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1 Introduction

The scope of this document is to explain in a detailed way the portal finalized for the APEnet project in technical terms and goes directly linked to the launch of the final version of the portal as a technical explanation of it. In this document it is possible to find not only the technical infrastructure details of the parts on which it is built, but also the whole infrastructure used for the development process of it.

The development process of the APEnet project has been a long way until arrive at this time, the end of the project, and it has required different technical items during its life which the only objective was to provide the easiest manner for the tasks following, testing and development itself.

Due to the fact that technically it was possible to deal with every point raised as well as the weekly technical meetings which provided us the current situation of the development at any time and the possibility to anticipate about possible delays or problems, has contributed to the success of the project.

Furthermore, in this document, the reader could find some explanations for the functionalities available to the user with the visual help of some screenshots, divided into the main applications: the portal and the dashboard called front-end and back-end.





2 Human infrastructure

The human part of the project has been one of the main points which have been made possible the success of the Archives Portal Europe.

If the technical infrastructures have been supported only by the Spanish State Archives, the human resources devoted to the WP have been disseminated all around Europe. The Spanish State Archives (leader of the WP2) have devoted six people to work full time and only for the Portal, but the other WP2 APEnet participants (Direction générale des Patrimonies – Service interministériel des Archives de France, German Bundesarchiv, Dutch Nationaal Archief, Polish Head Office of National Archives, Swedish Riksarkivet, and the National Archives of Ireland) human resources have work very hard in the Portal too, both in the front and back end.

Here it is the member relation which contributes to success of the Archives Portal Europe in 2011 and the fist fifteen days of 2012:

| APEnet participant number | Participant full name | Country | Role and Human resources |
|---------------------------|---|--------------------|--|
| 1 | Archivos Estatales | Spain | Jara Alvarez Aller (WP2 leader) Eloy García Almadén Eduardo Higuero Plaza Patricia Bermejo Monroy Maiche García González Paul Sordo Corrales Marga Conde Valderrama (WP6 leader) Luis Enseñat Calderón (DC) |
| 3 | Direction générale des Patrimonies – Service interministériel des Archives de France | France | Yoann MoranvilleLucile Grand (WP4 leader) |
| 4 | Bundesarchiv | Germany | Angelika Menne-Haritz (WP1 leader) Kerstin Arnold Susanne Reick |
| 6 | Nationaal Archief | The Netherlands | Wim van Dongen (WP3 leader)Bastiaan VerhoefGo Sugimoto |
| 7 | Head Office of National Archives | Poland | ■ Damian Kusnik |
| 9 | Riksarkivet | Sweden | Peder Ander (WP5 leader)Susanne Danelius |





| 14 | National Archives of Ireland | Ireland | ■ Elizabeth McEvoy |
|----|---------------------------------|---------|--------------------|
|----|---------------------------------|---------|--------------------|





3 Results

3.1 Back – end (Dashboard)

The content information at <u>archivesportaleurope.eu</u> is accessible thanks to the backend application called as dashboard. The main goal of this part is to allow the project partners to upload their data and to transform them properly into the data models defined by APEnet and the three layers concept, in order to normalize the whole structure in the backend and to be able to provide a seamless presentation in the frontend.

The development of this part, which is conceptually and physically detached from the public portal itself as it is explained in the infrastructure production part above, consisted in establishing a structure as much secure as possible to be accessed by partners from their own local systems in order to protect the content itself and their user accounts. This initial study passed different phases until its finalization towards the current state: 17 user accounts stored in the dashboard corresponding to the partners associated to the APEnet project who manage almost millions of descriptive units. All processes are conducted under completely safe conditions thanks to different security facilities when a user registers for the dashboard respectively logs in the dashboard, such as the captcha implementation, the "forgotten password" rules and of course the encrypted communication and secure identification offered by Hypertext Transfer Protocol Secure (https) implementation. The dashboard application has also successfully passed some security audits with the result: "no vulnerabilities or risks found in application". That audit not only concerned the application itself but also the technical infrastructure (servers, communications and router devices).

