



A **D**igital **L**ibrary
Infrastructure on **G**rid
ENabled **T**echnology

Deliverable No D2.1.1:

“ARTE Scenario Requirements Analysis Report”

November 2004

Document Information

Project

Project Title:	DILIGENT, A Digital Library Infrastructure on Grid ENabled Technology
Project Start:	1st September 2004
Call/Instrument:	FP6-2003-IST-2/IP
Contract Number:	004260

Document

Deliverable number:	D2.1.1
Deliverable title:	ARTE Scenario Requirements Analysis Report
Deliverable responsible:	SNS
Contractual Date of Delivery:	30 November 2004
Actual Date of Delivery:	30 November 2004
Editor(s):	CNR-ISTI
Author(s):	Henri Avancini, Maria Bruna Baldacci, Leonardo Candela, Silvia Volterrani
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Participant(s):	SNS; CNR-ISTI
Workpackage:	WP2.1
Workpackage title:	ARTE Scenario
Workpackage leader:	SNS
Workpackage participants:	SNS, CNR-ISTI
Est. Person-months:	6
Distribution:	Public
Nature:	Report
Version/Revision:	1.0
Draft/Final	Final
Total number of pages: (including cover)	271
File name:	D2.1.1_Arte-scenario-requirements-analysis-report
Key words:	<i>User Requirements; Use-case diagrams; UP; UML</i>

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DILIGENT is a project partially funded by the European Union

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Summary

This document presents the work conducted within the “WP2.1 Arte Scenario”, task “T2.1.1 Collection and Analysis of Requirements”, of the DILIGENT project in the period September 1st - November 30th 2004. It is mainly concerned with the reporting of the functional and non functional requirements expressed by representative members of the ARTE Project, whose activities have been chosen to collect the real user requirements of a community involved in the Cultural Heritage domain. This document presents the ARTE requirements both as freely expressed by ARTE members and in the more formal representation resulting from the analysis activity that officially starts the software engineering process.

Executive Summary

The objectives of “T2.1.1 Collection and Analysis of Requirements” of the “WP2.1 ARTE Scenario” are i) to collect the requirements of the ARTE community by describing them as a scenario of the ARTE activities; ii) to analyze these requirements in order to produce a set of use-cases that will be used to drive all the development work, from the initial gathering and negotiation of requirements to the code.

The specific community of the ARTE scenario consists of scholars, distributed all over the world, engaged in research issues related to the representation and perception of images and texts. In order to achieve their objectives these scholars judge it absolutely necessary to establish a common background knowledge base, composed of all digital information they are producing in their research activities.

Presently, scholars engaged in the ARTE project are experiencing how they can work by using a digital library (DL), but the current DL has been realized with costs and time that are unacceptable by many application areas of this community. Moreover, the current system mainly handles textual documents, since the handling and preservation of large sets of multimedia documents and data requires computational and storage resources that are not available in the ARTE project.

With this experience in mind, ARTE members have much appreciated the possibility of experimenting DILIGENT as a means to provide themselves a cost-effective instrument for setting up a common multimedia knowledge repository equipped with a number of services specifically tailored to their needs. In particular, they are attracted by the possibility of creating a digital library for temporary uses - for example as a tool to organize the material for a course – on demand.

The requirements collected from the ARTE community reflect these views.

This document has a twofold objective: a) to describe the requirements as expressed by ARTE members in different roles, i.e. as ARTE director, director assistant, teacher, cooperating scholar and student; b) to report the analysis of those requirements that start the software engineering process as described by the Unified Process (UP) methodology; this produces a systematic approach for finding, documenting, organizing and tracking the user requirements.

The main activities that have been identified by the ARTE members are:

- *Search and browse DL content*; searching by images is stressed as a basic requirement but many other advanced and computational intensive search functionalities constitute high desiderated requirements, e.g. “Search objects by Video” and “Search part-of objects by Image”;
- *Manage special collections*. The collections become the key to virtualize and personalize the DL environment, that needs to be dynamic and changeable on demand to satisfy specific constraints;
- *Organization of a course*, i.e. how a DL can be used to support this typical activity of the ARTE project members. The related requirements describe how specific collections that address the knowledge needs of the students can be created by reusing content and services maintained in an ARTE DL or available in DILIGENT. These collections are considered able to automatically update their content following the changes in the original archives. As a result, the students of each course have access to the most updated material on the topic of each course.

- *Organizing a workshop with an exhibition.* The related requirements, i.e. those for making it possible that a DL helps ARTE members to organize a workshop and make a digital exhibition catalogue, are indicated.

Instead, basic requirements as those regarding the creation of an ARTE DL come from discussions between ARTE members and ISTI members. These requirements regard:

- how archives and services to be included in an ARTE DL can be found among the resources in DILIGENT;
- how users and user rights can be managed within an ARTE DL.

Further requirements come from interviewing people engaged in teaching and communication activities based on film and/or video content (RAI and CTM Department of Pisa University), in particular:

- requirements directed to explore which new media can offer content to the studies on representation and perception of images and texts (or speech), namely those regarding images in movement (films and videos);
- requirements aimed at the stylistic analysis of films and videos.

The analysis of the user requirements is organized in eight use-case diagrams that collectively compose the first use-case specification. Each diagram illustrates how the corresponding use-case relates to the actors and to other use-cases. The list of use-case diagrams is reported below:

1. ARTE_ucd01 DL Management.
2. ARTE_ucd02 Workspace Management
3. ARTE_ucd03 Course Management
4. ARTE_ucd04 Workshop Management
5. ARTE_ucd05 Process Video
6. ARTE_ucd06 Collection Management
7. ARTE_ucd07 Search
8. ARTE_ucd08 Services

1 INTRODUCTION

This document presents the results of the T2.1.1 Task, i.e. “Collection and Analysis of Requirements” of the “WP2.1 ARTE Scenario”.

The requirements collected within the ARTE scenario mainly refer to the activities conducted within the ARTE project, that is one of the projects managed by CTL-Center for the Data Processing of Texts and Images in the Literary Tradition, at Scuola Normale Superiore in Pisa.

The objective of the CTL is to explore the broad zone of interaction between words and images that across different periods and genres has characterized the literary tradition. CTL conducts research studies on taking advantage of the resources offered by computer technology. In particular, the specific community of the ARTE scenario consists of scholars distributed all over the world.

The CTL is supported by an advisory board of internationally recognized scholars, and is collaborating with universities and cultural institutions in Italy and abroad, including the École Normale Supérieure of Paris, the New York University, and the University of California-Los Angeles. Presently, in addition to coordinating on-going studies, it is actively promoting intellectual exchanges and teaching activities through workshops and courses. This community is much interested in the Digital Library technologies, because they consider a DL as a medium for communication and cooperation beside seeing it as an instrument to create a common knowledge base.

The collected requirements include those coming from interviewing representatives of RAI Educational. This organization is a division of RAI – RadioTelevisione Italiana, an Italian public broadcaster - active since the fifties - consisting in 3 main TV channels, 5 Radio channels and a wide selection of satellite channels. Although RAI Educational participates to the DILIGENT consortium as a provider of digital content which the ARTE project is interested in, it can also be seen as a *cultural industry* whose mission is to divulge scientific and cultural knowledge through all the available media, and its representatives expressed interest in exploiting tools and techniques offered by DILIGENT.

CTL people have already experienced the use of a DL for their research activities. In fact, in the recent past a DL managed by the OpenDLib¹ system has been set up as a result of collaboration between CTL and ISTI. This DL manages two very different collections, namely the “Atlas of Memory Images” collection and “Narrated Dreams in Modern Literature” collection. The former offers the images contained in treatises on the art of memory of the XVI Century; the latter contains literary texts that narrate or describe dreams (the related digitalized images are currently under preparation).

Scholars engaged in the ARTE project are presently using their digital library for setting up digital collections and making research on texts and images. They consider their experience very successful, although it is limited by that the ARTE project doesn't possess computational and storage resources for handling large sets of multimedia documents. For this, they are very much attracted by the possibility of exploiting DILIGENT as a means to provide themselves a cost-effective instrument for setting up multimedia knowledge repositories equipped with a number of services specifically tailored to their needs.

In particular, they are attracted by the possibility of creating a digital library on demand, i.e. a digital library for a temporary use - for example for organizing the material to be used by

¹ OpenDLib web site: www.opendlib.com

course students or to be exhibited/discussed in a workshop. This means that the creation of a DL, or of a DL collection, should be made by aggregating content and services already available on the DILIGENT infrastructure, in order to reduce the costs and the time needed to create the environment capable to satisfy the specific needs of the ARTE project.

Much of the requirements collected from the ARTE community reflect these views and concern how DILIGENT can allow an ARTE DL to be created on demand and search capabilities to be improved.

As for the on demand creation, ARTE members deem it impractical that people in the Humanities be able to create a DL, therefore they have expressed requirements concerning how they can define a DL and then request a technician (the ARTE DL Administrator) to create it. In particular, requirements are about i) how ARTE members can select known archives and services from, or search those resources in the DILIGENT infrastructure in support of the activities to be held within the ARTE project; ii) how they can suggest these resources be made available by the DILIGENT Administrator in the case that they are not present in DILIGENT. In this context, much attention is addressed to how virtual collections can be managed, as such collections become the key to virtualize and personalize the DL environment that needs to be dynamic and changeable on demand to satisfy specific constraints.

Further requirements highly stressed by the ARTE community are those concerning search capabilities. In fact, one of the most important activities of this community is searching in and navigating through the knowledge base they are creating; moreover, searching generally is the starting point of most of the different activities on the ARTE project, for example, research, organization of courses and workshops, etc. Searching by images is stressed as a basic requirement but many other advanced and computational intensive search functionalities constitute high desiderata requirements, e.g. “Search objects by Video” and “Search part-of objects by Image”.

When documents contain images, these types of search can give a solution to the problem of searching language-specific files as texts and audio file are, therefore they are seen as a “universal” query language by the ARTE scholars. Moreover, this type of search is of very much interest for a journalist looking for specific video-audio feeds for a news service or a TV or radio program, or an article. In fact, such a user might need to find specific audio or video content by searching a large number of audio visual archives that do not have an associated text database or metadata - a typical situation in many organizations that do not have funds to use for the indexing of the video and audio feeds.

The above basic requirements are also viewed in the context of two typical activities of the ARTE community, that are the organization and management of courses as well as of workshops. The related requirements describe how specific collections that address the knowledge needs of scholars or students can be created by reusing content and services maintained in an ARTE DL or available on the DILIGENT infrastructure. These collections are considered able to automatically update their content following the changes in the original archives. As a result, collection users have access to the most updated material on the topic they are interested in. Further requirements concern how a DL can be used for communication and cooperation among geographically distant scholars, for example, in the organization of an exhibition.

The possibility that DILIGENT makes large computational resources be available has particularly attracted both ARTE scholars and the representatives of RAI Educational. Thus they have expressed requirements directed to i) explore which new media can offer content to the studies on representation and perception of images and texts (or speech), namely those regarding images in movement (films and videos); ii) find specific audio or video content by

searching a large number of audio-visual archives.

Hereafter the requirements expressed by the ARTE community are presented in more formal representation, as follows:

- The rationale of the User Requirements Analysis. This part is mainly intended to explain how the formal use-case specification has been organized. Here the use-case specification is composed by a set of diagrams, called use-case diagrams; each diagram illustrates how the corresponding use-case relates to the actors and to other use-cases. A diagram of this kind is of “local” character, since it shows the use-case specification from the perspective of only one activity. This is useful because a “general” diagram involving many actors and relationships to many other use-cases might result to be too complicated.
- The complete Use-case Specification. This part contains the formal analysis of the user requirements conducted according to the guideline of the UP methodology as implemented by the Visual Paradigm for the Unified Modeling Language tool. It will be used to drive all the development work, from initial gathering and negotiation of requirements to the code. The textual high-level requirements expressed by the ARTE users are also included.

The structure of the report reflects the above main subdivision. In particular:

Section 2 first briefly introduces the main concepts and relations of the UP methodology and explains how to read an UP specification. Section 3 describes the rational of the presented use-case diagrams and the relationships among them; Appendix A contains some of the typical images that ARTE members would like to be able to retrieve and process; Appendix B contains the use-case specification generated using the Visual Paradigm tool. For completeness, this specification also reports, at the end of the Appendix, an high level description of the collected requirements and a list of Data Sources and Services related to the ARTE scenario that are already available for the integration in the DILIGENT infrastructure. Conclusions are given in Section 4.

2 RATIONALE OF USER REQUIREMENTS ANALYSIS

The *Appendix B* presents the use-case specification that collects the analysis of the user community requirements conducted according to the guideline of the UP methodology as implemented by the Visual Paradigm for the Unified Modeling Language tool. It constitutes the foundation of the use-case model, a model of the system's intended functions and its environment. The use-case specification serves as a first step to establish a contract between the ARTE user community and the DILIGENT technological partners. This contract will be completed with the functional specification by which an in-depth analysis will be integrated into the use-case specification. The use-case specification is then used as an essential input to the activities that will produce the functional, architectural, and test specifications.

The use-case specification is composed by a set of diagrams with actors, use-cases, and relationships among them; these are called use-case diagrams and illustrate relationships in the use-case specification. Each of such diagrams is of “local” character, since it shows the use-case specification from the perspective of only one activity and is not intended to explain any general facts about the whole use-case specification.

Use-case diagrams are organized also into (and owned by) use-case packages, showing only what is relevant within a particular package.

The use-case specification is organized in use-case diagrams that collectively decompose the main user community requirements in semantically meaningful activities. There are many ways to model a system, each of which may serve a different purpose. However, the most important purpose of this use-case specification is to communicate the system's required functionality to the technological partners. Consequently, the specification must be designed to be easily understandable.

The users and any other external entity that will interact with the system are modelled as actors. Because actors represent system users, they help to delimit the system and give a clearer picture of what it is supposed to do. For this reason, use-cases have been developed on the basis of the actors' needs. This ensures that the system will turn out to be what the users expected.

2.1 Methodology

The software engineering process adopted, called Unified Process (UP), provides a valuable framework for approaching user requirements collection and analysis.

Requirements are capabilities and conditions to which the system must conform. UP considers the requirements as a fundamental driver on projects and proposes use-cases formalism as a technique to write user requirements.

The task “T2.1.1 Collection and Analysis of the Requirements” has been carried following these steps:

1. collection of the requirements without any particular format (free text). These requirements are reported in the section “High-level requirements” of the use-case specification reported in the Appendix B;
2. identification of the system boundary and actors (textual analysis);
3. identification of use-cases to model the interactions with the system (textual analysis);
4. production of use-cases diagrams using the defined format (as reported in the Section 2.1.2).

2.1.1 Use-Case and Actor

A use-case describes event sequences for an actor to use the system. It is a narrative description of the process. A use-case is normally actor or event based. An actor will begin a process or an event will happen that the system must respond to.

Actors represent everything that must exchange information with the system, including what are typically called users. When an actor uses the system, the system performs a use-case. A good use-case is a sequence of transactions that yields a measurable result of value for an actor. The collection of use-cases is the system's complete functionality (only in case that all user requirements are satisfied).

There is a distinction between *concrete* and *abstract* use-cases. A concrete use-case is initiated by an actor and constitutes a complete flow of events. "Complete" means that an instance of the use-case performs the entire operation called for by the actor.

An abstract use-case is never instantiated in itself. Abstract use-cases are included in, extend into, or generalize other use-cases. When a concrete use-case is initiated, an instance of the use-case is created. This instance also exhibits the behavior specified by its associated abstract use-cases. Thus, no separate instances are created from abstract use-cases. The distinction between the two is important, because it is concrete use-cases the actors will "see" and initiate in the system.

In particular the following relationships can be used among use-cases:

1. Include Relationship
2. Extend Relationship
3. Generalize Relationship

2.1.1.1 Include Relationship²

The include-relationship connects a base use-case to an inclusion use-case. The inclusion use-case is always abstract. It describes a behaviour segment that is inserted into a use-case instance that is executing the base use-case. The base use-case has control of the relationship to the inclusion and can depend on the result of performing the inclusion, but neither the base nor the inclusion may access each other's attributes. The inclusion is in this sense encapsulated, and represents behaviour that can be reused in different base use-cases.

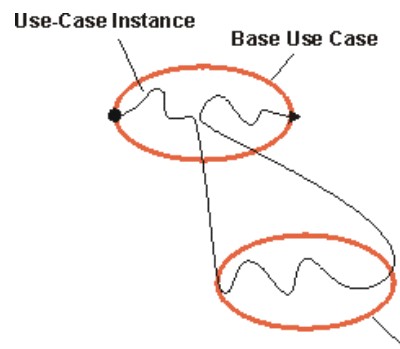


Figure 0. A use-case instance following the description of a base use-case including its inclusion.

We have used the include-relationship to:

- Factor out behaviour from the base use-case that is not necessary for the understanding of the primary purpose of the use-case, only the result of it is important.
- Factor out behaviour that is in common for two or more use-cases.

A base use-case may have multiple inclusions. One inclusion use-case may be included in several base use-cases. This does not indicate any relationship between the base use-cases. We may even have multiple include-relationships between the same inclusion use-case and

² This sub-section have been derived from the Rational Unified Process documentation

base use-case, provided the inclusion is inserted at different locations of the base use-case.

Since the inclusion use-case is abstract, it does not need to have an actor associated with it. A communication-association to an actor is only needed if the behaviour in the inclusion explicitly involves interaction with an actor.

The behaviour of the inclusion is inserted in one location in the base use-case. When a use-case instance following the description of a base use-case reaches a location in the base use-case from which include-relationship is defined, it will follow the description of the inclusion use-case instead. Once the inclusion is performed, the use-case instance will resume where it left off in the base use-case.

The include-relationship is not conditional: if the use-case instance reaches the location in the base use-case for which it is defined, it is always executed.

2.1.1.2 Extend Relationship³

The extend-relationship connects an extension use-case to a base use-case. We have defined where in the base to insert the extension by referring to extension points in the base use-case. The extension use-case is often abstract, but does not have to be.

We have used the extensions for several purposes:

- To show that a part of a use-case is optional, or potentially optional, system behaviour. In this way, we separate optional behaviour from mandatory behaviour in the specification.
- To show that a sub flow is executed only under certain (sometimes exceptional) conditions, such as triggering an alarm.
- To show that there may be a set of behaviour segments of which one or several may be inserted at an extension point in a base use-case. The behaviour segments that are inserted (and the order in which they are inserted) will depend on the interaction with the actors during the execution of the base use-case.

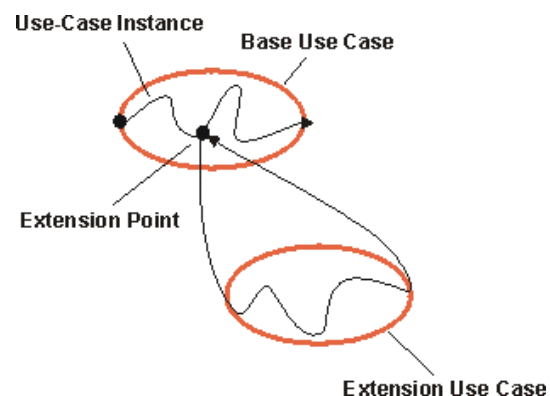


Figure 1. A use-case instance following a base use-case and its extension.

The extension is conditional, which means its execution is dependent on what has happened while executing the base use-case. The base use-case does not control the conditions for the execution of the extension – the conditions are described within the extend-relationship. The extension use-case may access and modify attributes of the base use-case. The base use-case, however, cannot see the extensions and may not access their attributes.

The base use-case is implicitly modified by the extensions. We can also say that the base use-case defines a modular framework into which extensions can be added, but the base does not have any visibility of the specific extensions.

The base use-case should be complete in and of itself, meaning that it should be understandable and meaningful without any references to the extensions. However, the base use-case is not independent of the extensions, since it cannot be executed without the possibility of following the extensions.

³ This sub-section have been derived from the Rational Unified Process documentation

When a use-case instance performing the base use-case reaches a location in the base use-case where an extension point has been defined, the condition on the corresponding extend-relationship is evaluated. If the condition is true or if it is absent, the use-case instance will follow the extension (or the insertion segment within it that corresponds to the extension point). If the condition of the extend-relationship is false, the extension is not executed.

The extension use-case may, just like any use-case, have a basic flow of events and alternative flows of events. Which exact path the use-case instance will take through the extension depends on what has happened before in the execution (the state of the use-case instance) and also what happens in interaction with actors as the extension is executed. Once the use-case instance has performed the extension, the use-case instance resumes executing the base use-case at the point where it left off.

2.1.1.3 Generalization Relationship⁴

A parent use-case may be specialized into one or more child use-cases that represent more specific forms of the parent. Neither parent nor child is necessarily abstract, although the parent in most cases is abstract. A child inherits all structure, behaviour, and relationships of the parent. Children of the same parent are all specializations of the parent.

We have used the generalization when we find two or more use-cases that have commonalities in behaviour, structure, and purpose. When this happens, we have described the shared parts in a new, often abstract, use-case, which is then specialized by child use-cases.

The child use-case is dependent on the structure of the parent use-case. The child use-case may add additional behaviour to the parent by inserting segments of behaviour into the inherited behaviour, or by declaring include- and extend-relationships to the child use-case. The child may modify behaviour segments inherited from the parent, although it must be done with care so that the intent of the parent is preserved. The child preserves the structure of the parent use-case. This means that all behaviour segments, described as steps or sub flows of the parent's flow of events, must still exist, but the child may modify the contents of these behaviour segments.

If the parent is an abstract use-case, it may have behaviour segments that are incomplete. The child must then complete those behaviour segments and make them meaningful to the actor.

A parent use-case need not have a relationship to an actor if it is an abstract use-case.

If two child use-cases are specializing the same parent (or base), the specializations are independent of one another, meaning they are executed in separate use-case instances. This is unlike the extend- or include-relationships, where several additions implicitly or explicitly modify one use-case instance executing the same base use-case.

Both use-case-generalization and include can be used to reuse behaviour among use-cases in the model. The difference is that with use-case-generalization, the execution of the children is dependent on the structure and behaviour of the parent (the reused part), while in an include-relationship the execution of the base use-case depends only on the result of the

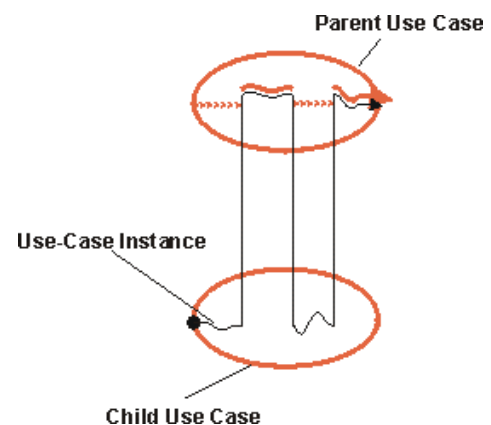


Figure 2. The use-case instance follows the parent use-case, with behavior inserted or modified as described in the child use-case








⁴ This sub-section have been derived from the Rational Rose documentation





function that the inclusion use-case (the reused part) performs. Another difference is that in a generalization the children share similarities in purpose and structure, while in the include-relationship the base use-cases that are reusing the same inclusion can have completely different purposes, but they need the same function to be performed.

A use-case instance executing a child use-case will follow the flow of events described for the parent use-case, inserting additional behaviour and modifying behaviour as defined in the flow of events of the child use-case.

2.1.2 Use-Case Diagrams Documentation

To draw the use-case diagrams described above, the following graphical elements has been adopted:

Element	Notation	Definition
	Use-case	Use-case describes the behavior of a system. It is used to structure things in a model. It contains multiple scenarios, each of which describes a sequence of actions that is clear enough for outsiders to understand.
	Note	The note notation is available on all diagram palettes. A note can be used for commenting additional explanation, specification and requirement in a diagram element or at a link in the diagram. It is not included in generated code. The contents of a note do not alter the meaning of the model to which it is attached. A note can contain any combination of text and graphics. It can also be used in defining a stereotype and entering a noted element.
	Anchor	The anchor notation is available on all diagram palettes. An anchor is used to line a diagram element and a note.
	Package	Package is a mechanism for organizing elements into groups. Packages may be nested within other packages. A package may contain both subordinate packages and ordinary model elements. The entire system description can be thought of as a single high-level subsystem package with everything else in it.
	System	A system/system boundary groups use-cases together to accomplish a purpose. Each use-case diagram can only have one system.
	Dependency	The dependency link is a semantic relationship between the two elements. It indicates that when a change occurs in one element, there may be a change necessary to the other element. A dependency link can include label and stereotype can be set.
	Actor	An actor represents a coherent set of roles that users of a system play when interacting with the use-cases of the system. An actor participates in use-cases to accomplish an overall purpose. An actor can represent the role of a human, a device, or any other systems.

