data.

**Data Viewer**: This user only has viewing rights for his/her organization.

**No role**: A user that has registered for an organization but has not yet been assigned any rights.

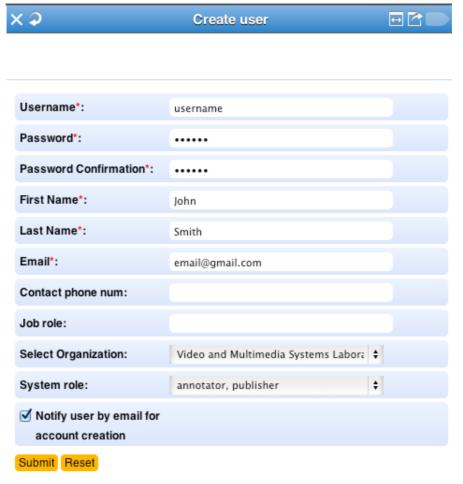


Figure 1": Create user form

You can delete or edit -to assign a role to- an existing user by selecting it and pressing the "Delete" or "Edit" button respectively.

#### 1.2 Organization Registration & Management

For creating a new organization or the children organizations of an existing organization you have to register yourself without an existing organization (see Section User registration without an organization) or to be the administrator of the organization you want to edit. Log in to MINT mapping tool and select "Administration" from the MINT Home pane. This opens the Administration Area in which you can create new users, new organizations and also edit or delete the existing users and organizations.

For creating a new organization select "Create new organization" and then fill in the following form that appears. It is important to note at this point that every organization must have a primary contact user (i.e. an administrator). For the selection of the primary user a drop down list appears with all the registered users in the organization.

In addition an organizations follow a hierarchical structure. Each organization may be divided in sub-organizations, while each sub-organization can be divided in further sub-organizations, forming a tree-like structure. The users registered in parent organizations can view the imports and mappings of users registered in their children organizations (see Section Dataset Options) while administrators of a parent organization have also administrative rights to the children organization. For the selection of the parent organization a drop down list appears with the organizations administrated by you.



Figure 1": Create organization form

You can delete or edit an existing organization by selecting it and pressing the "Delete" or "Edit" button respectively. The following figure illustrates the edit form for an organization.



Figure 1": Edit organization

# 2 IMPORT OF METADATA

To import your metadata to the MINT mapping tool, you have to log in and to select "My workspace" from the MINT Home pane. Note that your user role must have been assigned to annotator or higher (see Section User management (& User creation under an organization by its administrator)) otherwise this option will not appear there.

From the workspace pane you can view all the datasets per organization and per user. You can import a new archive by selecting the respective button and filling the following form depending on the upload type. Note that if you have access to more than one organization, you need to specify for which organization you are performing the upload by selecting it from the drop down list. Finally, a user can select the "This import conforms to" together with the appropriate selection of a schema in the case that his/her upload already conforms to the selected schema and no mapping is necessary.



Figure 1": Upload form

# **HTTP Upload**

Allows uploading your data directly from your web browser. Simply click "Upload a file" button and select the file containing your data. You can upload XML, CSV files or zip files containing the XML and CSV files.

Note that if you upload a CSV file, you have to tick on "This is a CSV upload" check box and specify the delimiter as shown in the figure below. It is also important to note at this point that only encoding UTF-8 is supported.<sup>1</sup>

<sup>1</sup> Content providers can check the encoding of their exports either by using software like <a href="http://encodingchecker.codeplex.com/">http://encodingchecker.codeplex.com/</a>, a unix command line (file -bi) or a text editor. However since the validity of



Figure 1": CSV upload

*IMPORTANT NOTE*: The MINT ingestion tool operates mainly on the "upload" level of the metadata files. Every import that has at least one file is considered as a new upload of metadata and handled in the same way as if it had more than one. For this reason it is encouraged to use zip archives with many XML or CSV files compressed and limit the ingestion of single XML or CSV files only for testing purposes.

#### Remote FTP/HTTP Upload

Uploads a file from a remote FTP/HTTP location. Useful when your files are available already on a remote server.

#### **OAI URL**

The MINT ingestion tool has an integrated OAI-PMH V2 harvester which can be used to access data stored in a remote server that supports this protocol. You have to fill in the base URL of the OAI-PMH repository and then click on the button next to it in order to check its validity. You can also fetch data based on a specific date interval as it is defined by the OAI-PMH protocol. Finally, you can fetch the OAI-PMH sets and namespaces that the remote repository supports and choose from them the set and type of metadata you wish to import.