3.1.1 The archival landscape and the content provider's information via EAG schema

In terms of functionality, the well understanding of the three layers concept for the presentation of archival content as created by APEnet, can help to understand the way, in which the dashboard is built, and the way, in which the files must be uploaded by the partners due to this. The three layers consider:

- firstly, the definition of the archival landscape for each partner with the information of the institutions linked to it,
- secondly, the definition of each institution's holding guide(s), possibly linked with additional information on the creators of each holding and
- thirdly, the finding aids with the detailed descriptions of the constituent fonds and collections, probably including links to digital archival objects.

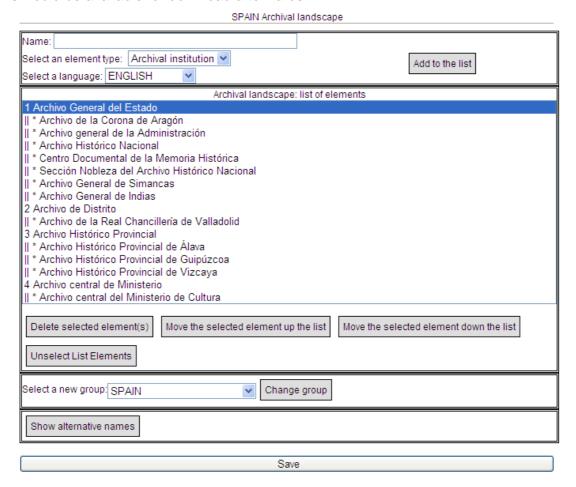
The dashboard is based on this concept, which implies that the current partners should first introduce their country's archival landscape, then the descriptions of the different institutions listed there, and finally, the content (holdings guide(s), finding aids or source guides) for each institution.

The definition of the archival landscape consists in letting the user define the whole structure of the institutions included as a simple list or by distributing them among groups, subgroups etc. This nested distribution is enabled by an EAD file which the





user could either deliver directly to the dashboard or build it thanks to the editing facilities. If the user selects the last one, the system will build the EAD automatically; this would be available for download afterwards.



Web form within the dashboard to create and edit one country's archival landscape

Once the archival landscape has been set up, the other part of the first layer could be defined: the description of each institution, which is mentioned in the archival landscape. This description is provided by an EAG file, which the user could as well deliver to the dashboard directly or use the form implemented to create a new one (see figure 3 below). The EAG document created via the dashboard can also be downloaded and used by partners.





In order to be able to upload content to the Archives Portal Europe, please fill in this form. Please be aware that the name you submit (field Archival institution name) should be identical with the one given in the archival landscape Name of the archival institution*: Archivo de la Corona de Aragón Parallel name of the archival institution*: Arxiu de la Corona d'Aragó Identifier of the archival institution*: Country*: España BARCELONA City/Town*: Postal code*: 08018 Street* Almogávares, 77 / Comtes, 2 Telephone*: 934854318 E-mail address*: mailto:aca@mcu.es Webpage*: www.mcu.es/archivos/MC/ACA/index.html Number of working places in the reading room*: 64 Extent of archival holdings*: 5768.0 Accesible to the public*: yes 🕶 Facilities for handicapped people available*: yes 🕶 Library available*: yes 🕶 Restoration laboratory available*: yes 🕶 Reproduction services available*: yes Y Information automation available*: yes 💙 Add repositorguide Validate Cancel

Web form within the dashboard to create and edit one institution's description

There is also a functionality added in the release of November which allows user to change the institution name, even when the institution has content indexed. The process changes this name everywhere in the system with just press the button.

| CHANGE INSTITUTIONS NAME | | | |
|--|---------------|--|--|
| Warning: Remember that those finding aids and holdings guides which belong to this institution will be dele search index and you will have to initiate their re-indexation manually afterwards. | eted from the | | |
| Current name:: Archivo de la Corona de Aragón New name:: Validate Cancel | | | |