	Association	Association is used to associate an actor to a use-case. It shows participation of an actor in a use-case. It is a set of links in which a link is a connection among objects.
	Include	Include is a link that links an inclusion use-case with a base use-case.
	Extend	Extend is a link that links an extension use-case with a base use-case. Extension use-case extends the behavior of the base use-case.
	Generalization	Generalization is a relationship between a general element and a more specific kind of that element. It means that the more specific element can be used whenever the general element appears. This relation is also known as specialization or inheritance link.

Then, each use-case diagram has been documented with the following information:

Use Case Extends Hierarchy – hierarchy of the extensions starting from the “Extended from” relationships of the use-case

Documentation – an informal description of the use-case

Rank – an assessment of the priority assigned by the user community

Parent – the name of the parent system/package that hosts the use-case

Extended from – the list of use-cases that are extended by the use-case

Extended by – the list of use-cases that extend the use-case

Extension points – names of extension points

Include – the list of use-case that are included by the use-case

Include by – the list of use-cases that include the use-case

Subclasses – the list of use-cases that specialize the use-case

Super class – name of the use-case that generalizes the use-case

Communication link – the list of associations with actors or other use-cases

Use-case description – a table that provides a formal description of the use-case with the following sections:

Author	<i>Use-case author name.</i>
Date	<i>Date of the latest release of the documentation.</i>
Version	<i>Use-case version.</i>
Goal in Context	<i>A longer statement of the goal in context.</i>
Preconditions	<i>What we expect is already the state of the world.</i>
Success End Condition	<i>The state of the world upon successful completion.</i>
Failed End Condition	<i>The state of the world if the goal is abandoned.</i>
Trigger	<i>The action upon the system that starts the use-case.</i>

Description	Step	<i>Action.</i>
	1 2 . n	<i>The steps of the use-case from the trigger to the goal delivery, and any cleanup after.</i>
Extensions	Step	<i>Branching Action.</i>
	1a	<i>Condition causing branching: action or name of sub use-case.</i>
Priority		<i>The following values can be specified: Mandatory High-desirable Desirable</i>
Performance		<i>The following values can be specified: Batch On-line</i>
Frequency		<i>How often it is expected to happen. The following values can be specified: Several time per day Several time per week Several time per month Several time per year</i>
Channels to actors		<i>Which channel the user wants to use. The following values can be specified: DILIGENT web portal ARTE web portal ARTE DL web portal</i>
Open issues		<i>List of issues awaiting a decision affecting this use-case.</i>
Note		<i>Any useful information.</i>

Note that, each time there is a UC with an extend relationship, the related table model this relationship filling into the Description field the sentence “step#: An authorized user performs an authorized operation” and into the Extensions field the corresponding UC using the sentence “step# branching action#. Action description”. For instance, the table for the UC “Define an ARTE DL” contains the following two rows:

...	...
Description	... <i>6: The Authorized user performs an authorized operation</i>
Extensions <i>6a. Edit the ARTE DL web properties: (Extension point to Edit an ARTE DL web portal properties use-case) 1: The Authorized user performs Edit an ARTE DL web portal properties Use-case.</i>
...	...
...	...

3 ARTE USE-CASE DIAGRAMS

The functionality of the system is decomposed into eight use-case diagrams. One of them represents the administrative activity related to the creation of an ARTE DL; three represent the management activities related to the organization of a course, the organization of a workshop and an exhibition catalogue, and the processing of videos, respectively; one diagram reports the activity related to the use of an ARTE DL; three diagrams represent the packages related to the services and functionalities which support the above activities. Figure 1 reports this logical decomposition.

Even if the use-case specification does not formally identify *time* or *use* based relationships, we indicate the following logical relationships between the diagrams to improve the readability of the formal specification. The first diagram represents the starting point of the activity of the ARTE community. It contains the description related to the creation and management of an ARTE DL. In particular the creation of an ARTE DL produces the activation of its DL workspace. Using this workspace, as reported in the second diagram, users can access and use the DL. The third, fourth, and fifth diagrams describe the activities that authorized users, the ARTE members, can perform using the DL workspace. With their activities, the DL becomes live and supports courses, workshops, exhibition catalogues, and video process management. All the above mentioned diagrams use the packages included in the remaining three diagrams in order to perform their activity.

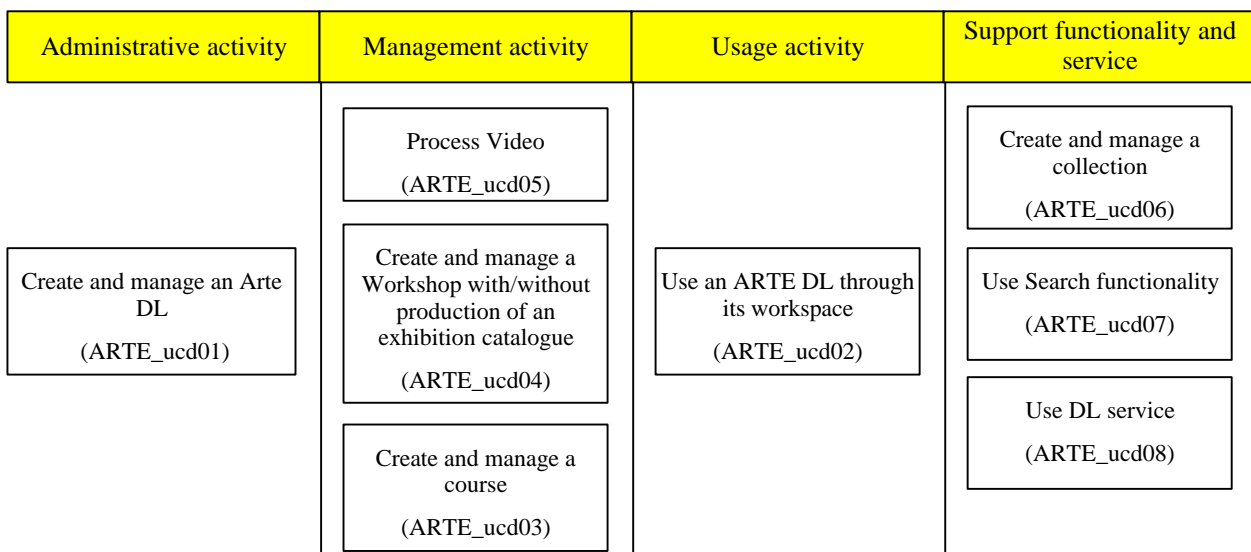


Figure 3. Logical decomposition of the ARTE functionality

3.1 ARTE_ucd01 DL Management

This Use-Case Diagram captures and models the functionalities related to the creation and management of an ARTE Digital Library. This activity involves three kinds of users:

- *DILIGENT Administrators*, i.e. actors that are in charge for supplying support to the ARTE community by registering the ARTE Members and making available the pool of resources (i.e. archives and services) needed to support the ARTE activities;
- *ARTE Members*, and in particular the *ARTE Director* or the *Director Assistants*, i.e. members of the ARTE community enabled to define the characteristics of the various ARTE DLs created to support the ARTE activities;
- *ARTE Administrators*, i.e. members of the ARTE community with some technical

skills that will be in charge for the creation and management of the ARTE DLs defined by the ARTE Members.

As a consequence, the functionalities modelled in the diagram can be grouped into three main areas, each performed by one of the actors presented above:

- *DILIGENT Resource Management.* This area deals with the management of the resources, i.e. archives and services, into the DILIGENT environment. For example, if the ARTE community needs to use an archive then they propose this archive to the DILIGENT Administrator who is in charge to make it available through DILIGENT;
- *ARTE DILIGENT Management.* This area is related to a) how to define the characteristics of the various ARTE DLs needed for supporting the activities of the ARTE community, and b) how to propose services and archives needed by this community for being included into the DILIGENT environment;
- *ARTE DL Management.* This area is related to the technical aspects of the real creation of a required ARTE DLs. The ARTE Administrator will, using the requirement and definition made by the ARTE Members, physically i) create, ii) update and iii) remove the various ARTE DLs.

3.2 ARTE_ucd02 Workspace Management

This Use-Case Diagram captures and models the functionalities related to the use of an existing ARTE DL, and in particular with its use via a workspace. In fact, the ARTE community assumes that each ARTE DL will be equipped with a workspace. These functionalities have been partitioned into three areas:

- *Manage Workspace.* This functionality captures the management activities available in each workspace, i.e. the possibility to a) access, save, or remove objects, b) to make a particular operation of image processing, c) to manage collections, and d) to make various kinds of search for objects.
- *Manage Student Workspace.* This functionality is related to the workspace management done by Students. Students are a particular kind of users, those involved in a course, and they can perform just the operations available on each workspace using the services offered by the DL created for supporting that course; in particular their workspace will contain the collections and the related services that the teacher have chosen for the course.
- *Manage an ARTE DL Workspace.* This functionality is related to the management of the ARTE workspace, i.e. the workspace shared by the ARTE Members which allows a) courses management (ARTE_ucd03), b) workshops management (ARTE_ucd04), and c) a particular kind of video processing process (ARTE_ucd05).

3.3 ARTE_ucd03 Course Management

This Use-Case Diagram captures and models one of the functionalities accessible through the ARTE DL workspace, the course management. The process to create a course is mainly composed by two operations:

- the creation of one or more collections,
- the selection of users for that course.

The creation of a collection is a complex operation that involves a) the selection of the objects to be included into the collection, b) the selection of the services that will be used to act on the collection content, and c) the selection of the users that will be entitled to access

the collection. An important aspect to notice is the cooperative aspect of this use-case. In fact, Collaborator actors are involved as actors in this use-case via the use of the *Annotation Management*. These actors can be invited by the ARTE Member to have access to the course material and contribute to it annotating its content in order to notify the course creator of new and pertinent objects.

For more details on the Collection Management functionality see the ARTE _ucd06 Use-Case Diagram.

3.4 ARTE_ucd04 Workshop Management

This Use-Case Diagram captures and models one of the functionalities accessible via the ARTE DL workspace, the workshop management and the related activity of creation of an exhibition catalogue. The process to support a workshop is mainly composed by two operations:

- the selection of speaker and participants for that workshop,
- the creation of one or more exhibition catalogues.

Invited speakers generally are well known scholars, but it might be desirable to invite new ones. While the search for participants is covered by the *Search Users* functionality, the process for the selection of speakers is particularly complex and needs further details. For example, speakers can be found by searching co-authors of known significant essays, or authors of essays on significant known objects about the workshop topic. If a well-known author has written significant essays together with a co-author who is not known, then other possible essays of this co-author are searched to evaluate her/his work. Another way to search speakers is as follow: if an image is considered to be of particular interest for the workshop, then this images is submitted as a search query and the retrieved objects/authors are evaluated.

The creation of an exhibition catalogue is covered by two functionalities: the *Create a Collection*, in order to identify the object belonging to that catalogue, and the *Annotation Management*, in order to allow ARTE members and possibly distant collaborators to cooperate to realize the catalogue and enrich the catalogue objects with contextual information.

3.5 ARTE_ucd05 Process Videos

This Use-Case Diagram captures and models one of the functionalities accessible via the ARTE DL workspace, the process videos functionality. The process aims at building a new collection via *Create a Collection* using some video frames, identified via the *Search Video Frames by Keywords*, that the ARTE Member deemed as relevant. It is important to notice that the creation of a new collection involves also the functionality of *Metadata Generation*, i.e. a process that automatically will produce information on these newly identified video frames like the text produced by the speech of the video. These characteristics can be used to generate appropriate data structures, via the *Index Management* functionality, enhancing the access to and the retrieval of those videos.

3.6 ARTE_ucd06 Collections Management

This Use-Case Diagram captures and models the functionalities related to the management of a collection, i.e. create, update and remove. Three parts compose a collection:

- the content identified by the *Define Membership Criteria* functionality,
- the set of services enabled to act on the collection content identified by the *Select*

Services functionality, and

- the set of users enabled to access the collection content using the collection services identified by the *Search Users* functionality.

3.7 ARTE_ucd07 Search

This Use-Case Diagram captures and models the search functionality, one of the most important activities performed using a DL. The search functionality is covered by:

- the *Search and Retrieve Objects* use-case and its various specializations (e.g. *Search Objects by Image*, *Search Object by Tone*, etc.) in order to find information objects, e.g. documents, images, etc., capable to satisfy the needs of a user;
- the *Search Archives* use-case and its various specializations (e.g. *Search Archives by Image*) in order to find archives capable to satisfy user needs.

Other two aspects to notice are:

- a *Relevance Feedback* functionality is required and
- the *Search Archives* functionality can be used also in conjunction with the *Search and Retrieve Objects* in order to specify the set of archives where the search for objects must be performed.

3.8 ARTE_ucd08 Services

This Use-Case Diagram captures and models all the functionalities needed for supporting the ARTE Community. These functionalities have been grouped into five main areas:

- *Object Management*, contains a set of functionalities needed for managing objects;
- *Collection*, already described in ARTE_ucd06;
- *Annotation*, contains a set of functionalities needed for managing annotations;
- *User management*, contains a set of functionalities for managing users;
- *Search*, already described in ARTE_ucd07.

4 CONCLUSIONS

This deliverable regards the ARTE view of DILIGENT, i.e. what the ARTE community expects from interacting with DILIGENT and it contains the formal specification of such a view.

After this first three-month period we have reached a good level of details in making the first specification for the entire ARTE test-bed and we deem that the results of this work can be fruitfully used as an input for the work package “WP1.1 Test-bed Functional Specification”. Obviously, this specification will be improved and agreed with technological partners during the next 15 months (task “T2.1.2 ARTE Functional Feedback”).

The software engineering process adopted to collect ARTE requirements was the Unified Process (UP), according to Annex I – “Description of Work”. UP framework for approaching user requirements collection and analysis was appropriate for the ARTE requirements.

At the beginning the ARTE community members were interviewed in order to identify which roles they were playing within the ARTE activities, which were the tasks they were involved in, and which improvement in their work they were looking for. Both interviews and following discussions produced the first functional and non functional requirements. At the same time, the tools and the archives currently employed by the ARTE scholars in their daily work were deeply examined. The result of this work has been reported into the “High level requirements”, “Data sources”, and “Services” sections of the Appendix B.

After this first step, we started with the analysis of these requirements in order to produce a formal specification. Despite the initial difficulties to introduce UP to the ARTE community, we think that this technique was useful to validate the models with ARTE members. At the end, we documented 71 use-cases, used by nine actors.

As a strong point of the work we have carried out we consider the fact that it represents a complete documentation of what the ARTE community is requiring from DILIGENT, and that this documentation can be formally communicated to the technological partners.

As a weak point we notice that some aspects that regard the interaction between the DL environments and DILIGENT are not fully documented because we are in an early stage of the project and this characteristics have not been defined yet (see, for example, the DL creation mechanism, or the definition of how archives and service to be imported into DILIGENT are to be described). New requirements could be introduced when the functional specification of the system from WP1.1 will be presented to the ARTE community (feedback phase, task “T2.1.2 ARTE Functional Feedback”).

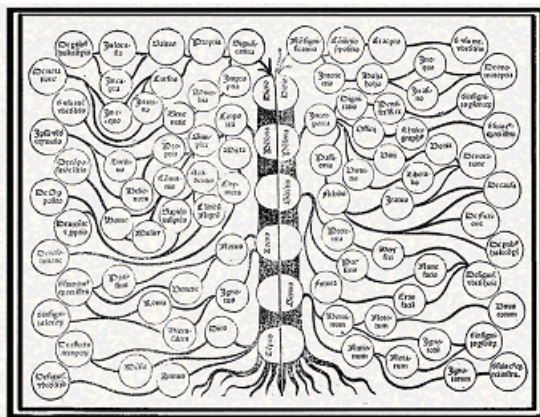
We hope that all the reported requirements will be satisfied by DILIGENT, however a more realistic view based on the available resources make us anticipate that only a subset of these requirements will be covered. Because of this, we shall produce a priority list to establish, from the ARTE point of view, how critical for the system a documented use-case is (used values are: Mandatory, Highly desirable, and Desirable).

Appendix A. Samples of Images

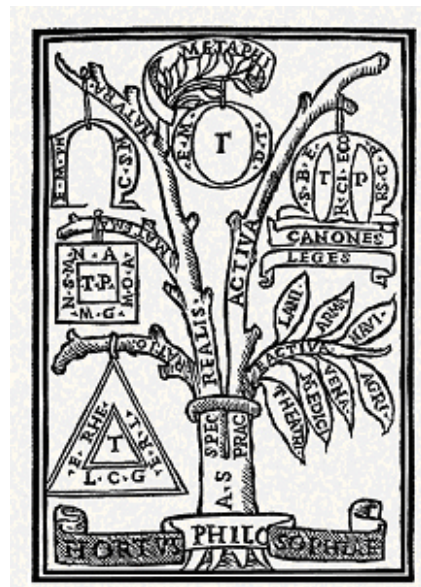
Some of the requirements expressed by the ARTE members regard the function of searching by images. In order to make their requirements clearer, ARTE members have completed the requirement textual description with the images reported in this Appendix.

The images shown in Figures 1, 2, and 3 are three examples of *trees of memory* derived from Art of Memory treatises from XVI - XVII Century (a *tree of memory* is a symbolic depiction used to increase and improve memory). These images are cited in some UC documentation to explain what is meant by “similar images”

The images shown in Figures 4 and 5 are two examples of figurative alphabets derived from Art of Memory treatises from XVI - XVII Century. These images are cited to explain what by “complex images” is meant.



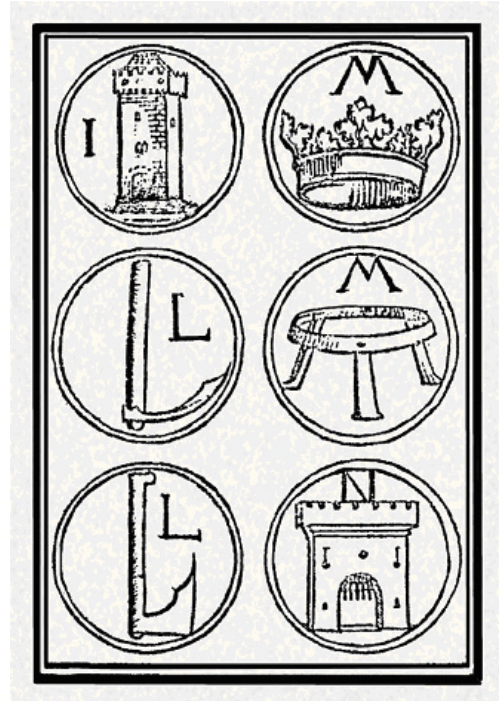
Appendix A. Figure 1. J. Publicius, “Ars memorativa”, 1482



Appendix A. Figure 2. L. Dolce, “Dialogo del modo di accrescere e conservar la memoria”, 1552



Appendix A. Figure 3. G. Reisch, *Margarita philosophica*, 1525



Appendix A. Figure 4. L. Dolce, "Dialogo del modo di accrescere e conservar la memoria", 1552



Appendix A. Figure 5. C. Rosselli, "Thesaurus Artificiose Memoriae", 1579

Appendix B. Use-case Specification

The following use-case specification is automatically generated using the Visual-Paradigm[®] tool.

Visual Paradigm for the Unified Modeling Language (VP-UML) is a UML CASE tool. It is used to build large-scale software systems reliably through the use of the Object-Oriented approach. VP-UML supports the latest standards of UML notations, including the importing and exporting in XML Metadata Interchange (XMI) format (XMI 1.1 for UML 1.3 Unisys Extension / XMI 1.1 for UML 1.4 OMG).

In order to allow the exchange of the specification among the various partners of the project the XMI version of these diagrams will be make available.

ARTE_ucd01 DL Management

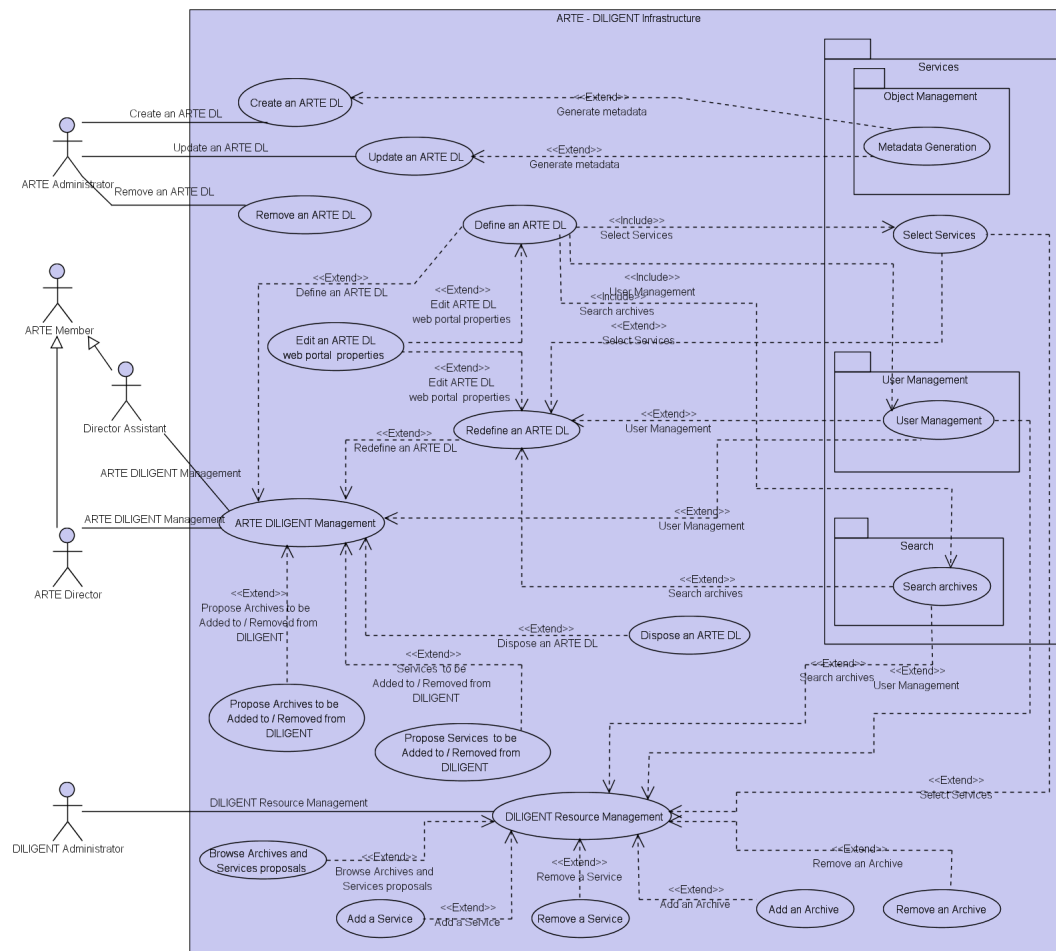










Diagram Content Summary

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-  [Services](#)
-  [User Management](#)
-  [Search](#)
-  [Object Management](#)
-  [Create an ARTE DL](#)
-  [Update an ARTE DL](#)
-  [Define an ARTE DL](#)
























-  [Remove an ARTE DL](#)
-  [Redefine an ARTE DL](#)
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-  [ARTE Director](#)
-  [ARTE Administrator](#)
-  [Director Assistant](#)
-  [ARTE Member](#)
-  [DILIGENT Administrator](#)

Diagram Content Detail

 **UseCase** Create an ARTE DL

Documentation

The ARTE Administrator creates an ARTE DL according to the instructions given in the "Define an ARTE DL" UC by the ARTE Director or a Director Assistant. Such instructions regard:

- a) which name the DL is to be given;
- b) which archives are to be included in the DL;
- c) which services are to be associated; and
- d) which are the users that will be entitled to access the DL.