#### 2.1 Dataset Options

After importing a file to the MINT mapping tool it can be viewed in "My Workspace pane" either with a green tick ( $\checkmark$ ) that indicates that the import was successful or with a red x ( $\checkmark$ ) that indicates a problem in the upload as shown in the following figure.

the above is questionable providers are recommended to set the encoding to UTF-8 during the export of their metadata from their management systems.

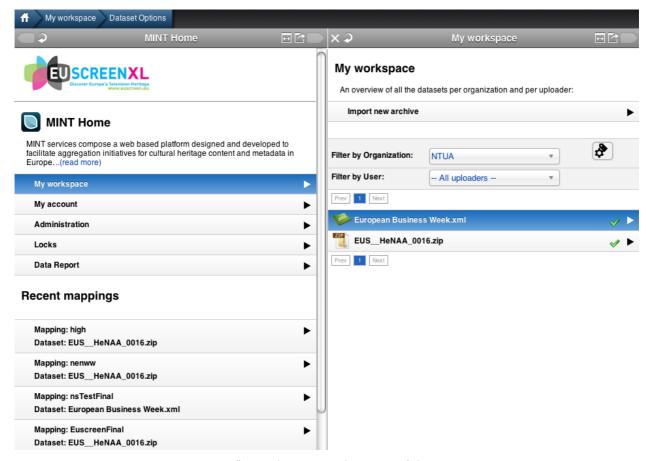


Figure 1": Workspace with successful imports

# 2.1.1 Wrong Import

By selecting an unsuccessful import you can get feedback on the error occurred by clicking on the "Show Log" as illustrated in the following figure.

The Define Items and Dataset Statistics options appear there but they don't work since the import was not successful and the user that encounters this situation is suggested to click on "Delete Data Upload" to delete the upload.

# 2.1.2 Successful import

When a dataset is imported successfully the following options appear in the "Dataset Options" pane.

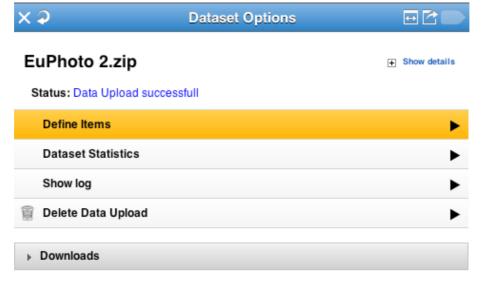


Figure 1" Successful upload dataset options

#### **Define Items**

By clicking on the "Define Items" the following pane appears. On the left part of the panel there is a tree representing the structure of the XML file(s) you have imported. Items with a "+" on the left can be expanded, while items with a "-" can be collapsed. By clicking on the information icon (1) on the left of each node you get information and statistics about the values of this node.



Figure 1": Information about the values of a node

Note that on the top of the tree there is a text field that can be used to search the tree structure of the XML file(s) you have imported. You have to set the following.

**Item Level** - Define the root node of every item. Drag & drop a node from the tree to the left in the box below, to set the item level.

**Item Label** - Define the label that will be used as the Item name in the Item Overview. Drag & drop a node from the tree to the left in the box below, to set the item label.

**Item Id** - Define the node that will be used as the Item native id. Drag & drop a node from the tree to the left in the box below, to set the item id.

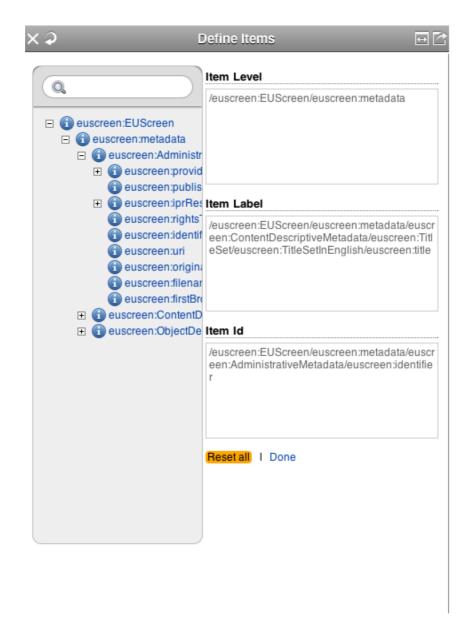


Figure 1": Define Items

After setting the above click on Done.