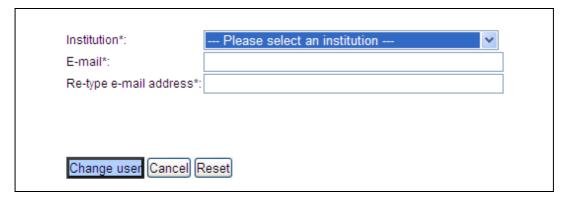
Dashboard section to change institution name





It was added in November release also some functionalities which allows the partner to give out the institutions among some other persons. This persons would be institution manger, meanwhile the partner would be the country manager, who has the opportunity to give this right to one person or give back to himself/herself again.

The user selected (identificated by partner via email), has to registered in the portal with the same security methods as a country manager, but then in the dashboard, it was only available to manage the institution assigned previously by partner.



Dashboard section to change institution manager

User has the change to see the whole structure of the country thanks to the functionality: Preview archival landscape, which through a dynamic tree it is possible to see the descriptions of each institution at the right part.



Dashboard section to preview archival landscape





3.1.2 Content manager

Once the first steps mentioned above have been successfully conducted, it is possible to upload content for each institution defined in the archival landscape. The users can access to the "content manager" side where they can upload their finding aids, source guides or holdings guides as constituent EAD xml files one by one or all in one step by combining all files in a ZIP.

| Uplo Select file to uploa | oad Type: OHTTP OFTP OOAI-PMH ad: Examinar Upload |
|---|--|
| | |
| | Upload Type: ○HTTP ●FTP ○OAI-PMH ttp:// 21 Connect to FTP server |
| | |
| URL: Set name Metadata forr Type of data to h Token (if resun | mat: Portugal OAI_DC |

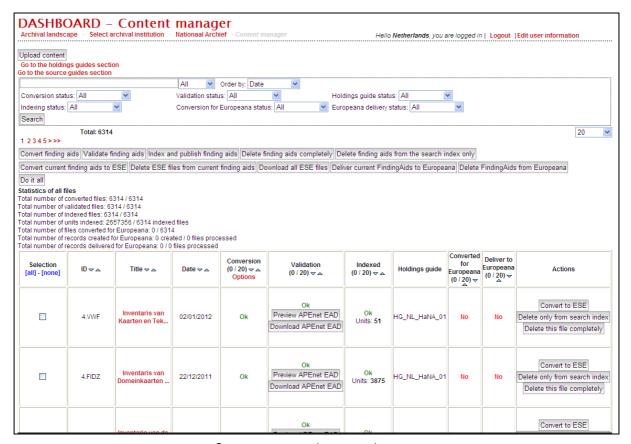
Dashboard section to upload content – uploading methods

The uploaded files must be validated against the APEnet EAD schema, which both can be done centrally in the dashboard or by using the data preparation tool (see WP4 descriptions of it).





In the content manager it is showed the list of files (divided in sections: finding aids, holdings guides and source guides) with several information of the them such as the identifiers, the titles, the dates of upload, the current states of processing and the next actions available per, plus providing some statistics, batch processing at the top and several ways of filter and search the files.