The creation of any ARTE DL causes a workspace be created and associated with it.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

[Metadata Generation](#)

Extension Point

Name : Generate metadata

Communication Link [Create an ARTE DL to ARTE Administrator](#)

Use Case Description

Description

Author	SNS-CNR
Date	10 Nov 04
Version	1.0
Goal in context	The ARTE Administrator creates an ARTE DL based on the "Define an ARTE DL" use case.
Preconditions	The ARTE Administrator is a registered DILIGENT user.
Success end condition	The ARTE DL is created.
Failed end condition	No ARTE DL is created.
Trigger	The "Define an ARTE DL" use case was successfully executed and the "Create an ARTE DL" option was selected.
Description	<p>1: The ARTE Administrator (AA) logs in into the ARTE web portal.</p> <p>2: The AA browses the list of ARTE DL definitions.</p> <p>3: The AA selects one of the available definitions.</p> <p>4: The AA confirms selected archives to be included into the ARTE DL.</p> <p>5: The AA confirms selected services to be included into the ARTE DL.</p> <p>6: The AA confirms user management of the ARTE DL users.</p> <p>7: The AA performs ARTE DL specific operations (technical decisions about the DL, like index, storage, etc.).</p> <p>8: The AA creates the ARTE DL.</p> <p>9: The AA logs out from the ARTE web portal.</p>

Extensions	<p>*. At any time, System fails: To support recovery, ensure all transaction sensitive state and events can be recovered from any step of the scenario.</p> <p>1: The AA reloads ARTE web portal, logs in, and requests recovery of prior state</p> <p>5a. Metadata Generation: (extension point to Metadata Generation use case)</p> <p>1: AA performs the Metadata Generation use case</p>
Priority	Mandatory
Performance	Batch
Frequency	Several times per month
Channels to actors	ARTE web portal

UseCase Update an ARTE DL

Documentation

The ARTE Administrator updates an ARTE DL including new archives or removing already existing ones, including /removing services or updating them according to the instructions given in the "Redefine an ARTE DL" UC by the ARTE Director or a Director Assistant.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

[Metadata Generation](#)

Extension Point

Name : Metadata generation

Communication Link [Update an ARTE DL](#) to [ARTE Administrator](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04

Version	1.0
Goal in context	Update an ARTE DL, add / delete ARTE archives / services and/or ARTE users.
Preconditions	There exists an ARTE DL.
Success end condition	An ARTE DL is updated.
Failed end condition	No updating is made.
Trigger	"Redefine an ARTE DL" use case was executed.
Description	<p>1: The ARTE Administrator (AA) logs in into the ARTE web portal.</p> <p>2: The AA browses list of ARTE DL redefinitions.</p> <p>3: The AA selects one of the available redefinitions.</p> <p>4: The AA confirms selected archives to be included into / removed from the ARTE DL.</p> <p>5: If Metadata Generation is required extension point to Metadata Generation use case.</p> <p>6: The AA confirms selected services to be included into / removed from the ARTE DL.</p> <p>7: The AA confirms user management of the ARTE DL users.</p> <p>8: The AA performs ARTE DL specific operations (technical decisions about the DL, like index, storage, etc.).</p> <p>9: The AA updates the ARTE DL.</p> <p>10: The AA logs out from the ARTE web portal.</p>
Extensions	<p>*. At any time, Systems fails: To support recovery, ensure all transaction sensitive state and events can be recovered from any step of the scenario.</p> <p>1: The AA reloads ARTE web portal, logs in, and requests recovery of prior state</p>
Priority	Mandatory
Performance	Batch
Frequency	Several times per month

Channels to actors	ARTE web portal
---------------------------	-----------------

UseCase Define an ARTE DL

Use Case Extends Hierarchy

ARTE DILIGENT Management

| +-Define an ARTE DL

Documentation

The ARTE project director and her team decide the definition criteria to create an ARTE DL, i.e. which archives, resources and services might be useful to support the activities to be held within the ARTE project (research, courses, workshops, expositions, etc.). Assuming that there exists an ARTE DILIGENT Portal, the following actions should be possible for defining any ARTE Digital Library:

1) **SELECTING KNOWN ARCHIVES:** The user wants to select one or more archives to insert them in the DL, whether to create it ex-novo or to update it. The user knows the archive ID or some elements of the archive description (Name, Publishing Institution, keywords, etc.) and uses search/browse operations to find the archive s/he wants to select. Then s/he looks at the archive description to verify if selection criteria regarding access/policy rights etc. are met, and if everything is OK, selects that archive for the ARTE DL s/he is creating. If in the archive description the user has seen a link to another archive of possible interest, then s/he accesses that archive, evaluates its content, policy rights, etc., and repeats the selection/inclusion operations.

2) **SEARCHING ARCHIVES CONTAINING GIVEN IMAGES AND INCLUDE THESE ARCHIVES IN THE DIGITAL LIBRARY:** After selecting well-known archives for inclusion in the ARTE DL, the user wants to enrich the ARTE DL with other possibly interesting archives. The user doesn't know any description element of the archives which s/he is interested in, s/he knows instead which content s/he is interested in. For example, the user presumes that a given image contained in a literary text has later been used to illustrate texts of different kinds, for example texts of medicine or science history. S/he wants to verify such an hypothesis and see: i) whether archives different from the well-known ones contain that image;

and, if so, ii) whether those archives are to be included in the ARTE DL. To this aim, the user searches the archives (all or a class of them, if DILIGENT can organize archives into subject classes) by submitting that image as a query. Then the user accesses each of the retrieved images and, if it is of interest, identifies the archive where it is contained in order to include that archive in the Digital Library.

3) **SELECTING SERVICES:** The people in charge for defining the DL want to select one or more services for equipping the DL. In order to do it they must be authorized to search among the DILIGENT available services and select those that will satisfy their needs, i.e. the needs of the users of the DL. The ARTE team judges the following services to be very useful:
- Text and image searching - Personalization of objects views - Browsing of archive content or indexes - Definition of virtual collections - Annotation of documents - Personalization of access rights - Define user categories and associated rights.

4) **SELECTING USERS:** The ARTE Director or a Director Assistant wants also to define the users who will have access to the DL. In order to do it, the ARTE Director or a Director Assistant has to be able to i) search for potential users already registered inside DILIGENT and ii) to register new users to DILIGENT.

5) **EDITING THE WEB PORTAL PROPERTIES:** Finally, the ARTE Director or a Director Assistant wants to define the characteristics (e.g. the layout, the look&feel, etc.) of the Web portal that will be the DL access point.

At the end of these selection steps a list containing all the choices made by the ARTE Director or a Director Assistant is produced and stored into the system in order to allow the ARTE Administrator to effectively create the defined ARTE DL (see "Create an ARTE DL" UC).

Lastly, the form defining an ARTE DL is to be filled in at least with the following data:

- Name of the DL to be created
- Description
- Information about the issuing (or cooperating) institution(s)
- Information about access rules/rights

Rank : High**Parent :** [ARTE - DILIGENT Infrastructure](#)**Include:**[User Management](#), [Select Services](#), [Search archives](#)**Extended by**[Edit an ARTE DL web portal properties](#)**Extension Point****Name :** Edit an ARTE DL web portal properties**Extend from**[ARTE DILIGENT Management](#)**Use Case Description****Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Select the digital content that might be useful to support the ARTE Project and which services should be applied upon, as well as the authorized users and ARTE DL web portal properties, in order to create the definition of an ARTE DL. Define user administration criteria.
Preconditions	The Arte Director (or the Director Assistant) is a DILIGENT registered user.
Success end condition	An ARTE DL definition is created.
Failed end condition	No operation is made.
Trigger	An ARTE DL definition must be created.
Description	1: An Authorized User (AU) inputs ARTE DL name. 2: AU edits ARTE DL information, i.e. Description (see use case Documentation). 3: The AU selects the archives to be included into the ARTE DL. 4: The AU selects the services to be included into the ARTE

	DL. 5: The AU manages the users and their rights with access to the ARTE DL. 6: The AU performs an authorized operation. 7: The AU confirms the operations made and exits.
Extensions	1a. ARTE DL name exists: 1: System signals error and rejects entry 6a. Edit the ARTE DL web portal properties: (Extension point to Edit an ARTE DL web portal properties use case) 1: The AU performs Edit an ARTE DL web portal properties use case
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE web portal

 **UseCase** Remove an ARTE DL
Documentation

The ARTE Administrator removes a given ARTE DL according to the request made in the "Dispose an ARTE DL" UC by the ARTE Director or a Director Assistant, and performs required operations about preservation of ARTE DL generated content, etc.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Communication Link [Remove an ARTE DL](#) to [ARTE Administrator](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0

Goal in context	Remove an ARTE DL.
Preconditions	There exists an ARTE DL and a remove request is done.
Success end condition	An ARTE DL is removed.
Failed end condition	No remotion is made.
Trigger	The "ARTE DILIGENT Management" use case was executed and the "Dispose an ARTE DL" was performed.
Description	<p>1: The ARTE Administrator (AA) logs in into the ARTE web portal.</p> <p>2: The AA browses the list of the ARTE DL to dispose and eventually select one of them.</p> <p>3: The AA performs ARTE DL specific operations about preservation of ARTE DL generated content, etc.</p> <p>4: The AA removes the ARTE DL.</p> <p>5: The AA logs out from the ARTE web portal.</p>
Extensions	<p>*: At any time, Systems fails: To support recovery, ensure all transaction sensitive state and events can be recovered from any step of the scenario.</p> <p>1: The AA reloads the ARTE web portal, logs in, and requests recovery of prior state.</p>
Priority	Mandatory
Performance	Batch
Frequency	Several times per year
Channels to actors	ARTE web portal



UseCase Redefine an ARTE DL

Use Case Extends Hierarchy

```

ARTE DILIGENT Management
| +-Redefine an ARTE DL

```

Documentation

The ARTE Director and/or a Director assistant decides how to update a given ARTE DL definition, e.g. when new archives/services/users must be included, or which existing ones must be removed.

A list containing all the choices is produced and stored into the system in order to allow the ARTE Administrator to effectively update the given ARTE DL (see "Update an ARTE DL" UC).

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

[Edit an ARTE DL web portal properties](#),

[Select Services](#),

[User Management](#),

[Search archives](#)

Extension Point

Name : Edit an ARTE DL web portal properties

Name : Select services

Name : User management

Name : Search archives

Extend from

[ARTE DILIGENT Management](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Modify an ARTE DL definition (services, archives, users).
Preconditions	There exists an ARTE DL.
Success end condition	Parameters were modified and ARTE Administrator is notified.
Failed end condition	No ARTE DL change
Trigger	An ARTE Member needs to modify an ARTE DL.

Description	<p>1: The Authorized User (AU) inputs an existing ARTE DL name.</p> <p>2: ARTE DL information, like Description, is browsed by the AU.</p> <p>3: ARTE DL archives are browsed by the AU and eventually selected to remove.</p> <p>4: ARTE DL services are browsed by the AU and eventually selected to remove.</p> <p>5: The AU confirms or rejects previous selection to remove.</p> <p>6: The AU selects the new services to be available from the ARTE DL.</p> <p>7: The AU selects the new archives to be available from the ARTE DL.</p> <p>8: The AU manages the users with access to the ARTE DL.</p> <p>9: The AU confirms operations made and exit.</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE web portal

UseCase Dispose an ARTE DL

Use Case Extends Hierarchy

ARTE DILIGENT Management
 | +-Dispose an ARTE DL

Documentation

The ARTE Director or a Director Assistant requests a given ARTE DL to be removed, specifying what to do with internal DL information. This request is then handled by the ARTE Administrator (see "Remove an ARTE DL" UC).

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extend from

[ARTE DILIGENT Management](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Make request to remove an ARTE DL.
Preconditions	There exists and ARTE DL.
Success end condition	Request to remove an ARTE DL produced.
Failed end condition	No ARTE DL changes.
Trigger	An ARTE DL must be removed.
Description	<p>1: An Authorized User (AU) inputs the name of an ARTE DL.</p> <p>2: The AU analyzes the ARTE DL information (Description, users, etc.).</p> <p>3: The AU selects "preserve the generated content" or "remove the generated content".</p> <p>4: The AU submits the dispose ARTE DL request.</p>
Extensions	<p>2a. Invalid Identifier:</p> <p>1: System signals error, rejects entry and asks for input of a new ARTE DL name.</p>
Priority	Mandatory
Preformance	On line
Frequency	Several times per month
Channels to actors	ARTE web portal

UseCase DILIGENT Resource Management

Documentation

In this use case the DILIGENT Administrator can:

- a) Manage users of type ARTE Director and ARTE Administrator (e.g.

register a new user, remove a user, etc.);

b) Browse Archives / Services proposals;

c) Add new Archives into DILIGENT;

d) Remove Archives from DILIGENT;

e) Search DILIGENT Archives;

f) Add new Services into DILIGENT;

g) Remove Services from DILIGENT;

h) Select DILIGENT Services;

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

[Search archives](#),

[Select Services](#),

[User Management](#),

[Add a Service](#),

[Remove a Service](#),

[Add an Archive](#),

[Remove an Archive](#),

[Browse Archives and Services proposals](#)

Extension Point

Name : Search archives

Name : Select services

Name : User management

Name : Add a service

Name : Remove a service

Name : Add an archive

Name : Remove an archive

Name : Browse Archives and Services proposals

Communication Link [DILIGENT Resource Management](#) to [DILIGENT Administrator](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0

Goal in context	Manage DILIGENT archives, services, and users.
Preconditions	DILIGENT is up and running.
Success end condition	DILIGENT could be changed depend on operations performed.
Failed end condition	The DILIGENT Administrator is not able to perform the decided operations.
Trigger	The DILIGENT Administrator wants to operate upon the DILIGENT resources.
Description	<p>1: The DILIGENT Administrator (DA) logs in into the DILIGENT web portal.</p> <p>2: The DA performs an authorized operation.</p> <p>3: The DA logs out from the DILIGENT web portal.</p>
Extensions	<p>*. At any time, Systems fails: To support recovery, ensure all transaction sensitive state and events can be recovered from any step of the scenario.</p> <p>1: The DA reloads DILIGENT web portal, logs in, and requests recovery of the prior state.</p> <p>2a. DA selects User management options (extension point to User Management UC):</p> <p>1: DA, using the User Management package, can: add, remove, or edit user properties of an existing user of type ARTE Administrator and ARTE Director.</p> <p>2: DA backs to main DILIGENT web portal</p> <p>2b. DA selects to browse proposed archives and services: (extension point to Browse Archives and Services proposals use case)</p> <p>1: DA performs Browse Archives and Services proposals</p> <p>2: DA backs to main DILIGENT web portal</p> <p>2c. DA selects to add an archive to DILIGENT: (extension point to Add an Archive use case)</p> <p>1: DA performs Add an Archive use case</p>

	<p>2: DA backs to main DILIGENT web portal</p> <p>2d. DA selects to remove an archive from DILIGENT: (extension point to Remove an Archive use case) 1: DA performs Remove an Archive use case 2: DA backs to main DILIGENT web portal</p> <p>2e. DA selects to search archives: (extension point to Search Archives use case) 1: DA performs the Search Archives use case 2: DA backs to main DILIGENT web portal</p> <p>2f. DA selects to add service to DILIGENT: (extension point to Add a Service use case) 1: DA performs Add a Service use case 2: DA backs to main DILIGENT web portal</p> <p>2g. DA selects to remove a service from DILIGENT: (extension point to Remove a Service use case) 1: DA performs Remove a Service use case 3: DA backs to main DILIGENT web portal</p> <p>2h. DA select to selects services: (extension point to Select Services use case) 1: DA performs Select Services use case 2: DA backs to main DILIGENT web portal</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	DILIGENT web portal

 **UseCase** Propose Services to be Added to / Removed from DILIGENT

Use Case Extends Hierarchy

ARTE DILIGENT Management

| +-Propose Services to be Added to / Removed from DILIGENT

Documentation

An authorized user (the ARTE Director or a Director Assistant) proposes new service to be included in or removed from the DILIGENT resources by filling in the appropriated request form.

For each service/tool, minimum data to be filled in are:

- Name of the proponent
- Service/tool name
- Service type (web service, retrieval software, image processing software, etc.)
- Service/tool license (GNU, property, Open source, etc.)

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extend from

[ARTE DILIGENT Management](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Propose a service to be included into or removed from the DILIGENT infrastructure.
Preconditions	DILIGENT is up and running.
Success end condition	A DILIGENT proposed service form is filled in.
Failed end condition	No change into DILIGENT.
Trigger	An authorized user wants to propose a service to be included into or removed from DILIGENT.
Description	1: The Authorized User (AU) fills in the form "Propose Services", where information about a service is input (see use case Documentation).

	2: AU selects one of the following options: "add proposed service" or "remove proposed service". 3: AU submits the form
Priority	Mandatory
Performance	On line
Frequency	Several times per month
Channels to actors	ARTE web portal

UseCase ARTE DILIGENT Management

Documentation

In this use case the ARTE Director or a Director Assistant can:

- a) Define an ARTE DL;
- b) Dispose an ARTE DL;
- c) Propose Services and Archives to be included into or be removed from DILIGENT;
- d) Add or remove users, Edit users properties (categories of ARTE users are: Director Assistant, ARTE Member, Collaborator and Student).

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

- [Define an ARTE DL](#),
- [Propose Services to be Added to / Removed from DILIGENT](#),
- [Dispose an ARTE DL](#),
- [User Management](#),
- [Propose Archives to be Added to / Removed from DILIGENT](#),
- [Redefine an ARTE DL](#)

Extension Point

Name : Define an ARTE DL

Name : Services to be ¶Added to / Removed from¶DILIGENT

Name : Dispose an ARTE DL

Name : User management

Name : Archives to be ¶Added to / Removed from¶DILIGENT

Name : Redefine an ARTE DL

Communication Link [ARTE DILIGENT Management to Director Assistant](#)


Communication Link [ARTE DILIGENT Management to ARTE Director](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Manage ARTE DILIGENT issues like ARTE users, ARTE DLs, Services and Archives to be used.
Preconditions	DILIGENT is up and running.
Success end condition	ARTE DILIGENT management is performed.
Failed end condition	Nothing change into DILIGENT.
Trigger	An authorized user needs to perform ARTE DILIGENT management operations.
Description	<p>1: An authorized user (AU), i.e. the ARTE Director or a Director Assistant, logs in into the ARTE web portal</p> <p>2: The AU performs an authorized operation</p> <p>3: The AU logs out from the DILIGENT web portal</p>
Extensions	<p>*: At any time, Systems fails:</p> <p>To support recovery, ensure all transaction sensitive state and events can be recovered from any step of the scenario.</p> <p>1: The AU reloads the ARTE web portal, logs in, and requests recovery of prior state</p> <p>2a. AU selects User management options (extension point to User Management UC):</p> <p>1: AU, using User Management package, can: add, remove, or edit the user properties of an existing user of type ARTE Administrator, ARTE Director, Director Assistant, ARTE Member</p>

	<p>2: AU backs to main DILIGENT web portal</p> <p>2b. AU selects the "Propose Archives to be Added to / Removed from DILIGENT" option (extension point to "Propose Archives to be Added to / Removed from DILIGENT" UC): 1: AU backs to main DILIGENT web portal</p> <p>2c. AU selects the "Propose Services to be Added to / Removed from DILIGENT" option (extension point to "Propose Services to be Added to / Removed from DILIGENT" UC): 1: AU backs to main DILIGENT web portal</p> <p>2d. AU selects the "Define an ARTE DL" option (extension point to Define an ARTE DL UC): 1: AU performs Define an ARTE DL use case 2: AU backs to main DILIGENT web portal</p> <p>2e. AU selects the "Redefine an ARTE DL" option (extension point to Redefine an ARTE DL UC): 1: AU performs Redefine an ARTE DL use case 2: AU backs to main DILIGENT web portal</p> <p>2f. AU selects the "Dispose an ARTE DL" option (extension point to Dispose an ARTE DL UC): 1: AU performs Dispose an ARTE DL use case 2: AU backs to main DILIGENT web portal</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE web portal

 **UseCase** Edit an ARTE DL web portal properties

Use Case Extends Hierarchy

```

ARTE DILIGENT Management
| +-Define an ARTE DL
| +-Redefine an ARTE DL
| +-Edit an ARTE DL web portal properties

```

Documentation

One of the steps involved in the "Define an ARTE DL" and "Redefine an ARTE DL" is related with the definition of the Web Portal properties of such DL. Some of these characteristics are derived by the pool of services the DL will be equipped with, while others (e.g. the layout, the look&feel, etc.) can be subjected to configuration by the ARTE Director and Director Assistant.

The web portal properties that should be possible to edit are at least:

- The ARTE - CTL Logo/Image
- About to information
- layout (background, colors, fonts, etc.)

Rank : Low

Parent : [ARTE - DILIGENT Infrastructure](#)

Extend from

[Define an ARTE DL](#)

[Redefine an ARTE DL](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Edit the ARTE DL web portal properties.
Preconditions	The Arte Director is a DILIGENT registered user.
Success end condition	ARTE DL web portal properties are edited and ARTE DL web portal is updated.
Failed end condition	No change in the ARTE DL web portal.
Trigger	An authorized user wants to change an ARTE DL web portal

	properties.
Description	1: The Authorized User (AU) browses the ARTE DL web portal properties (required DL web portal properties described in the use case Documentation). 2: The AU sets preferred options.
Priority	Desirable
Performance	On line
Frequency	Several times per year
Channels to actors	ARTE web portal

UseCase User Management

Use Case Extends Hierarchy

```

ARTE DILIGENT Management
| +-DILIGENT Resource Management
| +-Manage an ARTE DL workspace
| +-Workshop Management
| +-Manage Workspace
| +-Course Management
| +-Collection Management
| +-Update a Collection
| +-Redefine an ARTE DL
| +-User Management

```

Documentation

This Use Case deals with all the functionalities related to the management of users: i) add users, ii) update user properties, iii) remove users and iv) search for users. Each user has a set of personal properties (e.g. name, e-mail, address, fields of interest, etc.) and other information needed for managing the rights the user has.

Rank : High

Parent : [User Management](#)

Include by:

[Define an ARTE DL](#), [Course Management](#), [Create a Collection](#)

Extended by

[Add user](#) ,
[Remove user](#) ,
[Search Users](#) ,
[Edit user properties](#)

Extension Point

Name : Add user
Name : Remove user
Name : Search users
Name : Edit user properties

Extend from

[ARTE DILIGENT Management](#)
[DILIGENT Resource Management](#)
[Workshop Management](#)
[Update a Collection](#)
[Redefine an ARTE DL](#)

Use Case Description**Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Add, Remove, Edit user properties, and Search ARTE users.
Preconditions	User Management service is available.
Success end condition	If an operation is performed, the required operation is executed.
Failed end condition	No user information changes.
Trigger	ARTE users management is required.
Description	1: The Authorized User (AU) performs an authorized operation.
Extensions	1a. Add a user: (extension point to Add user use case) 1: The AU performs the Add user use case

	<p>1b. Remove a user: (extension point to Remove User use case) 1: The AU performs the Remove User use case</p> <p>1c. Edit user properties: (extension point to Edit user properties use case) 1: The AU performs the Edit user properties use case</p> <p>1d. Search users: (extension point to Search users use case) 1: The AU performs the Search users use case</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

UseCase Select Services

Use Case Extends Hierarchy

DILIGENT Resource Management

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-ARTE DILIGENT Management
- | +-Redefine an ARTE DL
- | +-Select Services

Documentation

This Use Case deals with the operation of selecting services capable to satisfy the needs of a user. It is used in two main contexts: i) the definition of an ARTE DL, and ii) the creation of a collection.

For example, the ARTE Director or a Director Assistant selects which DILIGENT services have to be included in an ARTE DL after browsing the

available services and selecting one or more of them. An authorized user selects which services a collection must be equipped with after identifying the services capable to deal with the collection content.

Rank : High

Parent : [Services](#)

Include by:

[Create a Collection](#) , [Define an ARTE DL](#)

Extend from

[DILIGENT Resource Management](#)


[Update a Collection](#)

[Redefine an ARTE DL](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Select services to be included into an ARTE DL or in a collection.
Preconditions	DILIGENT is up and running.
Success end condition	0 to n services are selected.
Failed end condition	No service is selected.
Trigger	Services need to be discovered in order to be added to an ARTE DL or to a collection.
Description	1: The Authorized User (AU) browses over available services and eventually selects some of them.
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

 **UseCase** Search archives

Use Case Extends Hierarchy

DILIGENT Resource Management

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-Define Membership Criteria
- | +-Search and Retrieve Objects
- | +-Search archives

Documentation

This Use Case deals with the search of archives capable to satisfy the needs of a user. This operation can be used in different contexts, e.g. when a DL is defined this operation allows the user to define the DL information space, when a new Collection is defined this operation allows the user to define the Membership criteria of the collection, when a search for objects is executed this operation allows the user to specify the pool of archives where the search has to be done.

Any search operation should produce a result page where archive descriptions are shown in a short form (heading). The user confirms/selects the one s/he is interested in and the system visualizes the complete description corresponding to that heading. The user looks at the complete archive description to verify whether that archive meets his requirements and can select that archive or pass to examine another archive description.

Rank : High**Parent** : [Search](#)**Include by:**[Define an ARTE DL](#)**Extend from**[DILIGENT Resource Management](#)[Search and Retrieve Objects](#)[Define Membership Criteria](#)

[Redefine an ARTE DL](#)

Subclasses

[Search archives by Metadata](#), [Browse archives](#), [Search archives by Image](#), [Search archives by ID](#)

Use Case Description

Description

Author	SNS-CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search for archives capable to satisfy the needs of a user.
Preconditions	There exists a DILIGENT portal that allows ARTE members to search all available archives.
Success end condition	0 to n archives are selected.
Failed end condition	No archive is found.
Trigger	New archives need to be added to an ARTE DL, collection or workspace.
Description	1: The Authorized User (AU) submits a search criterion. 2: The AU browses over the result set and eventually selects some of the archives.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE web portal

 **UseCase** Metadata Generation

Use Case Extends Hierarchy

Create an ARTE DL

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection
- | +-Update an ARTE DL
- | +-Update a Collection
- | +-Index Management
- | +-Metadata Generation

Documentation

This Use Case deals with the automatic generation of metadata about objects. In particular, this operation is involved in two main Use Cases:

- i) the Create a Collection, and
- ii) the Create an ARTE DL.