It is important to note at this point that while the "Define Items" action is mandatory for an XML import and Item level and at least one of item label or item id must be set in order to proceed this is not the case for CSV imports. The reason why is because a CSV file is converted to an XML file during the import and therefore the root item is set during the conversion. Hence the Define Items pane looks like the figure below for a CSV import. Users that import CSV files, however are highly encouraged to also define the Item label and Item Id of their collections because that will allow them to have better control of their metadata.

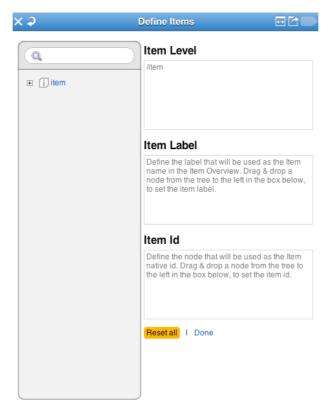


Figure 1": Define items for a CSV import

After having defined the items the following options appear in the "Dataset Options" pane.

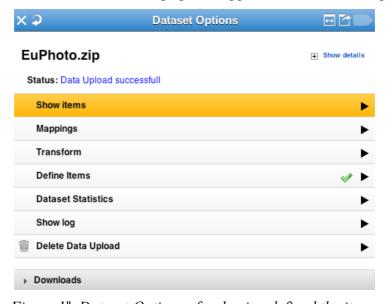


Figure 1": Dataset Options after having defined the items

### **Show Items**

After having defined the items (see Section Define Items) by selecting the "Show Items" you can view the items you have uploaded as shown below (click on the view options to show or hide the view options menu).

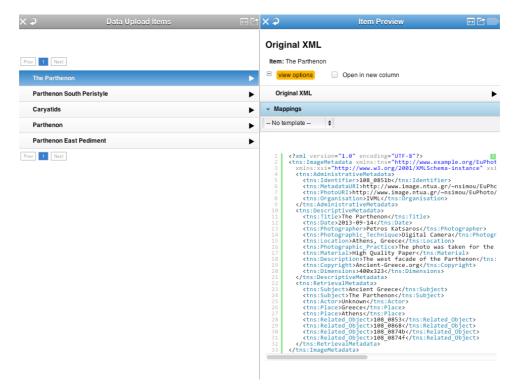


Figure 1": Show Items

If you select "Show Items" after you have implemented a mapping (see Mapping) then you can select it and the following options appear.

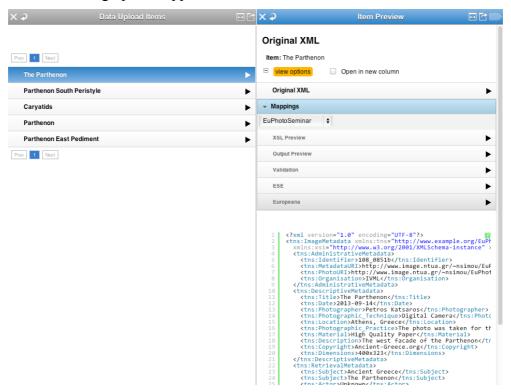


Figure 1": Show items after having implemented a mapping

**XSL Preview** – Shows the XSL generated that transforms the import metadata to intermediate schema.

Output Preview – Shows the metadata transformed to the intermediate schema.

**Validator** – Shows the validation output for the metadata transformed to the intermediate schema.

**ESE** – Shows the metadata transformed to ESE.

**Europeana** – Shows the items as it will appear in the Europeana portal after its publication.

#### **Dataset statistics**

After having defined the items (see Section Define Items) by selecting the "Dataset statistics" you can view statistics about your import. In detail you can see all the xpaths of the imported dataset together with their distinct values count and the average length of their values, while by clicking on an element you can browse its values.