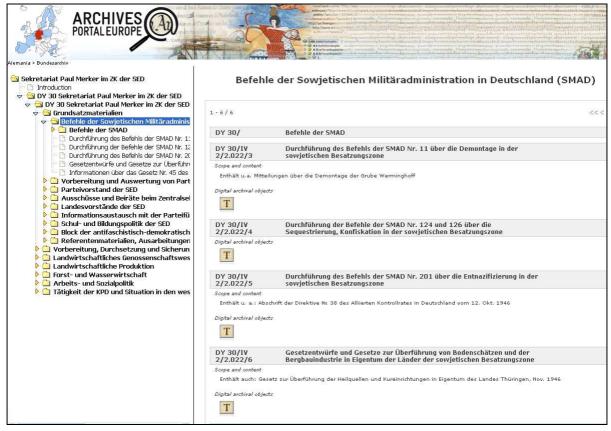


Content manager view example

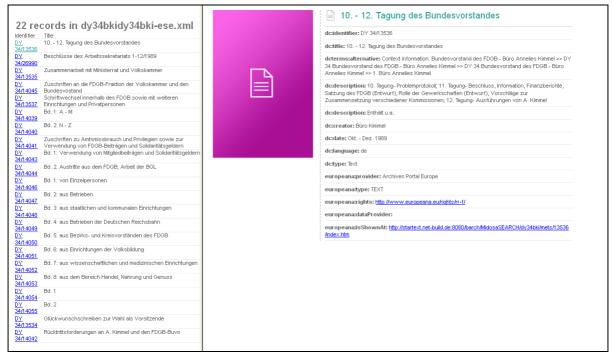
There are some previews functionality of how the file will be shown in the Archives Portal Europe and Europeana respectively, in order to help the users decide about the publication or delivering of their content right away or rather including some more changes beforehand.







Finding aid Archives Portal Europe preview example



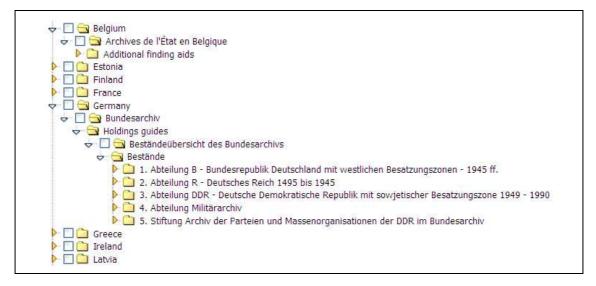
Finding aid Europeana preview example





Before finished this overview of the dashboard, it is needed to mention how the linking between holdings guides and finding aids works. In the content manager section of holdings guides, there is a column called 'Finding aids linked' where it is provided information about how many finding aids have been automatically linked to the holdings guide itself out the finding aids mentioned inside it. This information affects directly to the way of displaying the content in the portal (in advanced search section, navigation tree, country selected).

In the image below, it is an example in which hypothetically Belgium does not have any files linked to the holdings guide, and all of them appears below 'Additional finding aids' and Germany has all its content linked and appears below the holdings guide.



Portal navigation tree example

For more descriptions of the functionalities you could consult the 'ingestion manual'.





3.2 Front End (Portal)

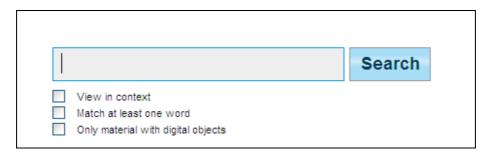
This is the visual part of archives portal Europe. All the content visible here and offered to the public is thanks to the dashboard web application, but here there is an enormous effort of design and usability methods in order to provide user the best way of see the information.

In the next points it is explained the main parts of the portal, but it also fair to mention that there are lot of documentation effort published to the user where it could be found in pages such as Navigation guide, Tools, About us and the subpages linked from them. This was also a part of trying to close the archives to the user as much as possible, doing everything understandable for non-archivist people also, therefore for all the European citizens.

3.2.1 Searching archives

There currently are several methods available in the portal for searching information:

Simple search, typing a search term – available directly from the home page and in the "Advanced search" section of the portal.



Portal simple search

Advanced search – available in "Advanced search" section of the portal, different ways of searching are provided here. Using the tree with all the content organized by countries and institutions or using the fields for refining:





| Select countrie | s/archives ① |
|------------------------|--------------------------------------|
| Select the countries/a | rchives you would like to search in: |
| ▶ 🔲 🇀 Belgium | |
| Estonia | |
| Finland | |
| France | |
| Germany | |
| Greece | |
| ▶ 🔲 🇀 Ireland | |
| Latvia | |
| Malta | |
| Netherlan | ds |
| Poland | |
| Portugal | |
| Slovenia | |
| ▶ 🔲 🇀 Spain | |
| Sweden | |