There are various kinds of processes in order to automatically generate metadata. The ARTE community should be allowed to automatically extract the speech part of an audio / video file and to process text documents in order to automatically generate a thesaurus. Once new metadata have been created, the ARTE community, in particular the ARTE Administrator, should be enabled to create an Index allowing to access objects via this available information in an efficient way.

Rank : Low

Parent : [Object Management](#)

Extended by

[Index Management](#),

[Speech to text](#),

[Process Text](#)

Extension Point

Name : Index management

Name : Speech to text

Name : Process text

Extend from

[Create an ARTE DL](#)

[Create a Collection](#)[Update an ARTE DL](#)[Update a Collection](#)[Index Management](#)**Use Case Description**

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Generate metadata.
Success end condition	Metadata generated.
Failed end condition	Nothing change into an ARTE DL.
Trigger	Metadata generation is required.
Description	1: An Authorized User (AU) performs an authorized operation. 2: The AU requests to generate metadata.
Extensions	1a. Speech to text: (extension point to Speech to text use case) 1: The AU performs the Speech to text use case 1b. Process Text: (extension point to Process Text use case) 1: The AU performs the Process Text use case
Priority	Highly desirable
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE DL web portal

**UseCase** Propose Archives to be Added to / Removed from DILIGENT

Use Case Extends Hierarchy

ARTE DILIGENT Management

| +-Propose Archives to be Added to / Removed from DILIGENT

Documentation

An authorized user (the ARTE Director or a Director Assistant) proposes new archives be included in or removed from the DILIGENT resources by filling in the appropriate request form.

For each archive, minimum data to be filled in are:

- Name of the proponent
- Archive name
- Archive type (web portal, data base, etc.)
- Archive address (e.g. if archive is accessible using Internet the URL)
- Archive access rights

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extend from

[ARTE DILIGENT Management](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Propose an archive to be included into or removed from the DILIGENT infrastructure.
Preconditions	DILIGENT is up and running.
Success end condition	A DILIGENT proposed archive form is filled in.
Failed end condition	No change into DILIGENT.
Trigger	An authorized user wants to propose an archive to be included into or removed from DILIGENT.
Description	1: The Authorized User (AU) fills the form "Propose Archives", where information about an archive is input (see use case Documentation).

	2: AU selects one of the following: "add proposed archive" or "remove proposed archive". 3: AU submit the form
Priority	Mandatory
Performance	On line
Frequency	Several times per month
Channels to actors	ARTE web portal

UseCase Add a Service

Use Case Extends Hierarchy

DILIGENT Resource Management
| +-Add a Service

Documentation

Add a Service to the DILIGENT Infrastructure.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extend from

[DILIGENT Resource Management](#)

Use Case Description

Author	SNS - CNR
Date	22 Nov 04
Version	1.0
Goal in context	Add a service to the DILIGENT infrastructure.
Preconditions	DILIGENT is up and running.
Success end condition	DILIGENT could be changed depend on operations performed.
Failed end condition	The DILIGENT Administrator is not able to perform the decided operations.
Trigger	The DILIGENT Administrator wants to add a service.

Description	1: The DILIGENT Administrator performs operations required to add a service to the DILIGENT Infrastructure.
Priority	Mandatory
Performance	On line
Frequency	Several times per month
Channels to actors	DILIGENT web portal

UseCase Remove a Service

Use Case Extends Hierarchy

DILIGENT Resource Management
 | +-Remove a Service

Documentation

Remove a Service from the DILIGENT Infrastructure.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extend from

[DILIGENT Resource Management](#)

Use Case Description

Author	SNS - CNR
Date	22 Nov 04
Version	1.0
Goal in context	Remove a Service from the DILIGENT Infrastructure.
Preconditions	DILIGENT is up and running.
Success end condition	DILIGENT could be changed depend on operations performed
Failed end condition	The DILIGENT Administrator is not able to perform the decided operations.
Trigger	The DILIGENT Administrator wants to remove a service from the DILIGENT Infrastructure.

Description	1: The DILIGENT Administrator performs operations required to remove a service from the DILIGENT Infrastructure.
Priority	Mandatory
Performance	On line
Frequency	Several times per month
Channels to actors	DILIGENT web portal

UseCase Add an Archive

Use Case Extends Hierarchy

DILIGENT Resource Management
 | +-Add an Archive

Documentation

Add an Archive to the DILIGENT Infrastructure.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extend from

[DILIGENT Resource Management](#)

Use Case Description

Author	SNS - CNR
Date	22 Nov 04
Version	1.0
Goal in context	Add an archive to the DILIGENT Infrastructure.
Preconditions	DILIGENT is up and running.
Success end condition	DILIGENT could be changed depend on operations performed.
Failed end condition	The DILIGENT Administrator is not able to perform the decided operations.
Trigger	The DILIGENT Administrator wants to add an archive to the DILIGENT Infrastructure.

Description	1: The DILIGENT Administrator performs operations required to add an archive to the DILIGENT Infrastructure.
Priority	Mandatory
Performance	On line
Frequency	Several times per month
Channels to actors	DILIGENT web portal

UseCase Remove an Archive

Use Case Extends Hierarchy

DILIGENT Resource Management
 | +-Remove an Archive

Documentation

Remove an archive from the DILIGENT Infrastructure.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extend from

[DILIGENT Resource Management](#)

Use Case Description

Author	SNS - CNR
Date	22 Nov 04
Version	1.0
Goal in context	Remove an archive from the DILIGENT Infrastructure.
Preconditions	DILIGENT is up and running.
Success end condition	DILIGENT could be changed depend on operations performed.
Failed end condition	The DILIGENT Administrator is not able to perform the decided operations.
Trigger	The DILIGENT Administrator wants to remove an archive from the DILIGENT Infrastructure.

Description	1: The DILIGENT Administrator performs operations required to remove an archive from the DILIGENT Infrastructure.
Priority	Mandatory
Performance	On line
Frequency	Several times per month
Channels to actors	DILIGENT web portal



UseCase Browse Archives and Services proposals

Use Case Extends Hierarchy

DILIGENT Resource Management

| +-Browse Archives and Services proposals

Documentation

From this use case the authorized user can:

- Browse services proposals to be added to or removed from DILIGENT Infrastructure; and
- Browse archives proposals to be added to or removed from DILIGENT Infrastructure.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extend from

[DILIGENT Resource Management](#)

Use Case Description

Author	SNS - CNR
Date	22 Nov 04
Version	1.0
Goal in context	Browse services / archives proposals to be added to or removed from DILIGENT Infrastructure.
Preconditions	DILIGENT is up and running.
Success end condition	DILIGENT could be changed depend on operations performed.

Failed end condition	The DILIGENT Administrator is not able to perform the decided operations.
Trigger	The DILIGENT Administrator wants to operate upon the archives / services proposals.
Description	1: The DILIGENT Administrator (DA) browses through the proposed archives / services list, and eventually marks some of them to be added or removed according to proposal 2: DA confirms (adding or removing that archives / services to / from DILIGENT Infrastructure) or rejects the addition / removal of that archives / services
Priority	Mandatory
Performance	On line
Frequency	Several times per month
Channels to actors	DILIGENT web portal



Actor ARTE Director

Generalization Hierarchy

ARTE Member

| +-ARTE Director

Super Class

[ARTE Member](#)

Communication Link [ARTE DILIGENT Management](#) to [ARTE DILIGENT Management](#)



Actor ARTE Administrator

Communication Link [Remove an ARTE DL](#) to [Remove an ARTE DL](#)

Communication Link [Update an ARTE DL](#) to [Update an ARTE DL](#)

Communication Link [Create an ARTE DL](#) to [Create an ARTE DL](#)



Actor Director Assistant

Generalization Hierarchy

ARTE Member

| +-Director Assistant

Super Class

[ARTE Member](#)

Communication Link [ARTE DILIGENT Management](#) to [ARTE DILIGENT Management](#)



Actor ARTE Member

Subclasses

[ARTE Director](#), [Director Assistant](#)

Communication Link [Manage an ARTE DL workspace](#) to [Manage an ARTE DL workspace](#)



Actor DILIGENT Administrator

Communication Link [DILIGENT Resource Management](#) to [DILIGENT Resource Management](#)



Package Services

Parent : [ARTE - DILIGENT Infrastructure](#)

Children:

[Select Services](#), [Search](#), [Annotation](#), [User Management](#), [Object Management](#), [Collection](#)



Package User Management

Parent : [Services](#)

Children:

[User Management](#), [Add user](#), [Remove user](#), [Edit user properties](#), [Browse users](#), [Search by User Category](#), [Search Users](#), [Search by User properties](#)



Package Search

Parent : [Services](#)

Children:

[Search archives by Image](#), [Search objects by Video](#), [Browse archives](#), [Search archives](#), [Search archives by Metadata](#), [Search archives by ID](#), [Search objects by Full Text](#), [Navigate objects](#), [Search video scenes by Keywords](#), [Search objects by Tone](#), [Search and Retrieve Objects](#), [Search objects by Image](#), [Search objects by Metadata](#), [Browse objects](#), [Relevance Feedback](#),

[Search part-of objects by Image](#)



Package Object Management

Parent : [Services](#)

Children:

[Resolve Image into parts](#), [Personalize Object Views](#), [Process Image](#), [Play Video / Audio](#),
[Speech to text](#), [Metadata Generation](#), [Translation Service](#), [Index Management](#), [Access Objects](#),
[Process Text](#), [Thesaurus Generation](#), [Save Object](#), [Remove Object](#)



System ARTE - DILIGENT Infrastructure

Children:

[Create an ARTE DL](#), [Update an ARTE DL](#), [Workshop Management](#), [Make an Exhibition Catalogue](#), [Manage Student Workspace](#), [Process Video](#), NB. La creazione di una ARTE DL implica la creazione del suo workspace, [Course Management](#), [Remove an ARTE DL](#), [Define an ARTE DL](#), [Redefine an ARTE DL](#), [Dispose an ARTE DL](#), [DILIGENT Resource Management](#), [Propose Services to be Added to / Removed from DILIGENT](#), [ARTE DILIGENT Management](#), [Edit an ARTE DL web portal properties](#), [Manage an ARTE DL workspace](#), [Services](#), [Manage Workspace](#), [Propose Archives to be Added to / Removed from DILIGENT](#), [Add a Service](#), [Remove a Service](#), [Add an Archive](#), [Remove an Archive](#), [Browse Archives and Services proposals](#)



Communication Link Create an ARTE DL

Communication Link End From

Element : [Create an ARTE DL](#)

Navigable : true

Communication Link End To

Element : [ARTE Administrator](#)

Navigable : true



Communication Link Remove an ARTE DL

Communication Link End From

Element : [ARTE Administrator](#)

Navigable : true

Communication Link End To

Element : [Remove an ARTE DL](#)

Navigable : true

Communication Link DILIGENT Resource Management

Communication Link End From

Element : [DILIGENT Administrator](#)

Navigable : true

Communication Link End To

Element : [DILIGENT Resource Management](#)

Navigable : true

Communication Link ARTE DILIGENT Management

Communication Link End From

Element : [Director Assistant](#)

Navigable : true

Communication Link End To

Element : [ARTE DILIGENT Management](#)

Navigable : true

Communication Link ARTE DILIGENT Management

Communication Link End From

Element : [ARTE Director](#)

Navigable : true

Communication Link End To

Element : [ARTE DILIGENT Management](#)

Navigable : true

Communication Link Update an ARTE DL

Communication Link End From

Element : [ARTE Administrator](#)

Navigable : true

Communication Link End To

Element : [Update an ARTE DL](#)

Navigable : true

ARTE_ucd02 Workspace Management

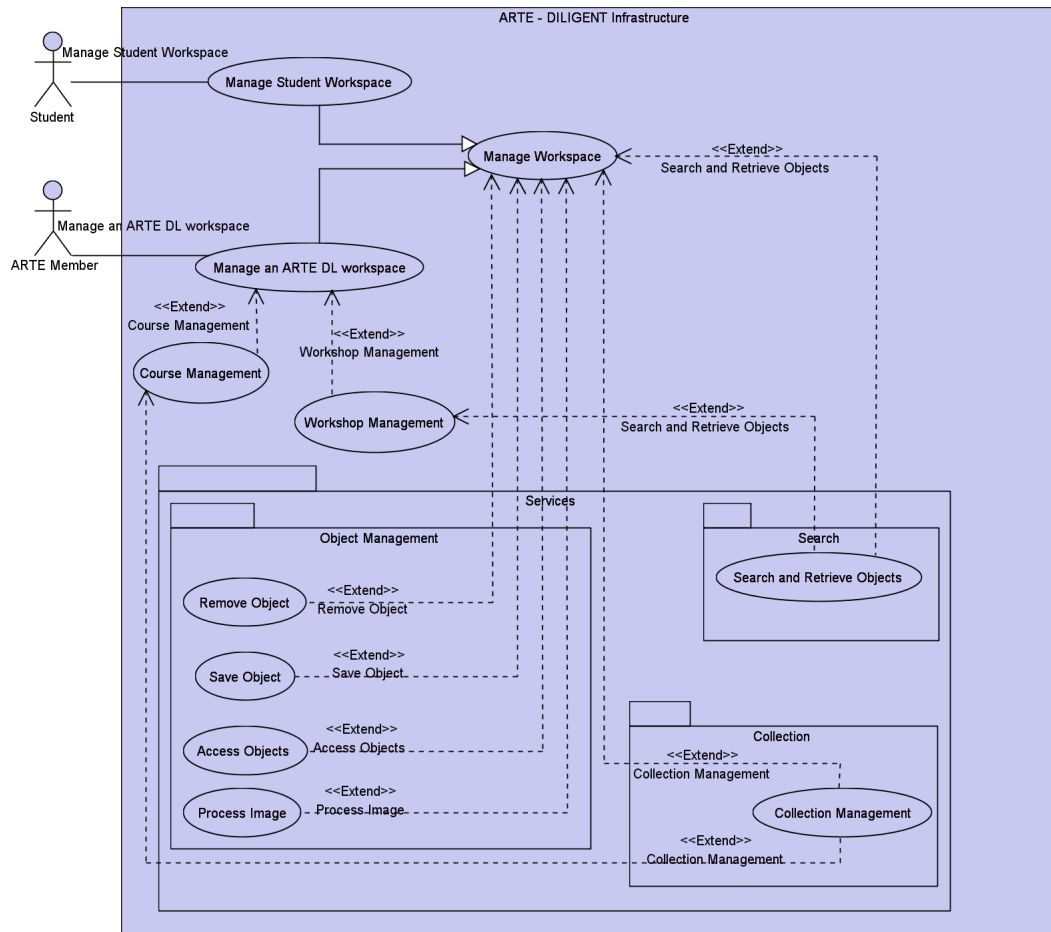


Diagram Content Summary

-  [ARTE - DILIGENT Infrastructure](#)
-  [Services](#)
-  [Object Management](#)
-  [Search](#)
-  [Collection](#)
-  [Manage Workspace](#)
-  [Manage Student Workspace](#)
-  [Manage an ARTE DL workspace](#)

-  [Access Objects](#)
-  [Save Object](#)
-  [Remove Object](#)
-  [Process Image](#)
-  [Search and Retrieve Objects](#)
-  [Collection Management](#)
-  [Workshop Management](#)
-  [Course Management](#)
-  [ARTE Member](#)
-  [Student](#)

Diagram Content Detail

UseCase Manage Workspace

Documentation

Allow ARTE users to manage their own workspace, i.e.

- i) access/save/remove objects,
- ii) process images,
- iii) manage collections, and
- iv) search and retrieve objects.

For a detailed description of these functionalities refer to the corresponding UC.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

- [Remove Object](#),
- [Save Object](#),
- [Access Objects](#),
- [Process Image](#),
- [Search and Retrieve Objects](#),
- [Collection Management](#)

Extension Point

- Name** : Remove object
- Name** : Save objects
- Name** : Access objects
- Name** : Process image

Name : Search and Retrieve Objects

Name : Collection management

Subclasses

[Manage an ARTE DL workspace](#), [Manage Student Workspace](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Access to the workspace and perform allowed operations.
Preconditions	An authorized user is registered into ARTE.
Success end condition	Operations over workspace are performed.
Failed end condition	No operations were performed over the workspace.
Trigger	An authorized user wants to access his workspace.
Description	<p>1: An Authorized User (AU), i.e. ARTE Member or Student, logs in his workspace.</p> <p>2: The AU performs an authorized operation.</p> <p>3: The AU logs out from his workspace.</p>
Extensions	<p>*: At any time, Systems fails: To support recovery, ensure all transaction sensitive state and events can be recovered from any step of the scenario.</p> <p>1: The AU reloads his workspace, logs in, and requests recovery of prior state.</p> <p>2a. The AU selects to search and retrieve objects (extension point to Search and Retrieve Objects use case):</p> <p>1: The AU performs Search and Retrieve Objects use case</p> <p>2: The AU backs to main workspace</p> <p>2b. The AU selects to save a retrieved object</p>

	<p>(extension point to Save Object use case):</p> <p>1: The AU performs Save Object use case</p> <p>2: The AU backs to main workspace</p> <p>2c. The AU selects to access to objects in his workspace (extension point to Access Objects use case):</p> <p>1: The AU performs Access Objects use case</p> <p>2: The AU backs to main workspace</p> <p>2d. The AU selects to remove objects from his workspace (extension point to Remove Object use case):</p> <p>1: The AU performs Remove Object use case</p> <p>2: The AU backs to main workspace</p> <p>2e. The AU selects to process an image (extension point to Process Image use case):</p> <p>1: The AU performs Process Image use case</p> <p>2: The AU backs to main workspace</p> <p>2f. The AU selects to manage collections in his workspace (extension point to Collection Management use case):</p> <p>1: The AU performs Collection Management use case</p> <p>2: The AU backs to main workspace</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE web portal

UseCase Manage Student Workspace

Documentation

In her/his own workspace, any student can

- i) access/save/remove objects,
- ii) process images
- iii) manage her/his own collections;

iv) search and retrieve objects.

Rank : Low

Parent : [ARTE - DILIGENT Infrastructure](#)

Super Class

[Manage Workspace](#)

Communication Link [Manage Student Workspace](#) to [Student](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Perform a student allowed operation: i) access/save/remove objects, ii) process images iii) manage her/his own collections; iv) search and retrieve objects.
Preconditions	A Student is registered into ARTE.
Success end condition	Operations over workspace are performed.
Failed end condition	No operations were performed over the workspace.
Trigger	A Student decides to manage his personal workspace.
Description	1: A Student logs in his workspace 2: The Student performs an authorized operation 3: The Student logs out from his workspace
Extensions	*: At any time, System fails: To support recovery, ensure all transaction sensitive state and events can be recovered from any step of the scenario. 1: The Student reloads his workspace, logs in, and requests recovery of prior state. 2a. The Student selects to search and retrieve objects (extension point to Search and Retrieve Objects use

	<p>case):</p> <ul style="list-style-type: none"> 1: The Student performs Search and Retrieve Objects use case 2: The Student backs to main workspace <p>2b. The Student selects to save a retrieved object (extension point to Save Object use case):</p> <ul style="list-style-type: none"> 1: The Student performs Save Object use case 2: The Student backs to main workspace <p>2c. The Student selects to access to objects in his workspace (extension point to Access Objects use case):</p> <ul style="list-style-type: none"> 1: The Student performs Access Objects use case 2: The Student backs to main workspace <p>2d. The Student selects to remove objects from his workspace (extension point to Remove Object use case):</p> <ul style="list-style-type: none"> 1: The Student performs Remove Object use case 2: The Student backs to main workspace <p>2e. The Student selects to process an image (extension point to Process Image use case):</p> <ul style="list-style-type: none"> 1: The Student performs Process Image use case 2: The Student backs to main workspace <p>2f. The Student selects to manage collections in his workspace (extension point to Collection Management use case):</p> <ul style="list-style-type: none"> 1: The Student performs Collection Management use case 2: The Student backs to main workspace
Priority	Mandatory
Performance	On line/Batch (depends on operation performed)
Frequency	Several times per day
Channles to	Arte - DILIGENT web portal

actors	
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 UseCase Manage an ARTE DL workspace
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Documentation

Allow ARTE members to:

- i) access to the services for access/save/remove objects and process images; manage their collections; search and retrieve objects; and
- ii) exploit the ARTE functionalities to Manage a workshop, Make an exhibition catalogue, Manage a course, Process videos.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

- [Course Management](#),
- [Process Video](#),
- [Workshop Management](#)

Extension Point

Name : Course management

Name : Workshop management

Name : Process video

Super Class

[Manage Workspace](#)

Communication Link [Manage an ARTE DL workspace to ARTE Member](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	<p>Access the ARTE member workspace to:</p> <ul style="list-style-type: none"> i) access the services for access/save/remove objects and process images; manage their collections; search and retrieve objects; and ii) exploit the ARTE functionalities to Manage a workshop, Make an exhibition catalogue, Manage a course, Process

	videos.
Preconditions	There exists an ARTE DL.
Success end condition	Operations over an ARTE DL workspace are performed.
Failed end condition	ARTE DL workspace does not change.
Trigger	An authorized user decides to manage an ARTE DL workspace.
Description	<p>1: An ARTE Member (AM) logs in his workspace</p> <p>2: The ARTE Member performs an authorized operation</p> <p>3: The ARTE Member logs out from his workspace</p>
Extensions	<p>*: At any time, system fails:</p> <p>To support recovery, ensure all transaction sensitive state and events can be recovered from any step of the scenario.</p> <p>1: The AM reloads his workspace, logs in, and requests recovery of prior state.</p> <p>2a. The AM selects to manage a course (extension point to Course Management)</p> <p>1: The AM Performs Course Management use case</p> <p>2: The AM backs to the main workspace options</p> <p>2b. The AM selects to manage a workshop (extension point to Workshop Management)</p> <p>1: The AM performs Workshop Management use case</p> <p>2: The AM backs to the main workspace options</p> <p>2c. The AM selects to process a video (extension point to Process Video)</p> <p>1: The AM performs Process Video use case</p> <p>2: The AM backs to the main workspace options</p> <p>2d. The AM selects to search and retrieve objects (extension point to Search and Retrieve Objects use case):</p> <p>1: The AM performs Search and Retrieve Objects use case</p>

	<p>2: The AM backs to the main workspace options</p> <p>2e. The AM selects to save a retrieved object (extension point to Save Object use case):</p> <p>1: The AM performs Save Object use case 2: The AM backs to the main workspace options</p> <p>2f. The AM selects to access to objects in his workspace (extension point to Access Objects use case):</p> <p>1: The AM performs Access Objects use case 2: The AM backs to the main workspace options</p> <p>2g. The AM selects to remove objects from his workspace (extension point to Remove Object use case):</p> <p>1: The AM performs Remove Object use case 2: The AM backs to the main workspace options</p> <p>2h. The AM selects to process an image (extension point to Process Image use case):</p> <p>1: The AM performs Process Image use case 2: The AM backs to the main workspace options</p> <p>2i. The AM selects to manage collections in his workspace (extension point to Collection Management use case):</p> <p>1: The AM performs Collection Management use case 2: The AM backs to the main workspace options</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE DL web portal

 **UseCase** Access Objects

Use Case Extends Hierarchy

Manage Workspace
| +-Access Objects

Documentation

Starting from a retrieved object description, the authorized user can access to that object, e.g. see the content, and look at it using a personalized view.

Rank : High

Parent : [Object Management](#)

Extended by

[Personalize Object Views](#) ,
[Play Video / Audio](#)

Extension Point

Name : Personalize object views

Name : Play Video / Audio

Extend from

[Manage Workspace](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Access to an object.
Preconditions	There is a retrieved object description.
Success end condition	Object is visualized.
Failed end condition	No object is visualized.
Trigger	An authorized user wants to access to an object.
Description	1: The Authorized User (AU) accesses to an object. 2: The AU performs an authorized operation.
Extensions	2a. Personalize the object views: (extension point to Personalize Object Views use case) 1: The AU performs the Personalize Object Views use case

	2b. Play Video / Audio: (extension point to Play Video / Audio use case) 1: The AU performs the Play Video / Audio use case
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Save Object

Use Case Extends Hierarchy

```

Manage Workspace
| +-Save Object

```

Documentation

Any authorized user can save a retrieved object into a workspace.

Rank : High

Parent : [Object Management](#)

Extend from

[Manage Workspace](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Save a retrieved object into a workspace.
Preconditions	There is a retrieved object.
Success end condition	An object is saved into the ARTE DL workspace.
Failed end condition	Nothing change into the ARTE DL.
Trigger	An authorized user wants to save a retrieved object.

Description	1: The Authorized User (AU) saves a retrieved object into a workspace.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Remove Object

Use Case Extends Hierarchy

```

Manage Workspace
| +-Remove Object

```

Documentation

Any authorized user can remove objects from a workspace.

