



# Europeana – Core Service Platform

## DELIVERABLE

### D6.1: Requirements for the platform backend

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# REVISION HISTORY AND STATEMENT OF ORIGINALITY

## Revision History

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1	2015-08-31	Remy Gardien, David Haskiya	Europeana Foundation	

### Statement of originality:

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

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## Purpose and scope of this document

The purpose of this document is to describe the priorities, objectives, and requirements for the Europeana backend products that support our porta. Also third party developers will be able to take advantage of the backend improvements as Europeana, as an open platform, only uses backend APIs that are also publically available (and documented on Europeana Labs).

**NOT** covered in D6.1:

Search improvements in detail (will be covered more in depth in MS30<sup>1</sup>).

## Development objectives

*“The priority will be on enhancing the core services in the platform, especially search and retrieval functionalities...”*

**Business Plan 2015, Product Development**

## Objectives

### Primary objective

A Europeana search engine and REST-API with improved search functionality.

### Secondary objectives

- A Europeana REST-API that better supports improved media access
- A Europeana Entity API that supports improved search and contextualisation by providing meaningful autocompletion in search, context cards in search results and contextual (subjects, creators, periods, places) pages
- A Europeana Annotations API that supports expert users in sharing their knowledge with the secondary effect of also improving our data and its discoverability

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<sup>1</sup> Due end of October 2015.

## Platform components and requirements

### Data storage

Europeana doesn't intend to do any development of the data storage layer within DSI other than maintenance to ensure further stability and performance. On the longer term, Europeana will fully migrate to the Europeana Cloud for data storage.

Within the Data-in/METIS/UIM development teams, work will start within DSI to migrate storage backends to the Europeana Cloud. More details on this can be found in Milestone 2. When this work has been completed, work will start to adapt the "Data out" (platforms) to the Europeana Cloud storage layer as well.

As for the platforms, the one requirement is for the thumbnail images which Europeana generates to be stored on a OpenStack Swift storage layer. This transition (from a file-based storage layer) will smoothen the transition to Europeana Cloud for images and thumbnails in a later stage.

### Search Engine

Requirements for the Search Engine in general including the Europeana Search Index.

Technical requirements
The core Europeana search index should be powered by SolrCloud
The Search index should be able to hold different indexes for different use-cases/APIs, such as the Annotations API/index
The Search Engine should be scalable and available to allow for continuous re-indexing, enriching and manipulation of data
The Search Engine should be able to rank better on quality of metadata (e.g. rank "richer" metadata higher)
The Search Engine should have full support for different languages and dialects and should make no difference between search for accents (such as diás) and non-accents.
The Search Engine should support manual curation of search results for specific keywords, so-called Best Bets
The Search Engine should support spelling corrections
The recall and relevancy of the Search Engine should be possible to systematically evaluate

## REST API

Requirements for the REST API in general (not functional).

Technical requirements
The REST API should support SSL/TLS for secure connections (by default)
The API should be publicly available via a Swagger console to allow for testing, diagnostics and improved writing of specifications, as covered in the API strategy <sup>2</sup>
The REST API should be coupled to a system which allows for proper monitoring & statistical analysis of usage and performance

## Discovery APIs

The Search & Retrieve REST API, which will power the Portal and Channels.

Technical requirements
The API should support sorting options, such as sorting on timestamp
The Query Translation API should become part of the regular Search API
The API should ensure that all calls are properly handled by exception handling in JSON, to ensure third party applications can properly catch errors/mistakes
API-key creation should be made available via the API itself
The Search API should be made available in JSON-LD
The Record API should support different response profiles to control output

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<sup>2</sup> <https://docs.google.com/document/d/1JjUHK-qZcPSe0tOb5MvQstWYdkpdYFTnd2qjYRycUvQ/>

## MyEuropeana API

The MyEuropeana API is a part of the REST API which is used for authentication, authorisation and anything related to MyEuropeana user accounts. In order to facilitate the transition from portal to platform and specifically, the new Portal/Channels software, the MyEuropeana API should be refactored and updated such as partly defined in the MyEuropeana investigation<sup>3</sup>.

Technical requirements
The MyEuropeana API should be updated so that the new portal can act as its client in such a way that the existing My Europeana functionality, including API administration, of the current portal can be preserved
The MyEuropeana API should support different ways of authorization, based on configured user roles
API key generation should become an API itself, part of the MyEuropeana API, in order to decouple this from the portal
MyEuropeana's OAuth mechanism should be updated and revised in order to fully support API clients acting on behalf of MyEuropeana user accounts, for instance with regards to the future Annotations API

## Media API

API's which allow developers to retrieve and find media extracted from or media files referenced within metadata. The Media API is part of the Search & Retrieve API and is an outcome of the Content Re-use Framework developed in the project Europeana Creative, and implements the requirements for metadata extraction & retrieval as defined in the technical metadata overview<sup>4</sup>.