| ▶ □ |
|---|
| Estonia |
| Finland |
| France |
| Fig. 6 Germany |
| Greece |
| ▶ □ 🗀 General State Archives - Central Service |
| ▶ 🔲 🗀 General State Archives - Archives of Kefallinia |
| |
| |
| Εργαλείο Έρευνας για το: Επίσημος Εφημερίς της Κρητικής Πολιτείας |
| ▶ □ 🗀 Ireland |
| Latvia |
| Malta |
| Netherlands |
| Poland |
| Portugal |
| ▶ □ 🗀 Slovenia |
| Spain |
| |

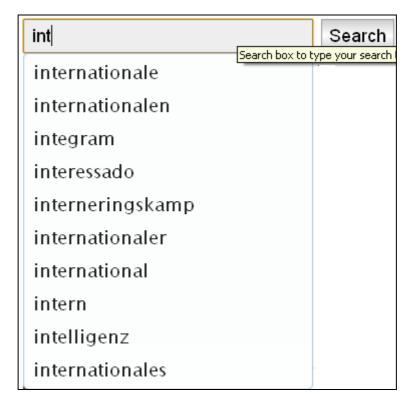






Portal advanced search posibilities

It is also possible now and from the version of November some ways of auto completion and autosuggestion given from the search index directly:



Portal auto completion facility in search box



Portal auto suggestion facility search





3.2.2 Search results

There are two ways of the results displaying via selecting the user the correspondent tab.



Portal different tabs results

List view: currently used as the default display of the search results, listing them with regard to the question how accurately they fit to the search term(s) entered by the user first; besides the "list" view offers the possibility to re-arrange the order, in which the search results are displayed, by sorting them either by date(s) of the archival record's creation (beginning with the oldest ones), by title of the unit, whose description contains the search term (alphabetically ordered, beginning with those titles starting with a number, followed by general order from A to Z), by reference code of the single archival units or by the number, i.e. identifier, for the whole finding aid, of which the archival unit is part of.



Portal sorting options on search results

Furthermore, it is possible to refine the search results displayed in the "list" tab according to different facets such as country, archival institution, type of finding aid, language of the finding aid, start and end dates (of creation) and according to the question, if links to digital archival objects are included





REFINING YOUR SEARCH: Country: Netherlands (31239) country.estonia (3) Finland (1) Archival institution: Nationaal Archief (15924) NAJ (11917) Service interministéri... (3330) Regionaal Archief Leiden (46) Regionaal Archief Alkmaar (25) National Archives of F... (1) Type of finding aid: Finding aid (31242) Holdings guide (1) Contains digital objects: No digital objects (28656) Contains digital objects (2587) Digital object type: advancedsearch.facet.v... (11966) Unspecified (1609) Image (4) Date types: Full date (24163) No date specified (3937) Only descriptive date (3143) Start timespan: 1200-1399 (4) 1400-1599 (904) 1600-1799 (10809) 1800-1999 (12446) End timespan: 1000-1199 (2) 1200-1399 (4) 1400-1599 (683) 1600-1799 (10203) 1800-1999 (13271)

Portal refining criteria of search results

In addition, it is also possible the previsualization of what user could see if clicks on the item desired, just mouse over the items.







Portal list search results - previsualization

Context view: uses the hierarchical structure of the archival information (archival landscape, holdings guides, finding aids) available within the union finding aid of the Archives Portal Europe to provide some context information to the user already at this stage. And here it is also available the previsualization of the item selected.