Rank : High

Parent : [Object Management](#)

Extend from

[Manage Workspace](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Remove an object from a workspace.
Preconditions	There is a retrieved object.
Success end condition	An object is removed from an ARTE DL.
Failed end condition	Nothing change into an ARTE DL.
Trigger	An authorized user wants to remove an object from a workspace.

Description	1: The Authorized User (AU) removes an object from a workspace.
Priority	Mandatory
Performance	On line / Batch
Channels to actors	ARTE / ARTE DL web portal

UseCase Process Image

Use Case Extends Hierarchy

Manage Workspace

| +-Process Image

Documentation

This Use Case deals with particular image processing operations. Sometimes it is required to make a search operation with a part of an image; for this, the original image is resolved into its component parts and any of them can be used as a single image.

Rank : Medium

Parent : [Object Management](#)

Include:

[Resolve Image into parts](#), [Search part-of objects by Image](#)

Extend from

[Manage Workspace](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Analyze an image using ad-hoc services.
Preconditions	An image is selected.
Success end condition	Image processing results are stored somewhere.
Failed end	Nothing change into an ARTE DL.

condition	
Trigger	Image processing is required.
Description	1: The Authorized User (AU) searches part-of an object starting from an image. 2: The AU select some of the parts of an image by resolving an original image into its components.
Priority	Mandatory
Performance	On line / Batch
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Search and Retrieve Objects

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-Define Membership Criteria
- | +-Search and Retrieve Objects

Documentation

This Use Case deals with a generic search operation. This generic task will be specialized in a set of particular search functions. In any ARTE DL the following search functions should be available:

- a) searching documents by specifying the content of one or more metadata elements;
- b) full text searching: a text is submitted as a query;
- c) searching documents by images : the user submits an image as a query to get "similar" images as a result.

[Note: "Similar" images are those shown in Appendix A, figs 1-3. Figure 1, 2 and 3 are similar because all contain a "tree of memory" and Figure 3 is different from Figure 1 and 2 because they do not contain human representations. For a detailed description of them see the corresponding

Use Case.

For each type of search, it is possible to select a subset of the available archives, so search is performed over:

- i) all available archives, or
- ii) selected archives (subset of the available archives).

For each type of search, the display page showing the result set should allow the user:

- i) to select which document descriptions are to be saved;
- ii) to visualize the full document according to a personalized view;
- iii) to mark a document for relevance feedback searching.

It is to note that archives which ARTE scholars are interested in may contain different digital objects (whether texts or images or videos, or a composition of them) and these objects might have different structures and be associated with different metadata formats. As a consequence, the possibility of searching heterogeneous archives would be extremely useful and a functionality for this should be available.

Rank : High

Parent : [Search](#)

Extended by

[Relevance Feedback](#),
[Search archives](#)

Extension Point

Name : Search archives

Name : Relevance feedback

Extend from

[Define Membership Criteria](#)
[Manage Workspace](#)
[Workshop Management](#)

Subclasses

[Search objects by Image](#), [Browse objects](#), [Search objects by Metadata](#), [Search objects by Tone](#), [Search objects by Video](#), [Search video scenes by Keywords](#), [Search objects by Full Text](#), [Navigate objects](#)

Use Case Description

Author	SNS - RAI - CNR
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Date	10 Nov 04
Version	1.0
Goal in context	Find (and retrieve) objects using search, browse or navigate.
Preconditions	There exists an ARTE DL.
Success end condition	The required objects are retrieved, if they exist.
Failed end condition	The searched objects are not found, even though they exist.
Trigger	An ARTE user needs to search objects.
Description	1: The Authorized User (AU) submits a search criterion. 2: The AU browses over the result set and eventually selects some of the objects.
Extensions	1a. Search archives: (extension point to Search Archives use case) 1: The AU performs the Search Archives use case 2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case
Priority	Mandatory
Performance	On line / Batch
Frequency	Several times per day
Channels to Actors	ARTE / ARTE DL web portal

UseCase Collection Management

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management

| +-Collection Management

Documentation

In this use case, any authorized user can create, update or remove a collection.

A collection is composed of three parts:

- i) the content,
- ii) the set of services enabled to act on the collection content, and
- iii) the set of users enabled to access the collection content using the collection services.

Rank : High

Parent : [Collection](#)

Extended by

- [Create a Collection](#) ,
- [Remove a Collection](#) ,
- [Update a Collection](#)

Extension Point

Name : Create a collection

Name : Remove a collection

Name : Update a collection

Extend from

- [Manage Workspace](#)
- [Course Management](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Administrate a collection.
Preconditions	There exists a collection.
Success end condition	Eventually, administration operations were performed.
Failed end condition	No collection changes.
Trigger	An authorized user wants to administrate a collection.

Description	1: An Authorized User (AU) performs an authorized operation
Extensions	<p>1a. The AU creates a collection (extension point to Create a Collection use case)</p> <p>1b. The AU updates an existing collection (extension point to Update a Collection use case)</p> <p>1c. The AU removes an existing collection (extension point to Remove a Collection use case)</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Workshop Management

Use Case Extends Hierarchy

Manage an ARTE DL workspace
| +-Workshop Management

Documentation

This UC models the operations needed for supporting ARTE members in a Workshop organization. In particular it allows to:

- a) make an exhibition catalog or a collection of objects to be presented, and
- b) manage users and in particular allow the workshop organizers to search for potential speakers and participants.

The organization of the workshop entitled "Use of emblems during the 16th and 17th century" and the related exhibition is described as an example.

This workshop aims at analyzing how the different typologies of emblems images and literatures are utilized, with special attention to image uses in fancy goods, numismatics, fresco cycles, portrait paintings and so on. Speakers to be invited are chosen from well-known experts, but the group of candidates will include other scholars to be searched in the ARTE DL

archives; for example, by searching co-authors of known significant essays, or authors of essays on significant known images. If a well-known author has written significant essays together with a co-author who is not known, then other possible essays of this co-author are searched to evaluate her/his work. If an image is considered to be of particular interest, then this image is submitted as a search query. If annotations are associated to the retrieved image, then scholars who have studied it can be found and their work can be evaluated by further search on a previously created EMBLEM collection.

Rank : Medium

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

[Make an Exhibition Catalogue](#) ,
[Remove a Collection](#) ,
[User Management](#) ,
[Search and Retrieve Objects](#)

Extension Point

Name : Make an exhibition catalogue

Name : Remove a collection

Name : User management

Name : Search and Retrieve Objects

Extend from

[Manage an ARTE DL workspace](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Perform workshop related operations.
Preconditions	There exists an ARTE DL.
Success end condition	Workshop related operations are completed.
Failed end condition	The desired operation cannot be made.
Description	1: The Authorized user (AU) inputs a workshop name

	<p>2: Workshop options (like Description, Scheduler, etc.) are edited by AU</p> <p>3: The AU selects one (or more) allowed options</p> <p>4: The AU confirms or cancels changes</p>
Extensions	<p>1a. Workshop name exists and the AU selects to edit actual workshop options (like Descriptions, Scheduler, etc.).</p> <p>1b. Workshop name exists and the AU selects to create a new workshop:</p> <p> 1: The AU inputs a different workshop name</p> <p>3a. AU selects to manage users: (extension point to User Management use case)</p> <p> 1: AU performs User Management use case</p> <p> 2: AU backs to main Workshop Management use case</p> <p>3b. AU selects to create an exhibition catalogue (collection): (extension point to Make an Exhibition Catalogue use case)</p> <p> 1: AU performs Make an Exhibition Catalogue use case</p> <p> 2: AU backs to main Workshop Management use case</p> <p>3c. AU selects to remove a collection: (extension point to Remove a Collection use case)</p> <p> 1: AU performs Remove a Collection use case</p> <p> 2: AU backs to main Workshop Management use case</p> <p>3d. AU selects to search for potential speakers and participants. (extension point to Search and Retrieve Objects)</p> <p> 1: AU performs Search and Retrieve Objects use case</p> <p> 2: AU backs to main Workshop Management use case</p>
Trigger	A workshop is to be organized.
Priority	Mandatory
Performance	On line

Frequency	Several times per year
Channels to actors	ARTE DL web portal

UseCase Course Management

Use Case Extends Hierarchy

Manage an ARTE DL workspace

| +-Course Management

Documentation

A teacher wishes to illustrate, in a course given for the ARTE Project, the different uses of human body images in different historical periods, with special emphasis on medical contexts. S/he uses the ARTE DL workspace as a starting point and as temporary container for the course material. This workspace enables her/him to search several heterogeneous archives of interest at the same time thanks to the interoperability support, so s/he is asked whether s/he would like to focus her/him search on certain specific archives, or s/he wants to search all available collections. S/he checks the latter option, as s/he does not want to limit the search in any way, at this point.

Then, s/he selects an image s/he deems particularly illustrative of her/him information need, such as a map of human body, found in several manuscripts of the period s/he is interested in. S/he submits this image to the system as a query. The ARTE DL s/he is using is equipped with services for content-based image retrieval, so no textual or formal specification of an information-need is required in order to extract information. In response, a few dozens of paintings and pictures are retrieved, and showed in a thumbnail format. These images may have different formats, but the ARTE DL s/he is using embodies the knowledge required to recognize the most relevant image formats and present them to the users. Some images are closer to the teacher's need than others.

Thanks to the relevance feedback mechanism of the retrieval capability, s/he can express relevance and irrelevance judgments on the retrieved images, and can iterate the query a few times, until s/he is satisfied with the result. At this point, s/he sets up a new collection containing the images so far obtained. Then s/he asks a colleague of hers/hims, an

ARTE collaborator working in another country , to have a look at the collection just created for the course. After browsing the collection content and annotating some of the pictures using the Annotation service, the teacher's colleague adds a copy of a picture s/he discovered at his last visit to the Vatican Museum and finds very characteristic for the considered topic. The course's collection is modified accordingly.

After that, the teacher resumes the work on the course collection, and passes the collection images through several specialized image filtering and synthesis algorithms to generate new images that illustrate specific characteristics of the original ones. A teacher gives a course on cinema at a University Department. She would like to show to the course students how certain stylistic and technical procedures are used by film makers. To prepare her/his lessons, s/he decides to conduct her/his analysis on the corpus of films (or related videos) of the Italian cinema after the second World War. The teacher creates her/his own film/video collection adding to the Department collection the content of other collections residing at the RAI or at the Italian Film Archive.

S/he also knows that somewhere on the DILIGENT there are services to make indexes of film/video stylistic elements (such a close-ups, backgrounds, visual effects -whether special or not - montage cuts, etc). S/he asks the DL Administrator to search those services and include them in her/his film/video collection. Among such services, there is a language (together with a graphical User Interface) to select the films with a certain number of a given stylistic element, or having a predominance of one element with respect to the others. This language makes use of the statistical data on the frequency of each stylistic element present in each film. From her/his collection, s/he selects a set of films that are relevant for the lesson, and that will be made available to the students. This sub-collection will have a number of search services that can be specific of the type of stylistic elements contained in the videos.

Rank : Medium

Parent : [ARTE - DILIGENT Infrastructure](#)

Include:

[User Management](#)

Extended by

[Annotation Management](#),
[Collection Management](#)

Extension Point

Name : Annotation management

Name : Collection management

Extend from

[Manage an ARTE DL workspace](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Create a collection to support a course. Collaborate with distant Colleagues through an annotation service. Manage course users.
Preconditions	There exists an ARTE DL.
Success end condition	A course management operations are performed and saved.
Failed end condition	Nothing change.
Trigger	An authorized user decides to perform course operations.
Description	<p>1: The Authorized user (AU) inputs a course name</p> <p>2: Course options (like Description, Scheduler, Lectures, etc.) are edited by AU</p> <p>3: AU manages users, using the User Management package, can add/remove users or edit properties of an existing users (Students) currently associated to the course.</p> <p>4: The AU selects one (or more) allowed options</p> <p>5: The AU confirms or cancels changes</p>
Extensions	<p>1a. Course name exists and user selects to edit actual course options (Description, Scheduler, etc.).</p> <p>1b. Course name exists and user selects to create a new course:</p> <p>1: User inputs a different course name</p>

	<p>4a. AU selects collection management option (extension point to Collection Management use case):</p> <ol style="list-style-type: none"> 1: AU performs the Collection Management use case 2: AU backs to main Course Management use case <p>4c. AU selects manage annotations option (extension point to Annotation Management use case):</p> <ol style="list-style-type: none"> 1: AU performs Annotation Management use case 2: AU backs to main Course Management use case
Priority	Mandatory
Performance	On line
Frequency	Several times a week
Channels to actors	ARTE DL web portal



Actor ARTE Member

Subclasses

[ARTE Director](#), [Director Assistant](#)

Communication Link [Manage an ARTE DL workspace](#) to [Manage an ARTE DL workspace](#)



Actor Student

Communication Link [Manage Student Workspace](#) to [Manage Student Workspace](#)



Package Services

Parent : [ARTE - DILIGENT Infrastructure](#)

Children:

[Select Services](#), [Search](#), [Annotation](#), [User Management](#), [Object Management](#), [Collection](#)



Package Object Management

Parent : [Services](#)

Children:

[Resolve Image into parts](#), [Personalize Object Views](#), [Process Image](#), [Play Video / Audio](#),
[Speech to text](#), [Metadata Generation](#), [Translation Service](#), [Index Management](#), [Access Objects](#),
[Process Text](#), [Thesaurus Generation](#), [Save Object](#), [Remove Object](#)

 **Package** Search

Parent : [Services](#)

Children:

[Search archives by Image](#), [Search objects by Video](#), [Browse archives](#), [Search archives](#), [Search archives by Metadata](#), [Search archives by ID](#), [Search objects by Full Text](#), [Navigate objects](#),
[Search video scenes by Keywords](#), [Search objects by Tone](#), [Search and Retrieve Objects](#),
[Search objects by Image](#), [Search objects by Metadata](#), [Browse objects](#), [Relevance Feedback](#),
[Search part-of objects by Image](#)

 **Package** Collection

Parent : [Services](#)

Children:

[Update a Collection](#), [Create a Collection](#), [Remove a Collection](#), [Define Membership Criteria](#),
[Collection Management](#)

 **System** ARTE - DILIGENT Infrastructure

Children:

[Create an ARTE DL](#), [Update an ARTE DL](#), [Workshop Management](#), [Make an Exhibition Catalogue](#), [Manage Student Workspace](#), [Process Video](#), NB. La creazione di una ARTE DL implica la creazione del suo workspace, [Course Management](#), [Remove an ARTE DL](#), [Define an ARTE DL](#), [Redefine an ARTE DL](#), [Dispose an ARTE DL](#), [DILIGENT Resource Management](#), [Propose Services to be Added to / Removed from DILIGENT](#), [ARTE DILIGENT Management](#), [Edit an ARTE DL web portal properties](#), [Manage an ARTE DL workspace](#), [Services](#), [Manage Workspace](#), [Propose Archives to be Added to / Removed from DILIGENT](#), [Add a Service](#), [Remove a Service](#), [Add an Archive](#), [Remove an Archive](#), [Browse Archives and Services proposals](#)

 **Communication Link** Manage an ARTE DL workspace

Communication Link End From

Element : [ARTE Member](#)

Navigable : true

Communication Link End To

Element : [Manage an ARTE DL workspace](#)

Navigable : true

Communication Link Manage Student Workspace

Communication Link End From

Element : [Manage Student Workspace](#)

Navigable : true

Communication Link End To

Element : [Student](#)

Navigable : true

ARTE_ucd03 Course Management

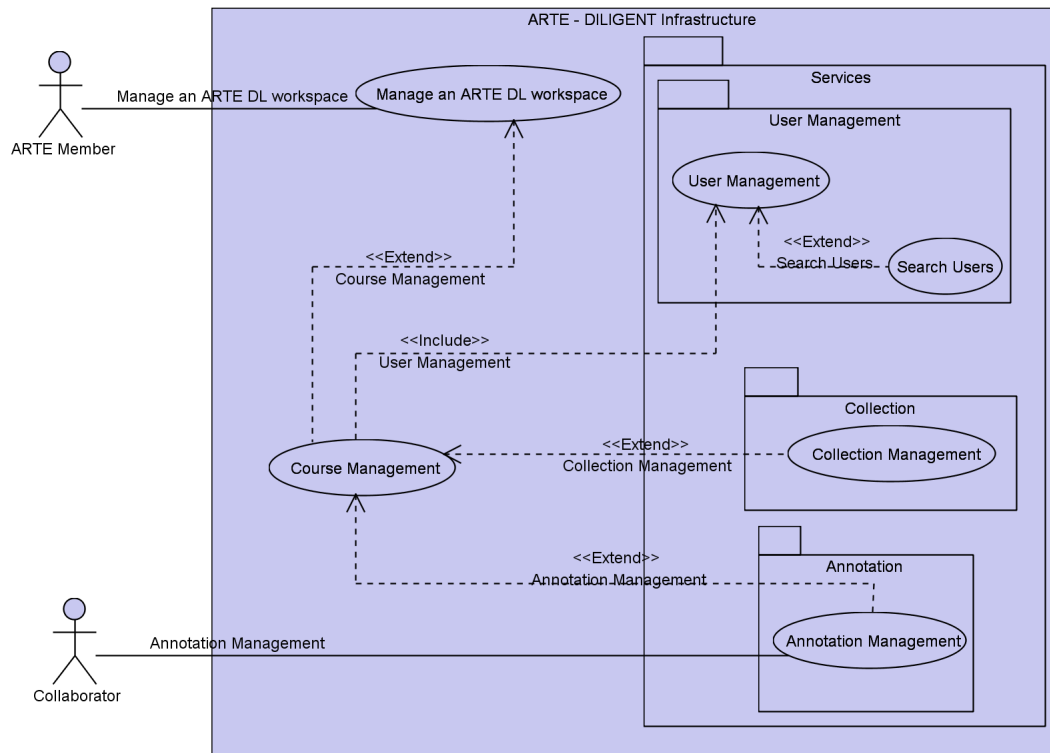


Diagram Content Summary







-  [ARTE - DILIGENT Infrastructure](#)
-  [Services](#)
-  [Collection](#)
-  [User Management](#)
-  [Annotation](#)
-  [Course Management](#)
-  [Collection Management](#)
-  [User Management](#)
-  [Search Users](#)
-  [Annotation Management](#)
-  [Manage an ARTE DL workspace](#)
-  [ARTE Member](#)
-  [Collaborator](#)

Diagram Content Detail

UseCase Course Management

Use Case Extends Hierarchy

Manage an ARTE DL workspace

| +-Course Management

Documentation

A teacher wishes to illustrate, in a course given for the ARTE Project, the different uses of human body images in different historical periods, with special emphasis on medical contexts. S/he uses the ARTE DL workspace as a starting point and as temporary container for the course material. This workspace enables her/him to search several heterogeneous archives of interest at the same time thanks to the interoperability support, so s/he is asked whether s/he would like to focus her/him search on certain specific archives, or s/he wants to search all available collections. S/he checks the latter option, as s/he does not want to limit the search in any way, at this point.

Then, s/he selects an image s/he deems particularly illustrative of her/him information need, such as a map of human body, found in several manuscripts of the period s/he is interested in. S/he submits this image to the system as a query. The ARTE DL s/he is using is equipped with services for content-based image retrieval, so no textual or formal specification of an information-need is required in order to extract information. In response, a few dozens of paintings and pictures are retrieved, and showed in a thumbnail format. These images may have different formats, but the ARTE DL s/he is using embodies the knowledge required to recognize the most relevant image formats and present them to the users. Some images are closer to the teacher's need than others.

Thanks to the relevance feedback mechanism of the retrieval capability, s/he can express relevance and irrelevance judgments on the retrieved images, and can iterate the query a few times, until s/he is satisfied with the result. At this point, s/he sets up a new collection containing the images so far obtained. Then s/he asks a colleague of hers/hims, an ARTE collaborator working in another country, to have a look at the collection just created for the course. After browsing the collection content and annotating some of the pictures using the Annotation service,

the teacher's colleague adds a copy of a picture s/he discovered at his last visit to the Vatican Museum and finds very characteristic for the considered topic. The course's collection is modified accordingly.

After that, the teacher resumes the work on the course collection, and passes the collection images through several specialized image filtering and synthesis algorithms to generate new images that illustrate specific characteristics of the original ones. A teacher gives a course on cinema at a University Department. She would like to show to the course students how certain stylistic and technical procedures are used by film makers. To prepare her/his lessons, s/he decides to conduct her/his analysis on the corpus of films (or related videos) of the Italian cinema after the second World War. The teacher creates her/his own film/video collection adding to the Department collection the content of other collections residing at the RAI or at the Italian Film Archive.

S/he also knows that somewhere on the DILIGENT there are services to make indexes of film/video stylistic elements (such a close-ups, backgrounds, visual effects -whether special or not - montage cuts, etc). S/he asks the DL Administrator to search those services and include them in her/his film/video collection. Among such services, there is a language (together with a graphical User Interface) to select the films with a certain number of a given stylistic element, or having a predominance of one element with respect to the others. This language makes use of the statistical data on the frequency of each stylistic element present in each film. From her/his collection, s/he selects a set of films that are relevant for the lesson, and that will be made available to the students. This sub-collection will have a number of search services that can be specific of the type of stylistic elements contained in the videos.

Rank : Medium

Parent : [ARTE - DILIGENT Infrastructure](#)

Include:

[User Management](#)

Extended by

[Annotation Management](#),

[Collection Management](#)

Extension Point

Name : Annotation management

Name : Collection management

Extend from

[Manage an ARTE DL workspace](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Create a collection to support a course. Collaborate with distant Colleagues through an annotation service. Manage course users.
Preconditions	There exists an ARTE DL.
Success end condition	A course management operations are performed and saved.
Failed end condition	Nothing change.
Trigger	An authorized user decides to perform course operations.
Description	<p>1: The Authorized user (AU) inputs a course name</p> <p>2: Course options (like Description, Scheduler, Lectures, etc.) are edited by AU</p> <p>3: AU manages users, using the User Management package, can add/remove users or edit properties of an existing users (Students) currently associated to the course.</p> <p>4: The AU selects one (or more) allowed options</p> <p>5: The AU confirms or cancels changes</p>
Extensions	<p>1a. Course name exists and user selects to edit actual course options (Description, Scheduler, etc.).</p> <p>1b. Course name exists and user selects to create a new course:</p> <p> 1: User inputs a different course name</p> <p>4a. AU selects collection management option (extension point to Collection Management use case):</p>

	1: AU performs the Collection Management use case 2: AU backs to main Course Management use case 4c. AU selects manage annotations option (extension point to Annotation Management use case): 1: AU performs Annotation Management use case 2: AU backs to main Course Management use case
Priority	Mandatory
Performance	On line
Frequency	Several times a week
Channels to actors	ARTE DL web portal

UseCase Collection Management

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management

Documentation

In this use case, any authorized user can create, update or remove a collection.

A collection is composed of three parts:

- i) the content,
- ii) the set of services enabled to act on the collection content, and
- iii) the set of users enabled to access the collection content using the collection services.

Rank : High

Parent : [Collection](#)

Extended by

- [Create a Collection](#),
- [Remove a Collection](#),

[Update a Collection](#)**Extension Point****Name** : Create a collection**Name** : Remove a collection**Name** : Update a collection**Extend from**[Manage Workspace](#)[Course Management](#)**Use Case Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Administrare a collection.
Preconditions	There exists a collection.
Success end condition	Eventually, administration operations were performed.
Failed end condition	No collection changes.
Trigger	An authorized user wants to administrate a collection.
Description	1: An Authorized User (AU) performs an authorized operation
Extensions	<p>1a. The AU creates a collection (extension point to Create a Collection use case)</p> <p>1b. The AU updates an existing collection (extension point to Update a Collection use case)</p> <p>1c. The AU removes an existing collection (extension point to Remove a Collection use case)</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to	ARTE / ARTE DL web portal

actors	
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UseCase User Management

Use Case Extends Hierarchy

```
ARTE DILIGENT Management
| +-DILIGENT Resource Management
| +-Manage an ARTE DL workspace
| +-Workshop Management
| +-Manage Workspace
| +-Course Management
| +-Collection Management
| +-Update a Collection
| +-Redefine an ARTE DL
| +-User Management
```

Documentation

This Use Case deals with all the functionalities related to the management of users: i) add users, ii) update user properties, iii) remove users and iv) search for users. Each user has a set of personal properties (e.g. name, e-mail, address, fields of interest, etc.) and other information needed for managing the rights the user has.