Technical requirement
The API should include the ability to search, filter on and retrieve technical metadata for image files, text files, sound files and a
The API should allow developers to retrieve thumbnails in different sizes, and at minimum of 200px and 400px and higher if and when policies allow Europeana to do so
The API should be able to retrieve media files/thumbnails/images from a storage layer based on Openstack Swift
The API should support retrieval of images compliant with the <a href="#">IIIF-standard</a> (developed as

<sup>3</sup> <https://docs.google.com/document/d/1dGbqaSDNduZmQj3ebE-pzBIUALi8OcvZtAZs75GQp8w/>

<sup>4</sup> <https://docs.google.com/spreadsheets/d/17LjVpdUHsqpLhvQ0kvvDd7ja6eAPhSB9dN3NQ0kEbko/>

part of the Europeana Cloud project )

## Annotations API

The Annotations API is an extension to the Europeana API which provides the ability for Europeana Portal & Channels and (selected) external services to create and retrieve user annotations. The Annotations API is based on developments in the projects Europeana Creative and Europeana Sounds and the work in progress on requirements is captured in the Annotations API master document<sup>5</sup>.

Technical requirements
The Annotation API must use the core functionality and code of the Europeana main REST API
The Annotation API must conform to the Europeana API conventions <sup>6</sup>
The Annotation API must conform to the technical processes as used within Europeana such as building with Jenkins
The Annotations API must conform to the Europeana API development strategy <sup>7</sup>
The Annotation API must be able to run in a Platform as a Service environment
The Annotation API must support indexing of annotations to allow for search of annotations
The Annotation API must be able to update the main Europeana search index to allow for enriched search
The Annotation API must support JSON-LD as primary format for its data exchange
The Annotations API must support the so-called "roundtripping" scenario <sup>8</sup>
The Annotations API must support the ability for providers to provide their own local identifiers
The Annotations API must be able to dereference URIs

<sup>5</sup> [https://docs.google.com/document/d/1R2\\_RDuP5E2n0SBnZOqvjedqmKVoBavo6wtS0pN1UJtA/](https://docs.google.com/document/d/1R2_RDuP5E2n0SBnZOqvjedqmKVoBavo6wtS0pN1UJtA/)

<sup>6</sup> [https://docs.google.com/document/d/11gz3UgmVKE3V-denTijyge1\\_MiR0Lp0NK\\_6eS-TwXel/](https://docs.google.com/document/d/11gz3UgmVKE3V-denTijyge1_MiR0Lp0NK_6eS-TwXel/)

<sup>7</sup> <https://docs.google.com/document/d/1JjUHK-qZcPSe0tOb5MvQstWYdkpdYFTnd2qjYRycUvQ/>

<sup>8</sup> [https://docs.google.com/document/d/1eP6CVFLtKqSCduhcuYnqPEKQR7\\_Za0cizNYE0SQ-6Og/](https://docs.google.com/document/d/1eP6CVFLtKqSCduhcuYnqPEKQR7_Za0cizNYE0SQ-6Og/)



The Annotations API must also be able to run as a stand-alone application which other organisations can also run in and install

The Annotations API must support various user roles such as moderator and administrator

The Annotations API must implement the model as defined within "Modelling annotations in Europeana"<sup>9</sup> which conforms to the Open Annotation Model

## Entity API

The Entity API is an API which allows for search and retrieval of entities from the Europeana Entity Collection, such as "places" (e.g. Paris, France), "subjects" (e.g. Astronomy) or "agents" (e.g. Leonardo da Vinci), in accordance with the API specification<sup>10</sup>.

### Technical requirements

The Entity API must use the core functionality and code of the Europeana main REST API

The Entity API must conform to the Europeana API conventions<sup>11</sup>

The Entity API must conform to the technical processes as used within Europeana such as building with Jenkins

The Entity API must conform to the Europeana API development strategy<sup>12</sup>

The Entity API must be able to run in a Platform as a Service environment

The Entity API must support JSON-LD as primary format for its data exchange

The Entity API should use the search index which contains the Europeana Entity Collection

The URI's in the Entity API should be Europeana URI's (eg data.europeana.eu/xx/xx)

The Entity API should return thumbnails (images) of entities when possible, which should be cached or available at a high-available hosting environment

<sup>9</sup> [https://docs.google.com/document/d/1I5pFY3WqLn83\\_mWXxbXGt9\\_eT3-VRcfkygZ-Ag-k2Io/](https://docs.google.com/document/d/1I5pFY3WqLn83_mWXxbXGt9_eT3-VRcfkygZ-Ag-k2Io/)

<sup>10</sup> [https://docs.google.com/document/d/16Rw\\_qlSpINxztGpl5sM6NcXhnQeZkW3hRA11YjFtE1w/](https://docs.google.com/document/d/16Rw_qlSpINxztGpl5sM6NcXhnQeZkW3hRA11YjFtE1w/)

<sup>11</sup> [https://docs.google.com/document/d/11gz3UgmVKE3V-denTijyge1\\_MiR0Lp0NK\\_6eS-TwXel/](https://docs.google.com/document/d/11gz3UgmVKE3V-denTijyge1_MiR0Lp0NK_6eS-TwXel/)

<sup>12</sup> <https://docs.google.com/document/d/1JjUHK-gZcPSe0tOb5MvQstWYdkpdYFTnd2qjYRycUvQ/>

## Roadmap

The REST API has a minimum release cycle of 6 months, in which a new version will be released to the public. In between, minor updates can take place in order to test or beta test functionality.

Within the Digital Service Infrastructure, the APIs will encompass three releases::

<b>Release</b>	<b>Major changes</b>
September 2015	Release of the new Media API
January 2016	Requirements for Discovery & REST API (general) Annotations API first version
End of DSI year 1	Release of Entity API Completion of Search requirements