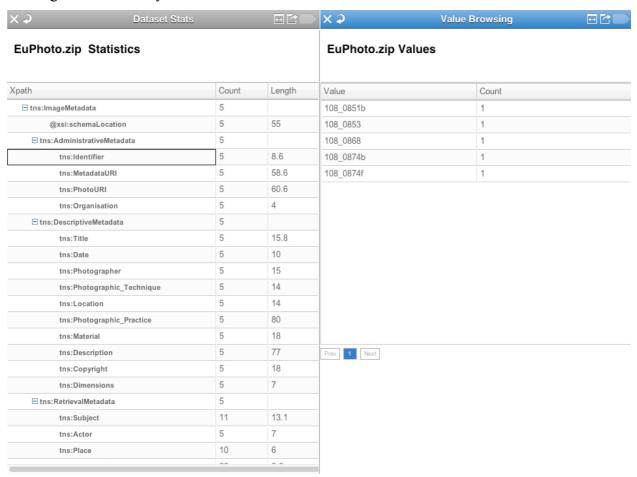


Figure 1": Dataset statistics

#### 3 MAPPING

After having defined the items (see Section Define Items) select the "Mappings" for the "Dataset Options". This opens the Mappings pane in which you can create a new mapping, upload a mapping or an XSL and manage the existing mappings.

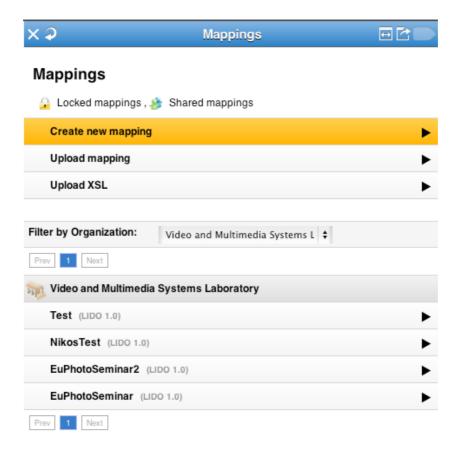


Figure 1": Mapping options

# 3.1 Create new mapping

By selecting the Create new mapping option the "New Mapping" pane appears that is shown below.

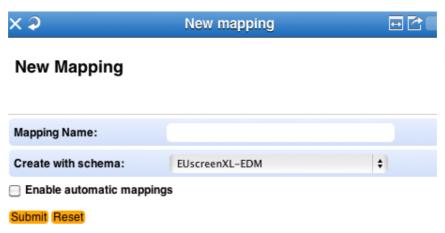


Figure 1": New mapping

There you set the mapping name and whether you want to enable or not automatic mappings and you press submit to be directed in the mapping tool shown in the following figure. The automatic mappings feature automatically maps the xpaths of the input schema to those of the target schema that are exactly the same. So users are advised to use this feature only if their input metadata are already in EDM.

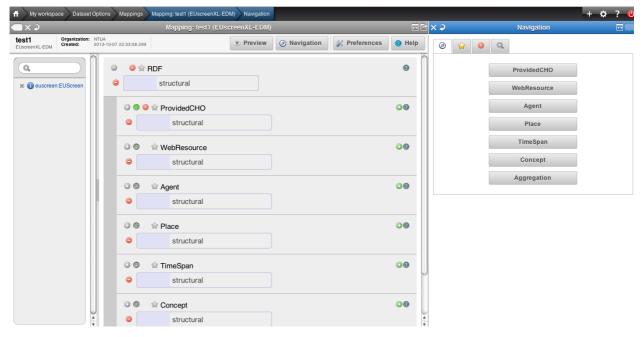


Figure 1": The mapping tool

The structure that corresponds to a user's specific import is visualized in the mapping interface as an interactive tree that appears on the left hand side of the editor (see figure below). The tree represents the snapshot of the XML schema that is used as input for the mapping process. The user is able to navigate and access element statistics and also to search the tree by using the text field on the top.



Figure 1": Input schema area

On the right hand side, buttons correspond to high-level elements of the target schema (see Figure 1 - if not visible click on button on the top right of the mapping tool) and are used to access their corresponding sub-elements. These are visualized on the middle part of the screen as a tree structure of embedded boxes, representing the internal structure of the complex element. The user is able to interact with this structure by clicking to collapse and expand every embedded box that represents an element, along with all relevant information (attributes, annotations) defined in the XML schema document. To perform an actual (one to one) mapping between the input and the target schema, a user has to simply drag a source element from the left and drop it on the respective target in the middle.