Rank : High

Parent : [User Management](#)

Include by:

[Define an ARTE DL](#), [Course Management](#), [Create a Collection](#)

Extended by

[Add user](#),
[Remove user](#),
[Search Users](#),
[Edit user properties](#)

Extension Point

Name : Add user

Name : Remove user

Name : Search users

Name : Edit user properties

Extend from

[ARTE DILIGENT Management](#)

[DILIGENT Resource Management](#)

[Workshop Management](#)

[Update a Collection](#)

[Redefine an ARTE DL](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Add, Remove, Edit user properties, and Search ARTE users.
Preconditions	User Management service is available.
Success end condition	If an operation is performed, the required operation is executed.
Failed end condition	No user information changes.
Trigger	ARTE users management is required.
Description	1: The Authorized User (AU) performs an authorized operation.
Extensions	<p>1a. Add a user: (extension point to Add user use case) 1: The AU performs the Add user use case</p> <p>1b. Remove a user: (extension point to Remove User use case) 1: The AU performs the Remove User use case</p> <p>1c. Edit user properties: (extension point to Edit user properties use case) 1: The AU performs the Edit user properties use case</p> <p>1d. Search users: (extension point to Search users use case) 1: The AU performs the Search users use case</p>

Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

UseCase Search Users

Use Case Extends Hierarchy

```

ARTE DILIGENT Management
| +-DILIGENT Resource Management
| +-Manage an ARTE DL workspace
| +-Workshop Management
| +-Manage Workspace
| +-Course Management
| +-Collection Management
| +-Update a Collection
| +-Redefine an ARTE DL
| +-User Management
| +-Search Users

```

Documentation

This Use Case deals with all the functionalities related to the search of users:

- i) search users by properties,
- ii) search users by category, and
- iii) browse users.

Rank : High

Parent : [User Management](#)

Include by:

[Create a Collection](#)

Extend from

[User Management](#)

Subclasses

[Search by User Category](#) , [Browse users](#) , [Search by User properties](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search for users.
Preconditions	User Management service is available.
Success end condition	Any users who satisfies a given search criterion is found.
Failed end condition	Searched users are not found, even if they exist.
Trigger	An authorized user wants to search users.
Description	1: The Authorized User (AU) submits a search criterion. 2: The AU browses over the result set and eventually selects some of the users.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

UseCase Annotation Management

Use Case Extends Hierarchy

Manage an ARTE DL workspace

- | +-Course Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Annotation Management

Documentation

The annotation service permits a user to

- a) make an annotation and reference it to a specific object (for example, a comment to the document content, or supplementary information, etc.);
- b) read an annotation associated to a given object;
- c) update or remove an annotation;

d) set the access rights for an annotation.

Annotations, or part of them, must be accessible only by authorized users.

Rank : Medium

Parent : [Annotation](#)

Extended by

[Create an Annotation](#) ,

[Remove an Annotation](#) ,

[Read an Annotation](#) ,

[Update an Annotation](#)

Extension Point

Name : Create an annotation

Name : Remove an annotation

Name : Update an annotation

Name : Read an annotation

Extend from

[Course Management](#)

[Make an Exhibition Catalogue](#)

Communication Link [Annotation Management](#) to [Collaborator](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Manage annotations (add, remove, edit, and read).
Preconditions	Annotation service is available.
Success end condition	Annotations might be changed.
Failed end condition	Nothing changes.
Trigger	The user wants to make an annotation.
Description	1: The Authorized User (AU) performs an authorized operation.
Extensions	1a. Create an annotation:

	<p>(extension point to Create an Annotation use case) 1: The AU performs the Create an Annotation use case</p> <p>1b. Remove an annotation: (extension point to Remove an Annotation use case) 1: The AU performs the Remove an Annotation use case</p> <p>1c. Update an annotation: (extension point to Update an Annotation use case) 1: The AU performs the Update an Annotation use case</p> <p>1d. Read an annotation: (extension point to Read an Annotation use case) 1: The AU performs the Read an Annotation use case</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE DL web portal

UseCase Manage an ARTE DL workspace

Documentation

Allow ARTE members to:

- i) access to the services for access/save/remove objects and process images; manage their collections; search and retrieve objects; and
- ii) exploit the ARTE functionalities to Manage a workshop, Make an exhibition catalogue, Manage a course, Process videos.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

- [Course Management](#),
- [Process Video](#),
- [Workshop Management](#)

Extension Point**Name** : Course management**Name** : Workshop management**Name** : Process video**Super Class**[Manage Workspace](#)**Communication Link** [Manage an ARTE DL workspace to ARTE Member](#)**Use Case Description****Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Access the ARTE member workspace to: i) access the services for access/save/remove objects and process images; manage their collections; search and retrieve objects; and ii) exploit the ARTE functionalities to Manage a workshop, Make an exhibition catalogue, Manage a course, Process videos.
Preconditions	There exists an ARTE DL.
Success end condition	Operations over an ARTE DL workspace are performed.
Failed end condition	ARTE DL workspace does not change.
Trigger	An authorized user decides to manage an ARTE DL workspace.
Description	1: An ARTE Member (AM) logs in his workspace 2: The ARTE Member performs an authorized operation 3: The ARTE Member logs out from his workspace
Extensions	*: At any time, system fails: To support recovery, ensure all transaction sensitive state and events can be recovered from any step of the scenario. 1: The AM reloads his workspace, logs in, and requests recovery of prior state.

	<p>2a. The AM selects to manage a course (extension point to Course Management) 1: The AM Performs Course Management use case 2: The AM backs to the main workspace options</p> <p>2b. The AM selects to manage a workshop (extension point to Workshop Management) 1: The AM performs Workshop Management use case 2: The AM backs to the main workspace options</p> <p>2c. The AM selects to process a video (extension point to Process Video) 1: The AM performs Process Video use case 2: The AM backs to the main workspace options</p> <p>2d. The AM selects to search and retrieve objects (extension point to Search and Retrieve Objects use case): 1: The AM performs Search and Retrieve Objects use case 2: The AM backs to the main workspace options</p> <p>2e. The AM selects to save a retrieved object (extension point to Save Object use case): 1: The AM performs Save Object use case 2: The AM backs to the main workspace options</p> <p>2f. The AM selects to access to objects in his workspace (extension point to Access Objects use case): 1: The AM performs Access Objects use case 2: The AM backs to the main workspace options</p> <p>2g. The AM selects to remove objects from his workspace (extension point to Remove Object use case): 1: The AM performs Remove Object use case 2: The AM backs to the main workspace options</p> <p>2h. The AM selects to process an image</p>
--	--

	<p>(extension point to Process Image use case):</p> <p>1: The AM performs Process Image use case</p> <p>2: The AM backs to the main workspace options</p> <p>2i. The AM selects to manage collections in his workspace (extension point to Collection Management use case):</p> <p>1: The AM performs Collection Management use case</p> <p>2: The AM backs to the main workspace options</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE DL web portal



Actor ARTE Member

Subclasses

[ARTE Director](#), [Director Assistant](#)

Communication Link [Manage an ARTE DL workspace](#) to [Manage an ARTE DL workspace](#)



Actor Collaborator

Communication Link [Annotation Management](#) to [Annotation Management](#)

Communication Link communicationlink to [Process Video](#)



Package Services

Parent : [ARTE - DILIGENT Infrastructure](#)

Children:

[Select Services](#), [Search](#), [Annotation](#), [User Management](#), [Object Management](#), [Collection](#)



Package Collection

Parent : [Services](#)

Children:

[Update a Collection](#), [Create a Collection](#), [Remove a Collection](#), [Define Membership Criteria](#),
[Collection Management](#)

 **Package** User Management

Parent : [Services](#)

Children:

[User Management](#), [Add user](#), [Remove user](#), [Edit user properties](#), [Browse users](#), [Search by User Category](#), [Search Users](#), [Search by User properties](#)

 **Package** Annotation

Parent : [Services](#)

Children:

[Annotation Management](#), [Create an Annotation](#), [Read an Annotation](#), [Remove an Annotation](#),
[Update an Annotation](#)

 **System** ARTE - DILIGENT Infrastructure**Children:**

[Create an ARTE DL](#), [Update an ARTE DL](#), [Workshop Management](#), [Make an Exhibition Catalogue](#), [Manage Student Workspace](#), [Process Video](#), NB. La creazione di una ARTE DL implica la creazione del suo workspace, [Course Management](#), [Remove an ARTE DL](#), [Define an ARTE DL](#), [Redefine an ARTE DL](#), [Dispose an ARTE DL](#), [DILIGENT Resource Management](#), [Propose Services to be Added to / Removed from DILIGENT](#), [ARTE DILIGENT Management](#), [Edit an ARTE DL web portal properties](#), [Manage an ARTE DL workspace](#), [Services](#), [Manage Workspace](#), [Propose Archives to be Added to / Removed from DILIGENT](#), [Add a Service](#), [Remove a Service](#), [Add an Archive](#), [Remove an Archive](#), [Browse Archives and Services proposals](#)

 **Communication Link** Annotation Management**Communication Link End From**

Element : [Collaborator](#)

Navigable : true

Communication Link End To

Element : [Annotation Management](#)

Navigable : true

Communication Link Manage an ARTE DL workspace

Communication Link End From

Element : [ARTE Member](#)

Navigable : true

Communication Link End To

Element : [Manage an ARTE DL workspace](#)

Navigable : true

ARTE_ucd04 Workshop Management

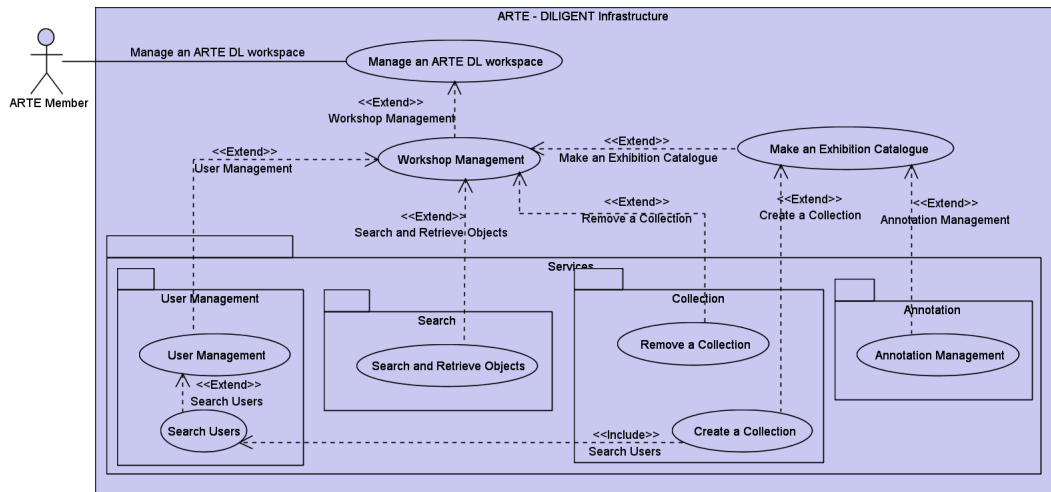


Diagram Content Summary

- [ARTE - DILIGENT Infrastructure](#)
- [Services](#)
- [Annotation](#)
- [Collection](#)
- [User Management](#)
- [Search](#)
- [Manage an ARTE DL workspace](#)
- [Workshop Management](#)
- [Make an Exhibition Catalogue](#)
- [Annotation Management](#)
- [Create a Collection](#)
- [Remove a Collection](#)
- [User Management](#)
- [Search Users](#)
- [Search and Retrieve Objects](#)
- [ARTE Member](#)

Diagram Content Detail

UseCase Manage an ARTE DL workspace

Documentation

Allow ARTE members to:

- i) access to the services for access/save/remove objects and process images; manage their collections; search and retrieve objects; and
- ii) exploit the ARTE functionalities to Manage a workshop, Make an exhibition catalogue, Manage a course, Process videos.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

[Course Management](#),

[Process Video](#),

[Workshop Management](#)

Extension Point

Name : Course management

Name : Workshop management

Name : Process video

Super Class

[Manage Workspace](#)

Communication Link [Manage an ARTE DL workspace to ARTE Member](#)


Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Access the ARTE member workspace to: i) access the services for access/save/remove objects and process images; manage their collections; search and retrieve objects; and ii) exploit the ARTE functionalities to Manage a workshop, Make an exhibition catalogue, Manage a course, Process videos.
Preconditions	There exists an ARTE DL.
Success end condition	Operations over an ARTE DL workspace are performed.
Failed end	ARTE DL workspace does not change.

condition	
Trigger	An authorized user decides to manage an ARTE DL workspace.
Description	<ol style="list-style-type: none"> 1: An ARTE Member (AM) logs in his workspace 2: The ARTE Member performs an authorized operation 3: The ARTE Member logs out from his workspace
Extensions	<p>*: At any time, system fails: To support recovery, ensure all transaction sensitive state and events can be recovered from any step of the scenario.</p> <ol style="list-style-type: none"> 1: The AM reloads his workspace, logs in, and requests recovery of prior state. <p>2a. The AM selects to manage a course (extension point to Course Management)</p> <ol style="list-style-type: none"> 1: The AM Performs Course Management use case 2: The AM backs to the main workspace options <p>2b. The AM selects to manage a workshop (extension point to Workshop Management)</p> <ol style="list-style-type: none"> 1: The AM performs Workshop Management use case 2: The AM backs to the main workspace options <p>2c. The AM selects to process a video (extension point to Process Video)</p> <ol style="list-style-type: none"> 1: The AM performs Process Video use case 2: The AM backs to the main workspace options <p>2d. The AM selects to search and retrieve objects (extension point to Search and Retrieve Objects use case):</p> <ol style="list-style-type: none"> 1: The AM performs Search and Retrieve Objects use case 2: The AM backs to the main workspace options <p>2e. The AM selects to save a retrieved object (extension point to Save Object use case):</p> <ol style="list-style-type: none"> 1: The AM performs Save Object use case 2: The AM backs to the main workspace options

	<p>2f. The AM selects to access to objects in his workspace (extension point to Access Objects use case):</p> <ol style="list-style-type: none"> 1: The AM performs Access Objects use case 2: The AM backs to the main workspace options <p>2g. The AM selects to remove objects from his workspace (extension point to Remove Object use case):</p> <ol style="list-style-type: none"> 1: The AM performs Remove Object use case 2: The AM backs to the main workspace options <p>2h. The AM selects to process an image (extension point to Process Image use case):</p> <ol style="list-style-type: none"> 1: The AM performs Process Image use case 2: The AM backs to the main workspace options <p>2i. The AM selects to manage collections in his workspace (extension point to Collection Management use case):</p> <ol style="list-style-type: none"> 1: The AM performs Collection Management use case 2: The AM backs to the main workspace options
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE DL web portal

 **UseCase** Workshop Management

Use Case Extends Hierarchy

Manage an ARTE DL workspace

| +-Workshop Management

Documentation

This UC models the operations needed for supporting ARTE members in a Workshop organization. In particular it allows to:

- a) make an exhibition catalog or a collection of objects to be presented, and

b) manage users and in particular allow the workshop organizers to search for potential speakers and participants.

The organization of the workshop entitled "Use of emblems during the 16th and 17th century" and the related exhibition is described as an example.

This workshop aims at analyzing how the different typologies of emblems images and literatures are utilized, with special attention to image uses in fancy goods, numismatics, fresco cycles, portrait paintings and so on. Speakers to be invited are chosen from well-known experts, but the group of candidates will include other scholars to be searched in the ARTE DL archives; for example, by searching co-authors of known significant essays, or authors of essays on significant known images. If a well-known author has written significant essays together with a co-author who is not known, then other possible essays of this co-author are searched to evaluate her/his work. If an image is considered to be of particular interest, then this image is submitted as a search query. If annotations are associated to the retrieved image, then scholars who have studied it can be found and their work can be evaluated by further search on a previously created EMBLEM collection.

Rank : Medium

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

[Make an Exhibition Catalogue](#),

[Remove a Collection](#),

[User Management](#),

[Search and Retrieve Objects](#)

Extension Point

Name : Make an exhibition catalogue

Name : Remove a collection

Name : User management

Name : Search and Retrieve Objects

Extend from

[Manage an ARTE DL workspace](#)

Use Case Description

Author	SNS - CNR

Date	10 Nov 04
Version	1.0
Goal in context	Perform workshop related operations.
Preconditions	There exists an ARTE DL.
Success end condition	Workshop related operations are completed.
Failed end condition	The desired operation cannot be made.
Description	<p>1: The Authorized user (AU) inputs a workshop name</p> <p>2: Workshop options (like Description, Scheduler, etc.) are edited by AU</p> <p>3: The AU selects one (or more) allowed options</p> <p>4: The AU confirms or cancels changes</p>
Extensions	<p>1a. Workshop name exists and the AU selects to edit actual workshop options (like Descriptions, Scheduler, etc.).</p> <p>1b. Workshop name exists and the AU selects to create a new workshop:</p> <p> 1: The AU inputs a different workshop name</p> <p>3a. AU selects to manage users: (extension point to User Management use case)</p> <p> 1: AU performs User Management use case</p> <p> 2: AU backs to main Workshop Management use case</p> <p>3b. AU selects to create an exhibition catalogue (collection): (extension point to Make an Exhibition Catalogue use case)</p> <p> 1: AU performs Make an Exhibition Catalogue use case</p> <p> 2: AU backs to main Workshop Management use case</p> <p>3c. AU selects to remove a collection: (extension point to Remove a Collection use case)</p> <p> 1: AU performs Remove a Collection use case</p> <p> 2: AU backs to main Workshop Management use case</p>

	<p>3d. AU selects to search for potential speakers and participants.</p> <p>(extension point to Search and Retrieve Objects)</p> <p>1: AU performs Search and Retrieve Objects use case</p> <p>2: AU backs to main Workshop Management use case</p>
Trigger	A workshop is to be organized.
Priority	Mandatory
Performance	On line
Frequency	Several times per year
Channels to actors	ARTE DL web portal



UseCase Make an Exhibition Catalogue

Use Case Extends Hierarchy

Manage an ARTE DL workspace

| +-Workshop Management

| +-Make an Exhibition Catalogue

Documentation

The exhibition aims at making known the emblems books kept by the Pisa University Library and Scuola Normale Superiore. It will consist in two Sections:

1 - Exhibition of "physical" documents (bound volumes in the main part). The selection of the documents (or of book pages) to be shown will be based on their importance or preservation state.

2 - Exhibition of physical objects (daily life goods, medals, banners , military uniforms etc.) decorated with the images presented in the Exhibition. The exhibition organization must also envisage the production of:

a. A printed Guide/catalogue including the images shown in the Exhibition. Each image will be documented by i) the description and the interpretation of the image; ii) the description of the book where it is contained; iii) the bibliography of the essays regarding that image, the

book that contains it or its author.

b. The digital version of the Guide / Catalogue.

The following description only refers to the previous point b.

The ARTE members responsible for the Exhibition select the paper images to be exhibited and make a digital version of them. Such digital images are included in the ARTE Digital Library as a collection named "Exhibition Catalogue". Access to this collection is reserved to ARTE members and collaborators. Then the actors ask colleagues working in other countries to have a look at the collection just created for the exhibition.

After searching/browsing the archive content, the cooperating scholars may annotate some of the pictures using the Annotation service.

Annotations may correct the possible wrong attribution of an image, or indicate the name of another scholar having a special knowledge of that image, or signal the works written by some authors on that image, or indicate if some objects they know have been decorated with that image, and so on. In particular, suggestions about the existence of physical objects decorated with a given image or links to 3D representations (if any) of such objects could be requested/given. Through the Annotation service, people looking after the exhibition can have a dialogue with their colleagues and, accordingly, update the Catalogue by inserting or drawing images, and/or inserting/correcting bibliographic information etc.

This process ends when a valuable result is reached. Thus, the Digital Catalogue of the Exhibition will consist of the digital version of the images selected for the exhibition, the 3D images of the objects decorated with those images and/or links to 3D images residing elsewhere. Textual descriptions, comments, bibliographic information will also be included. The final version will be publicly accessible as an ARTE DL collection during the Exhibition time and later. However, not all parts of the objects (for instance comments) should be visible by generic users. The catalogue could remain living as a work-in-progress, thus facilitating the communication and cooperative work among the scholars interested in the study of Emblems.

Rank : Medium

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

[Annotation Management](#),

[Create a Collection](#)

Extension Point

Name : Annotation management

Name : Create a collection

Extend from

[Workshop Management](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Co-operatively create a new collection, named "Exhibition Catalogue", containing (a) the digital version of the images destined to be exhibited in their original paper version, (b) images of objects decored with those images.
Preconditions	There exists an ARTE DL containing a special archive on emblems and a service for cooperative work among geographically distant users is available.
Success end conditions	A special collection, i.e. the Exhibition Catalogue, is created as a result of a cooperative work by geographically distant scholars.
Failed end condition	No exhibition catalog is created.
Trigger	A workshop is being organized.
Description	1: The Authorized User (AU) inputs an exhibithion name 2: Exhibition options (like Description) are edited by AU 3: The AU selects an allowed option 4: The AU confirms or cancels changes
Extensions	1a. Exhibition name exists and user selects to edit actual exhibition options (Description, etc.).

	<p>1b. Exhibition name exists and user selects to create a new exhibition:</p> <p>1: User inputs a different exhibition name</p> <p>3a. AU selects to manage annotations (extension point to Annotation Management use case):</p> <p>1: AU performs Annotation Management use case 2: AU backs to the Make an Exhibition Catalogue use case</p> <p>3b. AU selects to create the exhibition catalogue: (extension point to Create a Collection)</p> <p>1: AU performs Create a Collection use case 2: AU backs to the Make an Exhibition Catalogue use case</p>
Priority	Mandatory
Performance	On line
Frequency	Several times a month
Channels to actors	ARTE DL web portal

UseCase Annotation Management

Use Case Extends Hierarchy

- Manage an ARTE DL workspace
 - | +-Course Management
 - | +-Workshop Management
 - | +-Make an Exhibition Catalogue
 - | +-Annotation Management

Documentation

The annotation service permits a user to

- a) make an annotation and reference it to a specific object (for example, a comment to the document content, or supplementary information, etc.);
- b) read an annotation associated to a given object;
- c) update or remove an annotation;
- d) set the access rights for an annotation.

Annotations, or part of them, must be accessible only by authorized users.

Rank : Medium**Parent** : [Annotation](#)**Extended by**[Create an Annotation](#) ,[Remove an Annotation](#) ,[Read an Annotation](#) ,[Update an Annotation](#)**Extension Point****Name** : Create an annotation**Name** : Remove an annotation**Name** : Update an annotation**Name** : Read an annotation**Extend from**[Course Management](#)[Make an Exhibition Catalogue](#)**Communication Link** [Annotation Management](#) to [Collaborator](#)**Use Case Description****Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Manage annotations (add, remove, edit, and read).
Preconditions	Annotation service is available.
Success end condition	Annotations might be changed.
Failed end condition	Nothing changes.
Trigger	The user wants to make an annotation.
Description	1: The Authorized User (AU) performs an authorized operation.
Extensions	1a. Create an annotation: (extension point to Create an Annotation use case) 1: The AU performs the Create an Annotation use case

	<p>1b. Remove an annotation: (extension point to Remove an Annotation use case) 1: The AU performs the Remove an Annotation use case</p> <p>1c. Update an annotation: (extension point to Update an Annotation use case) 1: The AU performs the Update an Annotation use case</p> <p>1d. Read an annotation: (extension point to Read an Annotation use case) 1: The AU performs the Read an Annotation use case</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE DL web portal

UseCase Create a Collection

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection

Documentation

Collections within an ARTE DL will be defined to respond to specific requirements, for example a course to be given or an exhibition to be organized together with distant partners. An ARTE Member decides:

- i) which documents of the ARTE DL archives might be useful to support the specific goal to be reached,
- ii) which set of services will have access to the collection content and
- iii) which set of users will have access to the collection.

Then, these collection requirements are defined and to the resulting collection is given a proper name. A collection can be created/updated/removed by its owners (i.e. an ARTE member who creates the collection) or by any other authorized user, and can be searched/accessed by all the authorized users.

The collection content should be defined in a virtual manner, that is, it should be automatically composed by all the documents meeting the membership criteria and be automatically updated when new objects which satisfy those criteria, are added to the ARTE DL archives. A special user interface should help specifying the membership criteria which might regard: the set of archives from which the collection documents should be selected, the content of one or more elements of the objects metadata (a special case is when the objects are identified by simply specifying the identifiers of the documents the collection has to contain).

For example, a collection of documents/images could be requested in order to study what political use of emblems has been made in the 16th-17th century. Assuming that the collection metadata set contains elements such as dating, dedication, etc., the following membership criteria might be stated: a) the collection should be based on all ARTE DL archives containing books of emblems; b) dating: 16th or 17th century; c) dedication: containing words such as "prince" or "duke", etc.; d) description: containing words such as "anniversary" or "nuptials", etc. Also conditions to access the collection might be imposed; for example, access might be permitted only to users belonging to a given community or the objects of the collection are to be accessed only with a particular visualization service. Permitted users should be alerted when new documents enter into the collection.