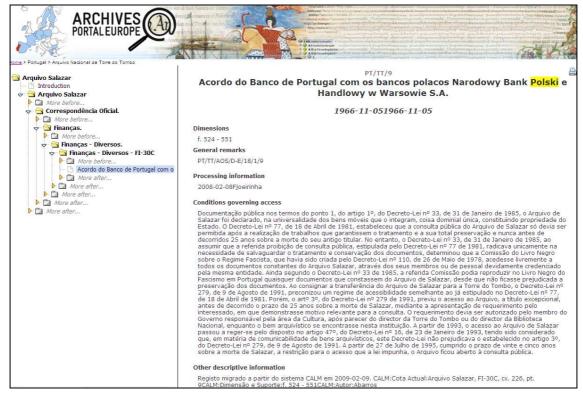


Portal context search results - previsualization

If user clicks on the blue arrow in the preview at the top of the right (either in List or Context view), it is open another window with the whole file displayed, where user could navigate through the different levels.







3.2.3 Directory section

The "Directory" section includes details for archives repositories all around Europe. The first part contains information on the National Archives and National Archives Administrations where it is also possible to see more details about an institution in the right part just click on the institution itself.







Portal directory tree overview

The second part includes links to regional/local archival portals via a Google map with the links to these archives portals.



Portal directory map overview





3.3 OAI- PMH

Open Archives Initiative - Protocol for Metadata Harvesting is implemented for harvesting data of the content providers and also to be harvested by Europeana.

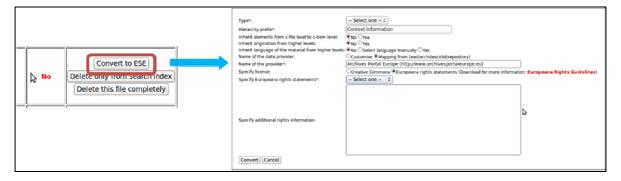
3.3.1 OAI Server

OAI-Server is an OAI-PMH web-service which provides content from Archives Portal Europe to Europeana which delivers the information requested wrapped in a specified Metadata Format defined by Europeana (at the moment is ESE format).

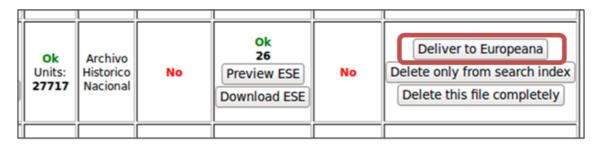


Direction of the harvesting process

Content providers publish content in Archives Portal Europe OAI-PMH Repository via some dashboard options: first, converting APEnet EAD finding aids into ESE records and then delivering this content to Europeana with a prerequisite here that the finding aid must be indexed in Archives Portal Europe.



Dashboard convert to ESE format



Dashboard deliver to Europeana





3.3.2 How OAI Server works internally

The OAI Server has some verbs which are used for gathering the information via web and therefore the harvesting itself. The use of these verbs (also in a combined way) allows the harvesting (in this case Europeana). These are the verbs and its description.

- Identify

The verb "Identify" can be used to get information about the repository. It should be the first verb launched (to obtain the server status).

It has attributes to show data, some are mandatory and some just optional:

repositoryName

baseUrl

protocolVersion

earliestDatestamp

deletedRecord

granularity

adminEmail

compression





```
<AI-PMH xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/ http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd">
<responseDate>2011-06-13T08:44:09Z</responseDate>
<request>http://preoai.archivesportaleurope.eu/OAIServer</request>
<Identify>
  <repositoryName>Apenet OAI-PMH Repository/repositoryName>
  <br/>
<br/>
daseUrl>http://preoai.archivesportaleurope.eu/OAIServer</br/>/baseUrl>
  colVersion>2.0/protocolVersion>
  <earliestDatestamp>2011-05-26T08:24:31Z</earliestDatestamp>
  <deletedRecord>transient</deletedRecord>
  <granularity>YYYY-MM-DDThh:mm:ssZ</granularity>
  <adminEmail>eloy.garcia@inteco.es</adminEmail>
  <compression>gzip</compression>
 -<description>
   -<br/>branding>
    -<collectionIcon>
      -<url>
         PLEASE CREATE DEFINED-SIZED (88 x 31) LOGO AND INSERT URL
       http://www.archivesportaleurope.eu
       <title>Archives Portal Europe</title>
       <width>88</width>
       <height>31</height>
      </collectionIcon>
    </branding>
  </description>
  <description>
   -<rightsManifest appliesTo="http://www.openarchives.org/OAI/2.0/entity#metadata">
     -<riahts>
      -<rightsDefinition>
        -<oai dc:dc xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/oai dc http://www.openarchives.org/OAI/2.0/oai dc.xsd">
          -<dc:title>
            Archives Portal Europe OAI-PMH repository metadata rights description
           </dc:title>
           <dc:date>2011-05-02</dc:date>
           <dc:creator>Archives Portal Europe</dc:creator>
           <dc:description>PLEASE WRITE THE RIGHTS DESCRIPTION HERE</dc:description>
         </oai dc:dc>
       </rightsDefinition>
      </rights>
    </rightsManifest>
   </description>
 </ld></ld></ld></ld></rr>
/OAI-PMH>
```