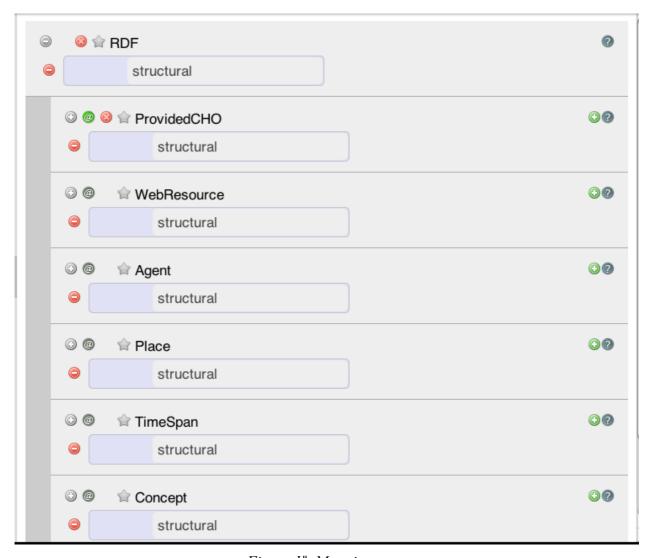


Figure 1": Mapping area

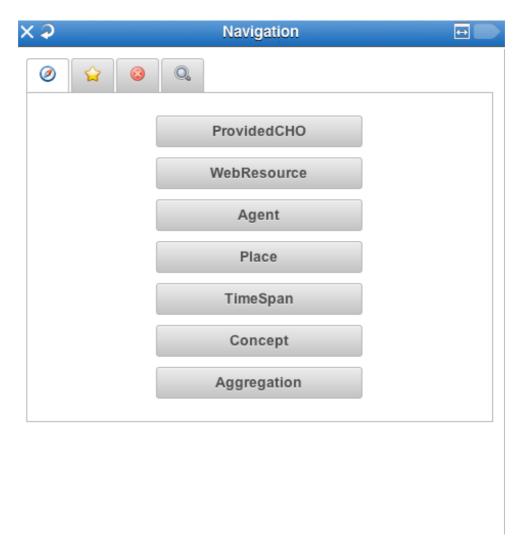


Figure 1": Navigation area - Schema navigation

For the needs of the EUScreenXL project and for assisting providers that are not familiar with EDM, bookmarks have been created to the EDM elements that will accommodate the EUScreenXL mandatory fields as decided in the content seminar (see Appendix I). Thus by clicking on the star button (()) on the "Navigation" pane, the provider can view the bookmarks. Then he/she can click on the bookmark, named after the EUScreenXL mandatory fields, to see the respective EDN element and easily map a value from his/her metadata.

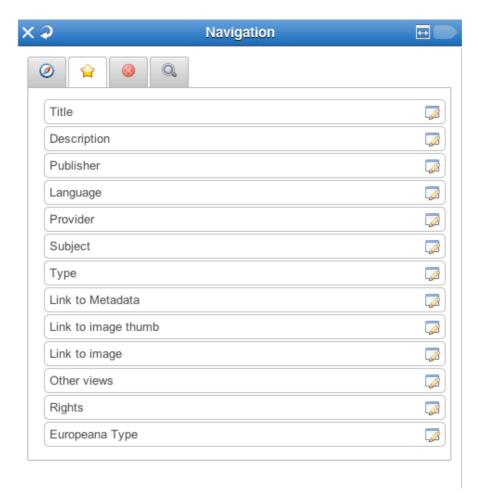


Figure 1": Navigation area - Bookmarks navigation

Finally, a third way of exploring the target schema is available and this is by searching the xpaths. The provider can click on the button on the Navigation pane and then by entering a string in the text field he/she can perform a search in the target schema xpaths.

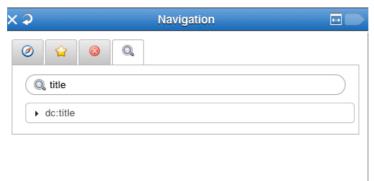


Figure 1": Navigation area - Search target schema

# 3.2 Upload mapping

By selecting the Upload mapping from the "Mappings" pane the following pane appears where the user can select a mapping to upload.