Rank : High

Parent : [Collection](#)

Include:

[Define Membership Criteria](#), [Select Services](#), [Search Users](#), [User Management](#)

Include by:

[Process Video](#)

Extended by

[Metadata Generation](#)

Extension Point**Name** : Metadata generation**Extend from**[Collection Management](#)[Make an Exhibition Catalogue](#)**Use Case Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Create a new collection.
Preconditions	There exists an ARTE DL.
Success end condition	A specific collection of objects is set up and it is given a specific name.
Failed end condition	No collection is created.
Trigger	An authorized user decides to create a collection.
Description	<p>1: The Authorized User (AU) inputs a new Collection name.</p> <p>2: The AU defines the criteria of the collection</p> <p>3: The AU selects services to be included into the Collection</p> <p>4: The AU searches users to authorize them to access the collection</p> <p>5: The AU performs an authorized operation</p> <p>6: The AU backs to Collection Management</p>
Extensions	<p>5a. Generate Metadata:</p> <p>(Extension point to Metadata Generation)</p> <p>1: The AU performs the Metadata Generation use case</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE / ARTE DL web portal

 **UseCase** Remove a Collection
Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Remove a Collection

Documentation

The collection owner, i.e. the user who has created a given collection, or any other authorized user removes a collection.

Rank : High**Parent** : [Collection](#)**Extend from**[Collection Management](#)[Workshop Management](#)**Use Case Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	An authorized user removes a collection.
Preconditions	A collection exists.
Success end condition	The Collection is removed.
Failed end condition	No collection is removed.
Trigger	A authorized user needs to remove a collection.
Description	1: The AU inputs a collection name 2: The AU confirms collection removal
Extensions	1a. Collection name does not exist: 1: The AU inputs a new collection name or back to

	Collection Management 2a. AU cancels operation: 1: The AU backs to Collection Management use case without removal
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE / ARTE DL web portal

UseCase User Management

Use Case Extends Hierarchy

```

ARTE DILIGENT Management
| +-DILIGENT Resource Management
| +-Manage an ARTE DL workspace
| +-Workshop Management
| +-Manage Workspace
| +-Course Management
| +-Collection Management
| +-Update a Collection
| +-Redefine an ARTE DL
| +-User Management

```

Documentation

This Use Case deals with all the functionalities related to the management of users: i) add users, ii) update user properties, iii) remove users and iv) search for users. Each user has a set of personal properties (e.g. name, e-mail, address, fields of interest, etc.) and other information needed for managing the rights the user has.

Rank : High

Parent : [User Management](#)

Include by:

[Define an ARTE DL](#), [Course Management](#), [Create a Collection](#)

Extended by

[Add user](#) ,
[Remove user](#) ,
[Search Users](#) ,
[Edit user properties](#)

Extension Point

Name : Add user
Name : Remove user
Name : Search users
Name : Edit user properties

Extend from

[ARTE DILIGENT Management](#)
[DILIGENT Resource Management](#)
[Workshop Management](#)
[Update a Collection](#)
[Redefine an ARTE DL](#)

Use Case Description**Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Add, Remove, Edit user properties, and Search ARTE users.
Preconditions	User Management service is available.
Success end condition	If an operation is performed, the required operation is executed.
Failed end condition	No user information changes.
Trigger	ARTE users management is required.
Description	1: The Authorized User (AU) performs an authorized operation.
Extensions	1a. Add a user: (extension point to Add user use case) 1: The AU performs the Add user use case

	<p>1b. Remove a user: (extension point to Remove User use case) 1: The AU performs the Remove User use case</p> <p>1c. Edit user properties: (extension point to Edit user properties use case) 1: The AU performs the Edit user properties use case</p> <p>1d. Search users: (extension point to Search users use case) 1: The AU performs the Search users use case</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

UseCase Search Users

Use Case Extends Hierarchy

```

ARTE DILIGENT Management
| +-DILIGENT Resource Management
| +-Manage an ARTE DL workspace
| +-Workshop Management
| +-Manage Workspace
| +-Course Management
| +-Collection Management
| +-Update a Collection
| +-Redefine an ARTE DL
| +-User Management
| +-Search Users

```

Documentation

This Use Case deals with all the functionalities related to the search of users:

- i) search users by properties,
- ii) search users by category, and

iii) browse users.

Rank : High

Parent : [User Management](#)

Include by:

[Create a Collection](#)

Extend from

[User Management](#)

Subclasses

[Search by User Category](#) , [Browse users](#) , [Search by User properties](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search for users.
Preconditions	User Management service is available.
Success end condition	Any users who satisfies a given search criterion is found.
Failed end condition	Searched users are not found, even if they exist.
Trigger	An authorized user wants to search users.
Description	1: The Authorized User (AU) submits a search criterion. 2: The AU browses over the result set and eventually selects some of the users.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	DILIGENT / ARTE / ARTE DL web portal



UseCase Search and Retrieve Objects

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-Define Membership Criteria
- | +-Search and Retrieve Objects

Documentation

This Use Case deals with a generic search operation. This generic task will be specialized in a set of particular search functions. In any ARTE DL the following search functions should be available:

- a) searching documents by specifying the content of one or more metadata elements;
- b) full text searching: a text is submitted as a query;
- c) searching documents by images : the user submits an image as a query to get "similar" images as a result.

[Note: "Similar" images are those shown in Appendix A, figs 1-3. Figure 1, 2 and 3 are similar because all contain a "tree of memory" and Figure 3 is different from Figure 1 and 2 because they do not contain human representations. For a detailed description of them see the corresponding Use Case.

For each type of search, it is possible to select a subset of the available archives, so search is performed over:

- i) all available archives, or
- ii) selected archives (subset of the available archives).

For each type of search, the display page showing the result set should allow the user:

- i) to select which document descriptions are to be saved;
- ii) to visualize the full document according to a personalized view;
- iii) to mark a document for relevance feedback searching.

It is to note that archives which ARTE scholars are interested in may contain different digital objects (whether texts or images or videos, or a composition of them) and these objects might have different structures and be associated with different metadata formats. As a consequence, the

possibility of searching heterogeneous archives would be extremely useful and a functionality for this should be available.

Rank : High

Parent : [Search](#)

Extended by

[Relevance Feedback](#),

[Search archives](#)

Extension Point

Name : Search archives

Name : Relevance feedback

Extend from

[Define Membership Criteria](#)

[Manage Workspace](#)

[Workshop Management](#)

Subclasses

[Search objects by Image](#), [Browse objects](#), [Search objects by Metadata](#), [Search objects by](#)

[Tone](#), [Search objects by Video](#), [Search video scenes by Keywords](#), [Search objects by Full](#)

[Text](#), [Navigate objects](#)

Use Case Description

Author	SNS - RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Find (and retrieve) objects using search, browse or navigate.
Preconditions	There exists an ARTE DL.
Success end condition	The required objects are retrieved, if they exist.
Failed end condition	The searched objects are not found, even though they exist.
Trigger	An ARTE user needs to search objects.
Description	1: The Authorized User (AU) submits a search criterion. 2: The AU browses over the result set and eventually selects some of the objects.
Extensions	1a. Search archives:

	(extension point to Search Archives use case) 1: The AU performs the Search Archives use case 2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case
Priority	Mandatory
Performance	On line / Batch
Frequency	Several times per day
Channels to Actors	ARTE / ARTE DL web portal



Actor ARTE Member

Subclasses

[ARTE Director](#), [Director Assistant](#)

Communication Link [Manage an ARTE DL workspace](#) to [Manage an ARTE DL workspace](#)



Package Services

Parent : [ARTE - DILIGENT Infrastructure](#)

Children:

[Select Services](#), [Search](#), [Annotation](#), [User Management](#), [Object Management](#), [Collection](#)



Package Annotation

Parent : [Services](#)

Children:

[Annotation Management](#), [Create an Annotation](#), [Read an Annotation](#), [Remove an Annotation](#),
[Update an Annotation](#)



Package Collection

Parent : [Services](#)

Children:

[Update a Collection](#), [Create a Collection](#), [Remove a Collection](#), [Define Membership Criteria](#),
[Collection Management](#)

 **Package** User Management

Parent : [Services](#)

Children:

[User Management](#), [Add user](#), [Remove user](#), [Edit user properties](#), [Browse users](#), [Search by User Category](#), [Search Users](#), [Search by User properties](#)

 **Package** Search

Parent : [Services](#)

Children:

[Search archives by Image](#), [Search objects by Video](#), [Browse archives](#), [Search archives](#), [Search archives by Metadata](#), [Search archives by ID](#), [Search objects by Full Text](#), [Navigate objects](#),
[Search video scenes by Keywords](#), [Search objects by Tone](#), [Search and Retrieve Objects](#),
[Search objects by Image](#), [Search objects by Metadata](#), [Browse objects](#), [Relevance Feedback](#),
[Search part-of objects by Image](#)

 **System** ARTE - DILIGENT Infrastructure**Children:**

[Create an ARTE DL](#), [Update an ARTE DL](#), [Workshop Management](#), [Make an Exhibition Catalogue](#), [Manage Student Workspace](#), [Process Video](#), NB. La creazione di una ARTE DL implica la creazione del suo workspace, [Course Management](#), [Remove an ARTE DL](#), [Define an ARTE DL](#), [Redefine an ARTE DL](#), [Dispose an ARTE DL](#), [DILIGENT Resource Management](#), [Propose Services to be Added to / Removed from DILIGENT](#), [ARTE DILIGENT Management](#), [Edit an ARTE DL web portal properties](#), [Manage an ARTE DL workspace](#), [Services](#), [Manage Workspace](#), [Propose Archives to be Added to / Removed from DILIGENT](#), [Add a Service](#), [Remove a Service](#), [Add an Archive](#), [Remove an Archive](#), [Browse Archives and Services proposals](#)

 **Communication Link** Manage an ARTE DL workspace

Communication Link End From

Element : [ARTE Member](#)

Navigable : true

Communication Link End To

Element : [Manage an ARTE DL workspace](#)

Navigable : true

ARTE_ucd05 Process Video

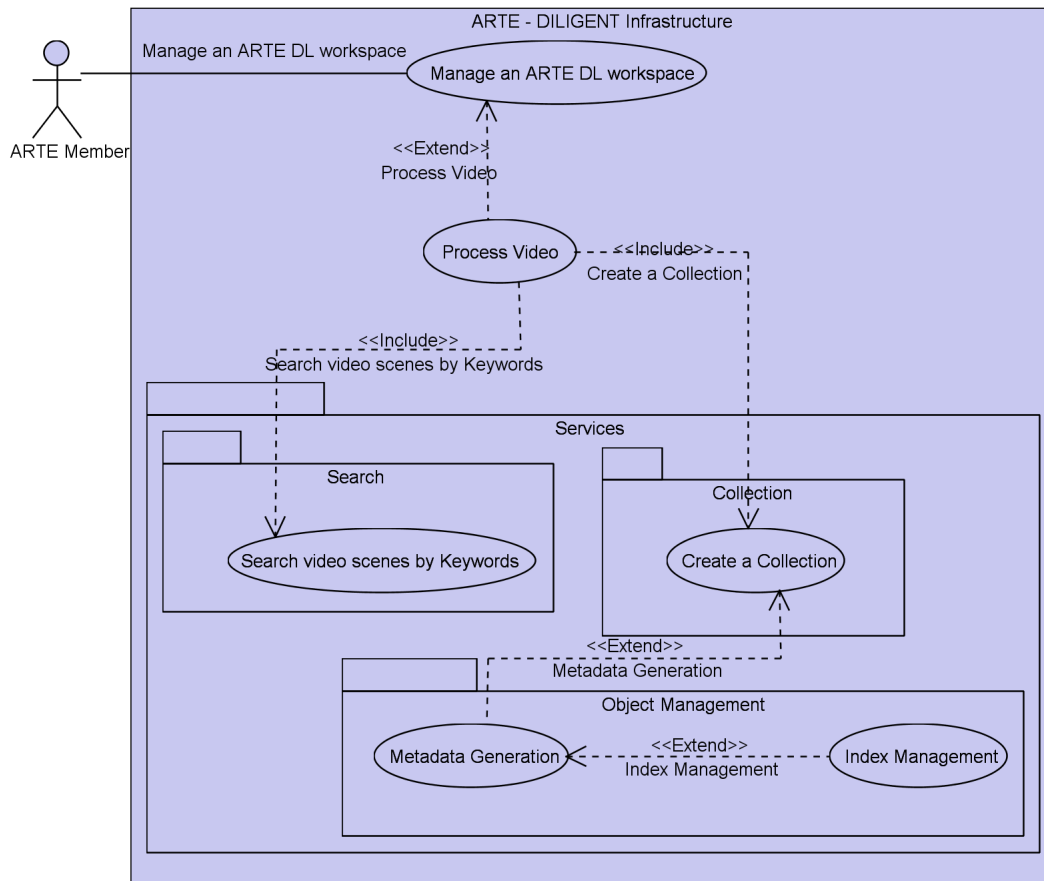








Diagram Content Summary

-  [ARTE - DILIGENT Infrastructure](#)
-  [Services](#)
-  [Search](#)
-  [Collection](#)
-  [Object Management](#)
-  [Manage an ARTE DL workspace](#)
-  [Process Video](#)
-  [Search video scenes by Keywords](#)
-  [Create a Collection](#)
-  [Metadata Generation](#)


[Index Management](#)
[ARTE Member](#)

Diagram Content Detail


UseCase Manage an ARTE DL workspace

Documentation

Allow ARTE members to:

- i) access to the services for access/save/remove objects and process images; manage their collections; search and retrieve objects; and
- ii) exploit the ARTE functionalities to Manage a workshop, Make an exhibition catalogue, Manage a course, Process videos.

Rank : High

Parent : [ARTE - DILIGENT Infrastructure](#)

Extended by

[Course Management](#),

[Process Video](#),

[Workshop Management](#)

Extension Point

Name : Course management

Name : Workshop management

Name : Process video

Super Class

[Manage Workspace](#)

Communication Link [Manage an ARTE DL workspace](#) to [ARTE Member](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	<p>Access the ARTE member workspace to:</p> <ul style="list-style-type: none"> i) access the services for access/save/remove objects and process images; manage their collections; search and retrieve objects; and ii) exploit the ARTE functionalities to Manage a workshop,

	Make an exhibition catalogue, Manage a course, Process videos.
Preconditions	There exists an ARTE DL.
Success end condition	Operations over an ARTE DL workspace are performed.
Failed end condition	ARTE DL workspace does not change.
Trigger	An authorized user decides to manage an ARTE DL workspace.
Description	<p>1: An ARTE Member (AM) logs in his workspace</p> <p>2: The ARTE Member performs an authorized operation</p> <p>3: The ARTE Member logs out from his workspace</p>
Extensions	<p>*: At any time, system fails:</p> <p>To support recovery, ensure all transaction sensitive state and events can be recovered from any step of the scenario.</p> <p>1: The AM reloads his workspace, logs in, and requests recovery of prior state.</p> <p>2a. The AM selects to manage a course (extension point to Course Management)</p> <p>1: The AM Performs Course Management use case</p> <p>2: The AM backs to the main workspace options</p> <p>2b. The AM selects to manage a workshop (extension point to Workshop Management)</p> <p>1: The AM performs Workshop Management use case</p> <p>2: The AM backs to the main workspace options</p> <p>2c. The AM selects to process a video (extension point to Process Video)</p> <p>1: The AM performs Process Video use case</p> <p>2: The AM backs to the main workspace options</p> <p>2d. The AM selects to search and retrieve objects (extension point to Search and Retrieve Objects use case):</p>

	<p>1: The AM performs Search and Retrieve Objects use case 2: The AM backs to the main workspace options</p> <p>2e. The AM selects to save a retrieved object (extension point to Save Object use case): 1: The AM performs Save Object use case 2: The AM backs to the main workspace options</p> <p>2f. The AM selects to access to objects in his workspace (extension point to Access Objects use case): 1: The AM performs Access Objects use case 2: The AM backs to the main workspace options</p> <p>2g. The AM selects to remove objects from his workspace (extension point to Remove Object use case): 1: The AM performs Remove Object use case 2: The AM backs to the main workspace options</p> <p>2h. The AM selects to process an image (extension point to Process Image use case): 1: The AM performs Process Image use case 2: The AM backs to the main workspace options</p> <p>2i. The AM selects to manage collections in his workspace (extension point to Collection Management use case): 1: The AM performs Collection Management use case 2: The AM backs to the main workspace options</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE DL web portal

 **UseCase** Process Video

Use Case Extends Hierarchy

Manage an ARTE DL workspace

| +-Process Video

Documentation

This use case models the process of:

1. Search for video scene which satisfy a search criterion expressed as a set of keywords.
2. Select some video scene from the result set.
3. Create a collection containing selected video scene.
4. If necessary, create associated metadata & index.

Rank : Low

Parent : [ARTE - DILIGENT Infrastructure](#)

Include:

[Search video scenes by Keywords](#), [Create a Collection](#)

Extend from

[Manage an ARTE DL workspace](#)

Communication Link communicationlink to [Collaborator](#)

Use Case Description**Description**

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Find specific audio or video content by searching audio / video archives that have no associated text databases nor metadata.
Preconditions	There exists an ARTE DL.
Success end condition	A special collection is created by using specific processing tools.
Failed end condition	Nothing changes into the ARTE DL.
Trigger	An ARTE user requires to look for audio or video content.
Description	1: An Authorized User (AU) searches for specific content (extension point to Search video frames by Keywords) 2: The AU inputs a collection name

	3: The AU saves selected search result objects into that collection
Extensions	<p>2a. Collection name exists and user selects to add new items to that collection.</p> <p>2b. Collection name exists and user selects to create a new collection: 1: User inputs a different collection name</p> <p>2c. Collection name does not exist (a new collection is created)</p>
Priority	Highly desirable
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE DL web portal

UseCase Search video scenes by Keywords

Documentation

In this search the user wants to specify a keyword as a query and the system must be able to find the video scenes that can be associated with the given keyword.

The concept of similarity can be based on various criteria, e.g. a scene could be considered similar to a keyword if its speech contains the keyword; a scene could be considered similar to a keyword if it is "about" the subject represented by that keyword, etc.

Rank : Low

Parent : [Search](#)

Include by:

[Process Video](#)

Super Class

[Search and Retrieve Objects](#)

Use Case Description

Description

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search video scenes similar to the query (keywords)
Preconditions	There exists an ARTE DL.
Success end condition	The required objects are retrieved, if they exist.
Failed end condition	The searched objects are not found, even though they exist.
Trigger	This search type is required by an user.
Description	<p>1: The Authorized User (AU) submits a set of keywords as search criterion.</p> <p>2: The AU browses over the result set and eventually selects some of the objects.</p>
Extensions	<p>1a. Select archives: (extension point to Search Archives use case) 1: The AU performs the Search Archives use case</p> <p>2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case</p>
Priority	Highly desirable
Performance	On line / Batch
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

 **UseCase** Create a Collection

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection

Documentation

Collections within an ARTE DL will be defined to respond to specific requirements, for example a course to be given or an exhibition to be organized together with distant partners. An ARTE Member decides:

- i) which documents of the ARTE DL archives might be useful to support the specific goal to be reached,
- ii) which set of services will have access to the collection content and
- iii) which set of users will have access to the collection.

Then, these collection requirements are defined and to the resulting collection is given a proper name. A collection can be created/updated/removed by its owners (i.e. an ARTE member who creates the collection) or by any other authorized user, and can be searched/accessed by all the authorized users.

The collection content should be defined in a virtual manner, that is, it should be automatically composed by all the documents meeting the membership criteria and be automatically updated when new objects which satisfy those criteria, are added to the ARTE DL archives. A special user interface should help specifying the membership criteria which might regard: the set of archives from which the collection documents should be selected, the content of one or more elements of the objects metadata (a special case is when the objects are identified by simply specifying the identifiers of the documents the collection has to contain).

For example, a collection of documents/images could be requested in order to study what political use of emblems has been made in the 16th-17th century. Assuming that the collection metadata set contains elements such as dating, dedication, etc., the following membership criteria might be stated: a) the collection should be based on all ARTE DL archives containing books of emblems; b) dating: 16th or 17th century; c)

dedication: containing words such as "prince" or "duke", etc.; d)
description: containing words such as "anniversary" or "nuptials", etc.
Also conditions to access the collection might be imposed; for example,
access might be permitted only to users belonging to a given community or
the objects of the collection are to be accessed only with a particular
visualization service. Permitted users should be alerted when new
documents enter into the collection.

Rank : High

Parent : [Collection](#)

Include:

[Define Membership Criteria](#), [Select Services](#), [Search Users](#), [User Management](#)

Include by:

[Process Video](#)

Extended by

[Metadata Generation](#)

Extension Point

Name : Metadata generation

Extend from

[Collection Management](#)

[Make an Exhibition Catalogue](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Create a new collection.
Preconditions	There exists an ARTE DL.
Success end condition	A specific collection of objects is set up and it is given a specific name.
Failed end condition	No collection is created.
Trigger	An authorized user decides to create a collection.
Description	1: The Authorized User (AU) inputs a new Collection name. 2: The AU defines the criteria of the collection 3: The AU selects services to be included into the

	Collection 4: The AU searches users to authorize them to access the collection 5: The AU performs an authorized operation 6: The AU backs to Collection Management
Extensions	5a. Generate Metadata: (Extension point to Metadata Generation) 1: The AU performs the Metadata Generation use case
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE / ARTE DL web portal

UseCase Metadata Generation

Use Case Extends Hierarchy

Create an ARTE DL

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection
- | +-Update an ARTE DL
- | +-Update a Collection
- | +-Index Management
- | +-Metadata Generation

Documentation

This Use Case deals with the automatic generation of metadata about objects. In particular, this operation is involved in two main Use Cases:

- i) the Create a Collection, and
- ii) the Create an ARTE DL.

There are various kinds of processes in order to automatically generate metadata. The ARTE community should be allowed to automatically extract the speech part of an audio / video file and to process text documents in order to automatically generate a thesaurus. Once new metadata have been created, the ARTE community, in particular the ARTE Administrator, should be enabled to create an Index allowing to access objects via this available information in an efficient way.

Rank : Low

Parent : [Object Management](#)

Extended by

[Index Management](#),

[Speech to text](#),

[Process Text](#)

Extension Point

Name : Index management

Name : Speech to text

Name : Process text

Extend from

[Create an ARTE DL](#)

[Create a Collection](#)

[Update an ARTE DL](#)

[Update a Collection](#)

[Index Management](#)

Use Case Description

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Generate metadata.
Success end condition	Metadata generated.
Failed end condition	Nothing change into an ARTE DL.
Trigger	Metadata generation is required.
Description	1: An Authorized User (AU) performs an authorized

	operation. 2: The AU requests to generate metadata.
Extensions	1a. Speech to text: (extension point to Speech to text use case) 1: The AU performs the Speech to text use case 1b. Process Text: (extension point to Process Text use case) 1: The AU performs the Process Text use case
Priority	Highly desirable
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE DL web portal

UseCase Index Management

Use Case Extends Hierarchy

Create an ARTE DL

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection
- | +-Update an ARTE DL
- | +-Update a Collection
- | +-Metadata Generation
- | +-Index Management

Documentation

This Use Case deals with the automatic generation of an Index data structure. The ARTE community, in particular the ARTE Administrator, should be enabled to create an Index in order to allow to access objects in a new efficient way.