OAI identity verb example

- ListMetadataFormats

This verb contains the information about the metadata formats supported in the server. It is required the attribute 'metatadaPrefix' and returns the schemas about a metadata format.

```
-<OAI-PMH xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/ http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd">
        <responseDate>2011-06-13T09:16:55Z</responseDate>
        <request verb="ListMetadataFormats">http://preoai.archivesportaleurope.eu/OAIServer</request>
        -<ListMetadataFormats>
        -<metadataFormat>
        <metadataFormat>
        <metadataPrefix>ese</metadataPrefix>
        <schema>http://www.europeana.eu/schemas/ese/ESE-V3.3.xsd</schema>
        <metadataNameSpace>http://purl.org/dc/elements/1.1/</metadataNameSpace>
        </metadataFormat>

        </ListMetadataFormats>
        </OAI-PMH>
```

OAI ListMetadataFormats verb example

- ListRecords





A record contains the information which Europeana should harvest to be ingested in his system with two main parts: header and metadata part.

```
<record>
-<header>
   <identifier>28-dy30bmer-1</identifier>
   <datestamp>2011-05-31T10:37:26Z</datestamp>
   <setSpec>GERMANY:Bund:Bundesarchiv</setSpec>
-<metadata>
 -<europeana:record>
     <dc:identifier>DY 30-DY 30/IV 2/2.022/1</dc:identifier>
       Stiftung Archiv der Parteien und Massenorganisationen der DDR im Bundesarchiv
     </dc:source>
     <dc:title>Befehle der SMAD</dc:title>
   -<dcterms:alternative>
       Hierarchical information:: Sekretariat Paul Merker im ZK der SED >> DY 30 Sekretaria
       Paul Merker im ZK der SED >> Grundsatzmaterialien >> Befehle der Sowjetischen Mili
      der SMAD
     </dcterms:alternative>
     <dc:description>Bd 1: 1945 - 1946</dc:description>
     <dc:rights>All rights reserved</dc:rights>
     <europeana:provider>APEnet project provider</europeana:provider>
     <europeana:type>IMAGE</europeana:type>
     <europeana:rights>http://www.europeana.eu/rights/unknown/</europeana:rights>
     <europeana:dataProvider>Archives Portal Germany</europeana:dataProvider>
   -<europeana:isShownAt>
      http://startext.net-build.de:8080/barch/MidosaSEARCH/dy30bmer/mets/dy30bmer 001/in
      /IV%202/2.022/1
     </europeana:isShownAt>
   </europeana:record>
 </metadata>
</record>
```

OAI ListRecords verb example

It can show a maximum of 100 records per response and the element resumptionToken allow to continue a harvest process

OAI ListRecord - resumptionToken element example

- ListIdentifiers

It could be use to obtain the state of a record (if it has been removed or not) and doesn't return metadata, only the header nodes as in ListRecord verb, it can show





a maximum of 100 records per response and the element resumptionToken allow to continue a harvest process