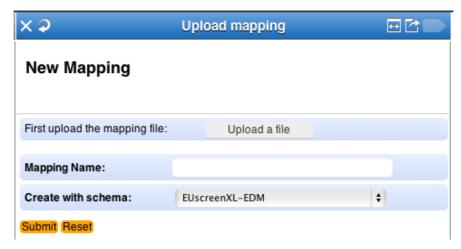


Figure 1": Upload mapping

After pressing the submit button the mapping with the name you specified appears in the "Mappings" pane and the mapping tool opens.

# 3.3 Upload XSL

By selecting the Upload XSL from the "Mappings" pane the following pane appears where the user can select an XSL to upload.

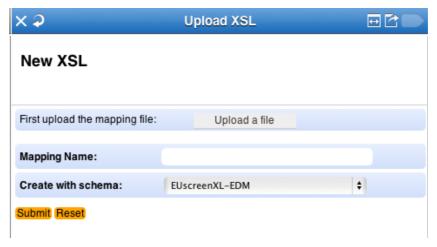


Figure 1": Upload XSL

After pressing the submit button the XSL with the name you specified appears in the "Mappings" pane and the XSL editor appears as shown below. It is important to mention at this point that an XSL cannot be edited visually as a mint mapping. XSLs are edited through the text editor shown below.

```
X 🔎
                                                      □ 🖆
   1 k?xml version="1.0" encoding="UTF-8"?>
   2 <xsl:stylesheet exclude-result-prefixes="tns xsi" version=
      xmlns:lido="http://www.lido-schema.org"
       xmlns:tns="http://www.example.org/EuPhotoSchema"
       xmlns:xalan="http://xml.apache.org/xalan"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xm
   6
       <xsl:template match="/">
   8
         <lido:lidoWrap>
            <xsl:apply-templates select="/tns:ImageMetadata"/>
   9
  10
         </lido:lidoWrap>
      </xsl:template>
  11
       <xsl:template match="/tns:ImageMetadata">
  12
         do:lido>
  13
  14
           <lido:lidoRecID>
  15
              <xsl:attribute name="lido:type">Photography</xsl:a</pre>
            do:descriptiveMetadata>
  16
  17
             <lido:objectClassificationWrap>
  18
               do:objectWorkTypeWrap>
  19
                 <lido:objectWorkType>
  20
                   do:term>
                     <xsl:attribute name="lido:addedSearchTerm":</pre>
  21
  22
                 </lido:objectWorkType>
  23
               </lido:objectWorkTypeWrap>
               do:classificationWrap>
  24
  25
                 do:classification>
  26
                    <xsl:attribute name="lido:type">europeana:type
  27
                  </lido:classification>
               </lido:classificationWrap>
  28
  29
              </lido:objectClassificationWrap>
  30
              do:eventWrap>
  31
Submit
```

Figure 1": The XSL editor

### 3.4 Mappings Management

By selecting a mapping from the Mapping pane the following pane appears that allows you to

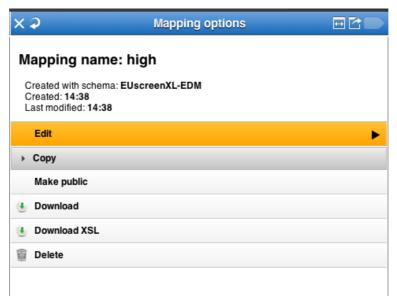


Figure 1": Mappings management

Edit a mapping – This action opens the mapping tool to edit the mapping.

Copy a mapping – This action creates a copy with the name specified of the mapping.

Make public/Make private — This action makes the mapping public (i.e. visible to all the users registered in all the organizations) or private (i.e. visible to all the users registered for parent organizations).

**Download** – This action downloads the MINT mapping.

**Download XSL** – This action downloads the XSL only.

**Delete** – This action deletes the mapping.

# 3.5 Mappings

### **Mapping environment**

As mentioned in Section Create new mapping one way of mapping an element from your input schema to one of the target schema is the Xpath mapping that is performed simply by dragging the xpath from the input tree and dropping it to the desired element (within the area named unmapped – see figure below) of the mapping area.



Figure 1": Unmapped element in the mapping area

As we can see on the top of each element in the mapping area – the schema prefix and the element name are shown- there are some indicators that are shown in the following table.

Icon	Description
+	Appears on the top left of an element to indicate that it is
	complex and thus by clicking on it you can view its sub-
	elements.
@	Appears on the top left of an element to indicate that it has
	attributes. By clicking on it the attributes are displayed.
@	Appears on the top left of an element to indicate that it has
_	mandatory attributes that have not been assigned yet. By
	clicking on it the attributes are displayed.
@	Appears on the top left of an element to indicate that attributes
	have been assigned to it.

Icon	Description
<b>3</b>	Appears on the top left of an element to indicate that it is
_	mandatory and a value has to be assigned to it.
<b>(2)</b>	Appears on the top left of an element to indicate that a value
_	has been assigned to it.
	Appears on the top left of an element to indicate that it is not in
5~4	the bookmarks. By clicking on it the star turns yellow and the
	element is added in the bookmarks.
$\hookrightarrow$	Appears on the top left of an element to indicate that it is in the
	bookmarks. By clicking on it the star turns grey and the
	element is removed from the bookmarks.
(1)	Appears on the top right of an element to indicate that its
_	cardinality can be greater than 1. By clicking on it a new
	element is added.
2	Appears on the top right of all elements. By clicking on it you
	get the schema's documentation about that element.

Table: Mapping tool informative icons

After mapping an xpath from the input schema the mapping area turns as shown below and the xpath selected from the input schema is highlighted in bold.



Figure 1": An element the has been mapped in the mapping area

As it can be observed additional buttons appear that are shown in the following table and discussed in the following sections.

Icon	Description
Æ	Appears on the left of the mapping to indicate that no
	conditional mapping is used. By clicking on it conditional
	mapping is activated.
<b>60</b>	Appears on the left of the mapping to indicate that a
	conditional mapping is used. By clicking on it the conditional
	mapping is de-activated.
A	Appears on the left of the mapping to indicate that no
	functional mapping is used. By clicking on it the functional
	mapping is activated.
G)	Appears on the left of the mapping to indicate that a functional
	mapping is used. By clicking on it the functional mapping is
	de-activated.
	Appears on the left of the mapping to indicate that no value
	mapping is used. By clicking on it the value mapping is
	activated.

Icon	Description
	Appears on the left of the mapping to indicate that a value mapping is used. By clicking on it the value mapping is deactivated.
<b>(</b>	Appears on the top left of a mapping. By clicking on it concatenate mapping is activated.
	Appears on the top left of a mapping. By clicking on it you remove the mapping.

Table: Mapping tool functional icons

If you leave the cursor above the mapping the following shortcuts to the input tree and xpaths values appear.



Figure 1": Shortcuts to input tree and values from mapping

# Constant value mapping

By double clicking on the unmapped area you can define a constant value mapping. You can type a constant value in the provided text field. The value appears in the mapping area and in the resulting XML files. This type of mapping is useful for text that is intended to appear in all transformed items. Constant value mappings can be combined with XPath mappings to construct specific values such as URLs.

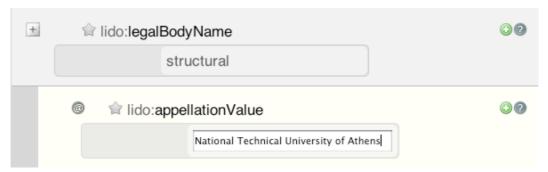


Figure 1": Constant value mapping

### **Concatenate mapping**

By clicking on the icon you can perform a concatenate mapping i.e. to combine more than one mapping for producing a new mapping. The resulting value that appears in the XML files is the concatenation of the xpath's values. In the following example the value from the xpath tns: Title is appended to the constant mapping "Collection for Ancient Greece".



Figure 1": Concatenate mapping

### Value mapping

By clicking on the icon you can perform a value mapping i.e. to map specific values of your input metadata to specific values that you set. On the top of the pane you specify the input value of the selected element or you can browse values by clicking on button, while in the field below you specify the desired output value. After that you add the value mapping link and the mapping you've entered appears in the text area below. You can remove a value mapping by clicking on the button on the right of it. Value mapping is very useful when you want to normalize your data.