OAI ListIdentifiers verb example

- GetRecord

Returns an individual specific record and if content has been removed, the header node has "status=deleted" argument.

```
< OAI-PMH xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/ http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd">
 <responseDate>2011-06-13T11:28:19Z</responseDate>
 <request verb="GetRecord">http://preoai.archivesportaleurope.eu/OAIServer</request>
<GetRecord>
-<record>
  -<header>
      <identifier>28-dy30bmer-95</identifier>
      <datestamp>2011-05-31T10:37:26Z</datestamp>
      <setSpec>GERMANY:Bund:Bundesarchiv</setSpec>
    </header>
  -<metadata>
    -<europeana:record>
       <dc:identifier>DY 30-DY 30/IV 2/2.022/96</dc:identifier>
         Stiftung Archiv der Parteien und Massenorganisationen der DDR im Bundesarchiv
       </dc:source>
       <dc:title>Schafzucht und Wollverwertung</dc:title>
      -<dcterms:alternative>
         Hierarchical information:: Sekretariat Paul Merker im ZK der SED >> DY 30 Sekretariat Paul Merker im ZK der SEI
         Landwirtschaftliche Produktion >> Tierzucht
       </dcterms:alternative>
       <dc:creator>Sekretariat Paul Merker</dc:creator>
       <dc:date>1947 - 1948</dc:date>
       <dc:rights>All rights reserved</dc:rights>
       <europeana:provider>APEnet project provider</europeana:provider>
       <europeana:type>IMAGE</europeana:type>
       <europeana:rights>http://www.europeana.eu/rights/unknown/</europeana:rights>
       <europeana:dataProvider>Archives Portal Germany</europeana:dataProvider>
      -<europeana:isShownAt>
         http://startext.net-build.de:8080/barch/MidosaSEARCH/dy30bmer/mets/dy30bmer 096/index.htm?target=bakoFraCon
       </europeana:isShownAt>
      </europeana:record>
    </metadata>
  </record>
 </GetRecord>
</OAI-PMH>
```

OAI GetRecord verb example

Note: the element identifier is composed of the id of the archival institutioneadid sequence number of records

- ListSets





This verb provides the information related to the set defined. A group of records could be gathered by different kind of sets

```
- <OAI-PMH xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/ http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd">
   <responseDate>2011-06-13T11:36:25Z</responseDate>
   <request verb="ListSets">http://preoai.archivesportaleurope.eu/OAIServer</request>
 -<ListSets>
   -<set>
      <nameSpec>GERMANY</nameSpec>
      <setSpec>GERMANY</setSpec>
    +<setDescription></setDescription>
    </set>
   -<set>
      <nameSpec>Bund</nameSpec>
      <setSpec>GERMANY:Bund</setSpec>
    +<setDescription></setDescription>
    </set>
   -<set>
      <nameSpec>Bundesarchiv</nameSpec>
      <setSpec>GERMANY:Bund:Bundesarchiv</setSpec>
    -<setDescription>
      -<oai_dc:dc xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/oai_dc/ http://www.openarchives.org/OAI/2.0/oai_dc.xsd">
         <dc:title>ESE Records for Bundesarchiv, GERMANY</dc:title>
         <dc:creator>Archives Portal Europe</dc:creator>
        -<dc:description>
          This set contains the ESE records created via Archives Portal Europe by Bundesarchiv, GERMANY
         <dc:contributor>Bundesarchiv</dc:contributor>
       </oai dc:dc>
      </setDescription>
    </set>
      <nameSpec>NETHERLANDS</nameSpec>
      <setSpec>NETHERLANDS</setSpec>
    +<setDescription></setDescription>
    </set>
   -<set>
      <nameSpec>Nationaal Archief</nameSpec>
      <setSpec>NETHERLANDS:Nationaal Archief</setSpec>
    +<setDescription></setDescription>
    </set>
   </ListSets>
 </OAI-PMH>
```

OAI ListSets verb example

In setSpec element is reflected the hierarchy of the record: Country:Archival Institution Group: Archival Institution Group: ...: Final Archival Institution