Figure 1": Value mapping editor

# **Functional mapping**

By clicking on the button you can perform a functional mapping i.e. to transform the value from an input xpath by applying a string manipulation function to it. On the top of the pane you select the function to apply, below it you can set its parameters, and in the table below a preview of the results is illustrated. Currently the following functions are supported

**Substring** – You set the start and the end index.

**Substring after** – You set the substring of the original string after which the value is taken.

**Substring before** – You set the substring of the original string before which the value is taken.

**Substring between** – You set the substrings of the original string after and before which the value is taken.

**Split** – You set the delimiter for tokenization and the start index of the original string.

**Tokenize content and generate an element per content** – You set the delimiter for tokenization.

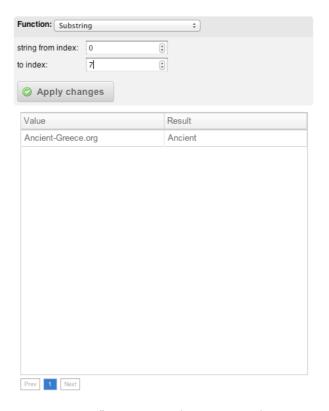


Figure 1": Functional mapping editor

### **Conditional mapping**

By clicking on the button you can perform a conditional mapping i.e. to transform the value from an input xpath by using conditions. On the left the drop down menu with the type of condition appears that can be AND or OR. A condition is set using one of the following functions. (Note the xpath used in the condition can be different that the one that is used to the target element value – see the following figure)

**Is equal to** – sets a condition that is satisfied when the given xpath is equal to the given value

**Is not equal to** – sets a condition that is satisfied when the given xpath is not equal to the given value.

**Exists** – sets a condition that is satisfied if the given xpath exists. It is important to note at this point that the fact the xpath of an element exists in the input tree does not mean that it exists for all the data in the imported collection. (In other words the input tree shown on the left aggregates all the possible xpaths found in the input data).

**Does not exist** – sets a condition that is satisfied if the given xpath does not exist. It is important to note at this point that the fact the xpath of an element exists in the input tree does not mean that it exists for all the data in the imported collection. (In other words the input tree shown on the left aggregates all the possible xpaths found in the input data).

**Contains** – sets a condition that is satisfied if the given xpath contains the given value.

**Does not contain** – sets a condition that is satisfied if the given xpath does not contain the given value.

**Starts with** – sets a condition that is satisfied if the given xpath starts with the given value.

**Does not start with** – sets a condition that is satisfied if the given xpath does not start with the given value.

**Ends with** – sets a condition that is satisfied if the given xpath ends with the given value

**Does not end with** – sets a condition that is satisfied if the given xpath does not end with the given value.

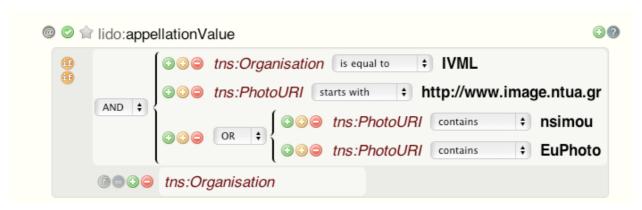


Figure 1": Conditional mapping

In the figure above we see a conditional mapping with many clauses, that is interpreted in the following way. If the value of xpath tns:Organisation **is equal to** "IVML" and the value of xpath tns:PhotoURI starts with "http://www.image.ntua.gr" and either the value of xpath tns:PhotoURI contains "nsimou" of EuPhoto then the value of the xpath tns:Organisation will be mapped to the xpath lido:appellationValue of the target schema.

#### **Structural mapping**

Structural mappings are a special category of mapping. As you may have noticed in the complex types of the target schema illustrated in the mapping area text structural appears instead of unmapped. At this area you can map complex elements of your input metadata. Let's assume you have a complex element named "B" in your metadata – having "C" as a child – and B appears 3 times in only one record. Also assume complex element "BTarget" – having "CTarget" as a child – in the target schema. If you make a structural mapping of B (by dragging it and dropping it) to "BTarget" and then you map "C" to "CTarget" 3 "BTarget" complex elements will appear in the output XML having "CTarget" as child and having the values of "C".

#### **Mapping Using Terminologies**

Not yet defined.

# 3.6 Europena Preview



Figure 1": The Europeana preview

#### 4 TRANSFORMATION

After having performed mappings select the "Transform" for the "Dataset Options". The "Transform" pane appears from which you can select a mapping for doing the transformation.



Figure 1": Transform dataset

After that the transformation the icon option appears next to the dataset and prepare for publish option appears to the "Dataset Options" pane.