Rank : Low**Parent** : [Object Management](#)**Extended by**[Metadata Generation](#)**Extension Point****Name** : Metadata generation**Extend from**[Metadata Generation](#)**Use Case Description**

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Generate an index from sources objects (video, audio, etc.).
Preconditions	Content/Object to index exists.
Success end condition	An index data structure is created.
Failed end condition	No index data structure is created.
Trigger	An index over objects is required.
Description	1: The Authorized User (AU) performs an authorized operation. 2: The AU requests to generate an Index.
Extensions	1a. Metadata Generation: (extension point to Metadata Generation use case) 1: The AU performs the Metadata Generation use case.
Priority	Highly desirable
Performance	Batch
Frequency	Several times per month
Channels to actors	ARTE DL web portal

**Actor** ARTE Member**Subclasses**[ARTE Director](#), [Director Assistant](#)**Communication Link** [Manage an ARTE DL workspace](#) to [Manage an ARTE DL workspace](#)**Package** Services**Parent :** [ARTE - DILIGENT Infrastructure](#)**Children:**[Select Services](#), [Search](#), [Annotation](#), [User Management](#), [Object Management](#), [Collection](#)**Package** Search**Parent :** [Services](#)**Children:**[Search archives by Image](#), [Search objects by Video](#), [Browse archives](#), [Search archives](#), [Search archives by Metadata](#), [Search archives by ID](#), [Search objects by Full Text](#), [Navigate objects](#), [Search video scenes by Keywords](#), [Search objects by Tone](#), [Search and Retrieve Objects](#), [Search objects by Image](#), [Search objects by Metadata](#), [Browse objects](#), [Relevance Feedback](#), [Search part-of objects by Image](#)**Package** Collection**Parent :** [Services](#)**Children:**[Update a Collection](#), [Create a Collection](#), [Remove a Collection](#), [Define Membership Criteria](#), [Collection Management](#)**Package** Object Management**Parent :** [Services](#)**Children:**[Resolve Image into parts](#), [Personalize Object Views](#), [Process Image](#), [Play Video / Audio](#), [Speech to text](#), [Metadata Generation](#), [Translation Service](#), [Index Management](#), [Access Objects](#), [Process Text](#), [Thesaurus Generation](#), [Save Object](#), [Remove Object](#)

**System** ARTE - DILIGENT Infrastructure**Children:**

[Create an ARTE DL](#), [Update an ARTE DL](#), [Workshop Management](#), [Make an Exhibition Catalogue](#), [Manage Student Workspace](#), [Process Video](#), NB. La creazione di una ARTE DL implica la creazione del suo workspace, [Course Management](#), [Remove an ARTE DL](#), [Define an ARTE DL](#), [Redefine an ARTE DL](#), [Dispose an ARTE DL](#), [DILIGENT Resource Management](#), [Propose Services to be Added to / Removed from DILIGENT](#), [ARTE DILIGENT Management](#), [Edit an ARTE DL web portal properties](#), [Manage an ARTE DL workspace](#), [Services](#), [Manage Workspace](#), [Propose Archives to be Added to / Removed from DILIGENT](#), [Add a Service](#), [Remove a Service](#), [Add an Archive](#), [Remove an Archive](#), [Browse Archives and Services proposals](#)

**Communication Link** Manage an ARTE DL workspace**Communication Link End From****Element :** [ARTE Member](#)**Navigable :** true**Communication Link End To****Element :** [Manage an ARTE DL workspace](#)**Navigable :** true

ARTE_ucd06 Collection Management

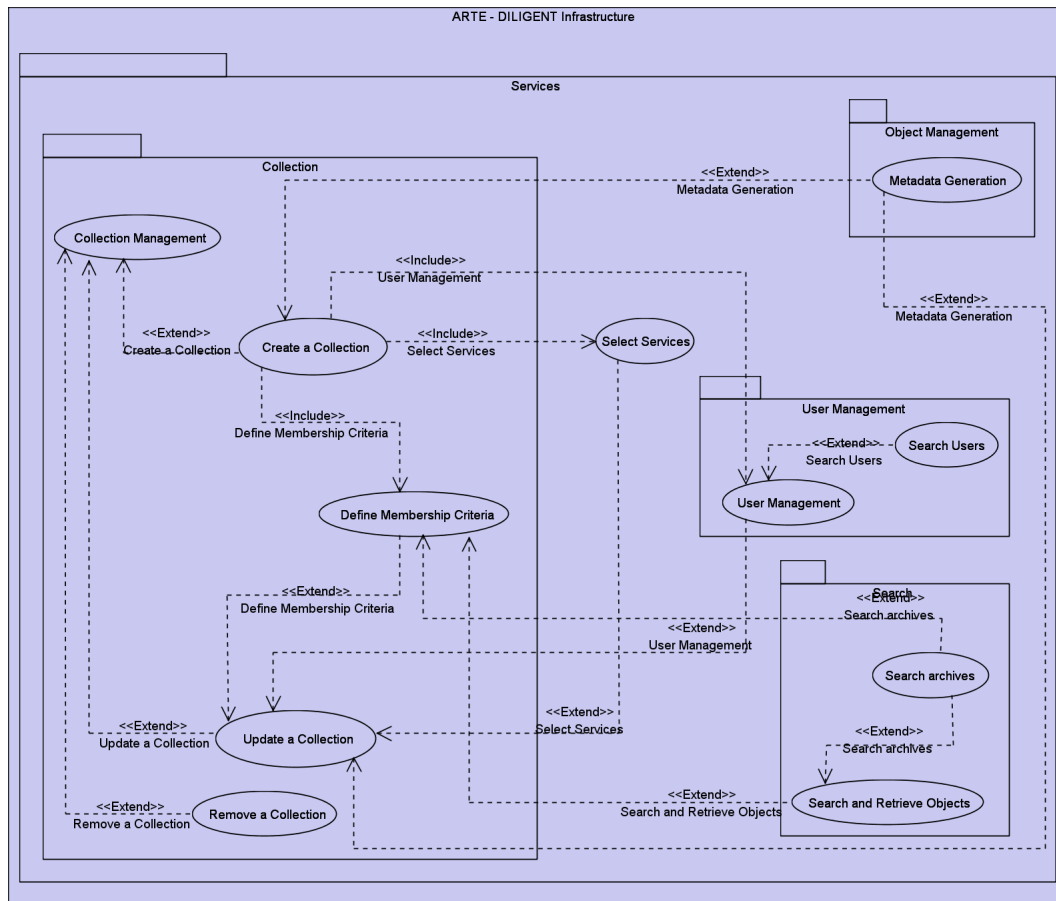







Diagram Content Summary

-  [ARTE - DILIGENT Infrastructure](#)
-  [Services](#)
-  [User Management](#)
-  [Search](#)
-  [Collection](#)
-  [Object Management](#)
-  [Create a Collection](#)
-  [Select Services](#)
-  [Update a Collection](#)

-  [Search Users](#)
-  [User Management](#)
-  [Search and Retrieve Objects](#)
-  [Search archives](#)
-  [Collection Management](#)
-  [Remove a Collection](#)
-  [Define Membership Criteria](#)
-  [Metadata Generation](#)

Diagram Content Detail

 **UseCase** Create a Collection

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection

Documentation

Collections within an ARTE DL will be defined to respond to specific requirements, for example a course to be given or an exhibition to be organized together with distant partners. An ARTE Member decides:

- i) which documents of the ARTE DL archives might be useful to support the specific goal to be reached,
- ii) which set of services will have access to the collection content and
- iii) which set of users will have access to the collection.

Then, these collection requirements are defined and to the resulting collection is given a proper name. A collection can be created/updated/removed by its owners (i.e. an ARTE member who creates the collection) or by any other authorized user, and can be searched/accessed by all the authorized users.

The collection content should be defined in a virtual manner, that is, it should be automatically composed by all the documents meeting the membership criteria and be automatically updated when new objects which satisfy those criteria, are added to the ARTE DL archives. A special user

interface should help specifying the membership criteria which might regard: the set of archives from which the collection documents should be selected, the content of one or more elements of the objects metadata (a special case is when the objects are identified by simply specifying the identifiers of the documents the collection has to contain).

For example, a collection of documents/images could be requested in order to study what political use of emblems has been made in the 16th-17th century. Assuming that the collection metadata set contains elements such as dating, dedication, etc., the following membership criteria might be stated: a) the collection should be based on all ARTE DL archives containing books of emblems; b) dating: 16th or 17th century; c) dedication: containing words such as "prince" or "duke", etc.; d) description: containing words such as "anniversary" or "nuptials", etc. Also conditions to access the collection might be imposed; for example, access might be permitted only to users belonging to a given community or the objects of the collection are to be accessed only with a particular visualization service. Permitted users should be alerted when new documents enter into the collection.

Rank : High

Parent : [Collection](#)

Include:

[Define Membership Criteria](#), [Select Services](#), [Search Users](#), [User Management](#)

Include by:

[Process Video](#)

Extended by

[Metadata Generation](#)

Extension Point

Name : Metadata generation

Extend from

[Collection Management](#)

[Make an Exhibition Catalogue](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0

Goal in context	Create a new collection.
Preconditions	There exists an ARTE DL.
Success end condition	A specific collection of objects is set up and it is given a specific name.
Failed end condition	No collection is created.
Trigger	An authorized user decides to create a collection.
Description	<p>1: The Authorized User (AU) inputs a new Collection name.</p> <p>2: The AU defines the criteria of the collection</p> <p>3: The AU selects services to be included into the Collection</p> <p>4: The AU searches users to authorize them to access the collection</p> <p>5: The AU performs an authorized operation</p> <p>6: The AU backs to Collection Management</p>
Extensions	<p>5a. Generate Metadata: (Extension point to Metadata Generation)</p> <p>1: The AU performs the Metadata Generation use case</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE / ARTE DL web portal



UseCase Select Services

Use Case Extends Hierarchy

DILIGENT Resource Management

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection

```

| +-ARTE DILIGENT Management
| +-Redefine an ARTE DL
| +-Select Services

```

Documentation

This Use Case deals with the operation of selecting services capable to satisfy the needs of a user. It is used in two main contexts: i) the definition of an ARTE DL, and ii) the creation of a collection.

For example, the ARTE Director or a Director Assistant selects which DILIGENT services have to be included in an ARTE DL after browsing the available services and selecting one or more of them. An authorized user selects which services a collection must be equipped with after identifying the services capable to deal with the collection content.

Rank : High

Parent : [Services](#)

Include by:

[Create a Collection](#) , [Define an ARTE DL](#)

Extend from

[DILIGENT Resource Management](#)

[Update a Collection](#)

[Redefine an ARTE DL](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Select services to be included into an ARTE DL or in a collection.
Preconditions	DILIGENT is up and running.
Success end condition	0 to n services are selected.
Failed end condition	No service is selected.
Trigger	Services need to be discovered in order to be added to an

	ARTE DL or to a collection.
Description	1: The Authorized User (AU) browses over available services and eventually selects some of them.
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

UseCase Update a Collection

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection

Documentation

The collection owner, i.e. the user who has created a given collection, or another authorized user updates the collection criteria by:

- a) modifying the membership criteria (see "Define Membership Criteria" UC),
- b) adding or removing services from the set of services enabled to act on the collection content, and
- c) changing the access rights of the collection users.

Rank : High

Parent : [Collection](#)

Extended by

- [Define Membership Criteria](#),
- [Select Services](#),
- [User Management](#),
- [Metadata Generation](#)

Extension Point

Name : Define a membership criteria

Name : Select services

Name : Matadata generation

Name : User management

Extend from

[Collection Management](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	A collection exists and its content and/or associated services and/or associated users are updated (deleted / added).
Preconditions	There exists a collection.
Success end condition	Collection is updated.
Failed end condition	No updating is made.
Trigger	An authorized user needs to update a collection definition.
Description	<p>1: The Authorized User (AU) inputs an existing Collection name.</p> <p>2: The AU browses collection's archives and eventually selects some of them to remove.</p> <p>3: The AU browses collection's services and eventually selects some of them to remove.</p> <p>4: The AU confirms or rejects previous selections</p> <p>5: The AU performs an authorized operation</p> <p>6: The AU backs to Collection Management</p>
Extensions	<p>5a. Edit Definition of Membership Criteria: (extension point to Define Membership Criteria use case)</p> <p>1: AU performs Search and Retrieve Objects.</p> <p>5b. Add new services: (extension point to Select Services)</p> <p>1: AU performs Select Services use case.</p>

	<p>5c. Generate metadata: (extension point to Metadata Generation use case) 1: AU performs Metadata Generation use case.</p> <p>5d. user management: (extension point to User Management use case) 1: AU performs User Management use case</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE / ARTE DL web portal

UseCase Search Users

Use Case Extends Hierarchy

```

ARTE DILIGENT Management
| +-DILIGENT Resource Management
| +-Manage an ARTE DL workspace
| +-Workshop Management
| +-Manage Workspace
| +-Course Management
| +-Collection Management
| +-Update a Collection
| +-Redefine an ARTE DL
| +-User Management
| +-Search Users

```

Documentation

This Use Case deals with all the functionalities related to the search of users:

- i) search users by properties,
- ii) search users by category, and
- iii) browse users.

Rank : High**Parent :** [User Management](#)**Include by:**[Create a Collection](#)**Extend from**[User Management](#)**Subclasses**[Search by User Category](#) , [Browse users](#) , [Search by User properties](#)**Use Case Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search for users.
Preconditions	User Management service is available.
Success end condition	Any users who satisfies a given search criterion is found.
Failed end condition	Searched users are not found, even if they exist.
Trigger	An authorized user wants to search users.
Description	1: The Authorized User (AU) submits a search criterion. 2: The AU browses over the result set and eventually selects some of the users.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

 **UseCase** User Management
Use Case Extends Hierarchy

ARTE DILIGENT Management

- | +-DILIGENT Resource Management
- | +-Manage an ARTE DL workspace
- | +-Workshop Management
- | +-Manage Workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-Redefine an ARTE DL
- | +-User Management

Documentation

This Use Case deals with all the functionalities related to the management of users: i) add users, ii) update user properties, iii) remove users and iv) search for users. Each user has a set of personal properties (e.g. name, e-mail, address, fields of interest, etc.) and other information needed for managing the rights the user has.

Rank : High

Parent : [User Management](#)

Include by:

[Define an ARTE DL](#), [Course Management](#), [Create a Collection](#)

Extended by

[Add user](#),
[Remove user](#),
[Search Users](#),
[Edit user properties](#)

Extension Point

Name : Add user
Name : Remove user
Name : Search users
Name : Edit user properties

Extend from

[ARTE DILIGENT Management](#)
[DILIGENT Resource Management](#)
[Workshop Management](#)
[Update a Collection](#)
[Redefine an ARTE DL](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Add, Remove, Edit user properties, and Search ARTE users.
Preconditions	User Management service is available.
Success end condition	If an operation is performed, the required operation is executed.
Failed end condition	No user information changes.
Trigger	ARTE users management is required.
Description	1: The Authorized User (AU) performs an authorized operation.
Extensions	<p>1a. Add a user: (extension point to Add user use case) 1: The AU performs the Add user use case</p> <p>1b. Remove a user: (extension point to Remove User use case) 1: The AU performs the Remove User use case</p> <p>1c. Edit user properties: (extension point to Edit user properties use case) 1: The AU performs the Edit user properties use case</p> <p>1d. Search users: (extension point to Search users use case) 1: The AU performs the Search users use case</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to	DILIGENT / ARTE / ARTE DL web portal

actors	
---------------	--

UseCase Search and Retrieve Objects

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-Define Membership Criteria
- | +-Search and Retrieve Objects

Documentation

This Use Case deals with a generic search operation. This generic task will be specialized in a set of particular search functions. In any ARTE DL the following search functions should be available:

- a) searching documents by specifying the content of one or more metadata elements;
- b) full text searching: a text is submitted as a query;
- c) searching documents by images : the user submits an image as a query to get "similar" images as a result.

[Note: "Similar" images are those shown in Appendix A, figs 1-3. Figure 1, 2 and 3 are similar because all contain a "tree of memory" and Figure 3 is different from Figure 1 and 2 because they do not contain human representations. For a detailed description of them see the corresponding Use Case.

For each type of search, it is possible to select a subset of the available archives, so search is performed over:

- i) all available archives, or
- ii) selected archives (subset of the available archives).

For each type of search, the display page showing the result set should allow the user:

- i) to select which document descriptions are to be saved;
- ii) to visualize the full document according to a personalized view;
- iii) to mark a document for relevance feedback searching.

It is to note that archives which ARTE scholars are interested in may contain different digital objects (whether texts or images or videos, or a composition of them) and these objects might have different structures and be associated with different metadata formats. As a consequence, the possibility of searching heterogeneous archives would be extremely useful and a functionality for this should be available.

Rank : High

Parent : [Search](#)

Extended by

[Relevance Feedback](#),

[Search archives](#)

Extension Point

Name : Search archives

Name : Relevance feedback

Extend from

[Define Membership Criteria](#)

[Manage Workspace](#)

[Workshop Management](#)

Subclasses

[Search objects by Image](#), [Browse objects](#), [Search objects by Metadata](#), [Search objects by Tone](#), [Search objects by Video](#), [Search video scenes by Keywords](#), [Search objects by Full Text](#), [Navigate objects](#)

Use Case Description

Author	SNS - RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Find (and retrieve) objects using search, browse or navigate.
Preconditions	There exists an ARTE DL.
Success end condition	The required objects are retrieved, if they exist.
Failed end condition	The searched objects are not found, even though they exist.

Trigger	An ARTE user needs to search objects.
Description	1: The Authorized User (AU) submits a search criterion. 2: The AU browses over the result set and eventually selects some of the objects.
Extensions	1a. Search archives: (extension point to Search Archives use case) 1: The AU performs the Search Archives use case 2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case
Priority	Mandatory
Performance	On line / Batch
Frequency	Several times per day
Channels to Actors	ARTE / ARTE DL web portal

UseCase Search archives

Use Case Extends Hierarchy

DILIGENT Resource Management

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-Define Membership Criteria
- | +-Search and Retrieve Objects
- | +-Search archives

Documentation

This Use Case deals with the search of archives capable to satisfy the needs of a user. This operation can be used in different contexts, e.g. when a DL is defined this operation allows the user to define the DL information space, when a new Collection is defined this operation allows the user to define the Membership criteria of the collection, when a search for objects is executed this operation allows the user to specify

the pool of archives where the search has to be done.

Any search operation should produce a result page where archive descriptions are shown in a short form (heading). The user confirms/selects the one s/he is interested in and the system visualizes the complete description corresponding to that heading. The user looks at the complete archive description to verify whether that archive meets his requirements and can select that archive or pass to examine another archive description.

Rank : High

Parent : [Search](#)

Include by:

[Define an ARTE DL](#)

Extend from

[DILIGENT Resource Management](#)

[Search and Retrieve Objects](#)

[Define Membership Criteria](#)

[Redefine an ARTE DL](#)

Subclasses

[Search archives by Metadata](#), [Browse archives](#), [Search archives by Image](#), [Search archives by ID](#)

Use Case Description

Description

Author	SNS-CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search for archives capable to satisfy the needs of a user.
Preconditions	There exists a DILIGENT portal that allows ARTE members to search all available archives.
Success end condition	0 to n archives are selected.
Failed end condition	No archive is found.
Trigger	New archives need to be added to an ARTE DL, collection or

	workspace.
Description	1: The Authorized User (AU) submits a search criterion. 2: The AU browses over the result set and eventually selects some of the archives.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE web portal

UseCase Collection Management

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management

Documentation

In this use case, any authorized user can create, update or remove a collection.

A collection is composed of three parts:

- i) the content,
- ii) the set of services enabled to act on the collection content, and
- iii) the set of users enabled to access the collection content using the collection services.

Rank : High

Parent : [Collection](#)

Extended by

- [Create a Collection](#),
- [Remove a Collection](#),
- [Update a Collection](#)

Extension Point

Name : Create a collection

Name : Remove a collection

Name : Update a collection

Extend from

[Manage Workspace](#)

[Course Management](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Administrate a collection.
Preconditions	There exists a collection.
Success end condition	Eventually, administration operations were performed.
Failed end condition	No collection changes.
Trigger	An authorized user wants to administrate a collection.
Description	1: An Authorized User (AU) performs an authorized operation
Extensions	<p>1a. The AU creates a collection (extension point to Create a Collection use case)</p> <p>1b. The AU updates an existing collection (extension point to Update a Collection use case)</p> <p>1c. The AU removes an existing collection (extension point to Remove a Collection use case)</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

 **UseCase** Remove a Collection
Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Remove a Collection

Documentation

The collection owner, i.e. the user who has created a given collection, or any other authorized user removes a collection.

Rank : High**Parent** : [Collection](#)**Extend from**[Collection Management](#)[Workshop Management](#)**Use Case Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	An authorized user removes a collection.
Preconditions	A collection exists.
Success end condition	The Collection is removed.
Failed end condition	No collection is removed.
Trigger	A authorized user needs to remove a collection.
Description	1: The AU inputs a collection name 2: The AU confirms collection removal
Extensions	1a. Collection name does not exist: 1: The AU inputs a new collection name or back to

	Collection Management 2a. AU cancels operation: 1: The AU backs to Collection Management use case without removal
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE / ARTE DL web portal

UseCase Define Membership Criteria

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-Define Membership Criteria

Documentation

To define which objects belong to a collection, an actor can:

- 1) Specify (e.g. by name, by ID, etc.) all the objects to be included into that collection;
- 2) Specify the pool of archives (e.g. by name, by ID, etc.) from which the collection objects have to be taken;
- 3) Specify the characteristics of the objects that will form the collection content; for example, an actor can build a collection of objects just specifying a criterion like "all the objects whose subject is 'Memory images'".

Clearly, collections specified with different kinds of criteria will have diverse characteristics. For example, collection whose membership criterion is specified according to point 1) will have a fixed content, i.e. its objects are those that have been specified. On the contrary, a collection whose membership criteria are specified according to point 2)

or 3) may have a fixed or dynamic content.

The collection content does not change if the objects belonging to the collection are identified at the collection definition time. On the contrary, the collection content may be dynamic when the objects belonging to the collection are identified when needed, i.e., at the collection use time. In this case the collection will present the objects that satisfy the membership criteria at the access time.

Rank : High

Parent : [Collection](#)

Include by:

[Create a Collection](#)

Extended by

[Search and Retrieve Objects](#),

[Search archives](#)

Extension Point

Name : ExtensionPoint

Name : ExtensionPoint

Extend from

[Update a Collection](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Define collection's content membership criteria.
Preconditions	There exists an ARTE DL.
Success end condition	Membership criteria is defined.
Failed end condition	No collection change.
Trigger	An authorized user decides to define a membership criteria.
Description	1: Define which objects belong to the collection.
Extensions	1a. Complete specification: 1: The AU inputs the name (or ID) of the objects to be

	<p>included.</p> <p>1b. Pool of archives specification: (extension point to Search Archives use case) 1: The AU performs the Search archives use case, by input the name (or ID) of the archives from which objects are to be selected.</p> <p>1c. Object characteristic specification: (extension point to Search and Retrieve Objects use case) 1: The AU performs the Search and Retrieve Objects use case, by input the "object selection criterion".</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE / ARTE DL web portal

UseCase Metadata Generation

Use Case Extends Hierarchy

Create an ARTE DL

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection
- | +-Update an ARTE DL
- | +-Update a Collection
- | +-Index Management
- | +-Metadata Generation

Documentation

This Use Case deals with the automatic generation of metadata about objects. In particular, this operation is involved in two main Use Cases:

- i) the Create a Collection, and
- ii) the Create an ARTE DL.

There are various kinds of processes in order to automatically generate metadata. The ARTE community should be allowed to automatically extract the speech part of an audio / video file and to process text documents in order to automatically generate a thesaurus. Once new metadata have been created, the ARTE community, in particular the ARTE Administrator, should be enabled to create an Index allowing to access objects via this available information in an efficient way.

Rank : Low

Parent : [Object Management](#)

Extended by

[Index Management](#),
[Speech to text](#),
[Process Text](#)

Extension Point

Name : Index management

Name : Speech to text

Name : Process text

Extend from

[Create an ARTE DL](#)
[Create a Collection](#)
[Update an ARTE DL](#)
[Update a Collection](#)
[Index Management](#)

Use Case Description

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Generate metadata.
Success end	Metadata generated.

condition	
Failed end condition	Nothing change into an ARTE DL.
Trigger	Metadata generation is required.
Description	1: An Authorized User (AU) performs an authorized operation. 2: The AU requests to generate metadata.
Extensions	1a. Speech to text: (extension point to Speech to text use case) 1: The AU performs the Speech to text use case 1b. Process Text: (extension point to Process Text use case) 1: The AU performs the Process Text use case
Priority	Highly desirable
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE DL web portal



Package Services

Parent : [ARTE - DILIGENT Infrastructure](#)

Children:

[Select Services](#), [Search](#), [Annotation](#), [User Management](#), [Object Management](#), [Collection](#)




Package User Management

Parent : [Services](#)

Children:

[User Management](#), [Add user](#), [Remove user](#), [Edit user properties](#), [Browse users](#), [Search by User Category](#), [Search Users](#), [Search by User properties](#)

 **Package** Search

Parent : [Services](#)

Children:

[Search archives by Image](#), [Search objects by Video](#), [Browse archives](#), [Search archives](#), [Search archives by Metadata](#), [Search archives by ID](#), [Search objects by Full Text](#), [Navigate objects](#), [Search video scenes by Keywords](#), [Search objects by Tone](#), [Search and Retrieve Objects](#), [Search objects by Image](#), [Search objects by Metadata](#), [Browse objects](#), [Relevance Feedback](#), [Search part-of objects by Image](#)

 **Package** Collection

Parent : [Services](#)

Children:


[Update a Collection](#), [Create a Collection](#), [Remove a Collection](#), [Define Membership Criteria](#), [Collection Management](#)

 **Package** Object Management

Parent : [Services](#)

Children:

[Resolve Image into parts](#), [Personalize Object Views](#), [Process Image](#), [Play Video / Audio](#), [Speech to text](#), [Metadata Generation](#), [Translation Service](#), [Index Management](#), [Access Objects](#), [Process Text](#), [Thesaurus Generation](#), [Save Object](#), [Remove Object](#)

 **System** ARTE - DILIGENT Infrastructure

Children:

[Create an ARTE DL](#), [Update an ARTE DL](#), [Workshop Management](#), [Make an Exhibition Catalogue](#), [Manage Student Workspace](#), [Process Video](#), NB. La creazione di una ARTE DL implica la creazione del suo workspace, [Course Management](#), [Remove an ARTE DL](#), [Define an ARTE DL](#), [Redefine an ARTE DL](#), [Dispose an ARTE DL](#), [DILIGENT Resource Management](#), [Propose Services to be Added to / Removed from DILIGENT](#), [ARTE DILIGENT Management](#), [Edit an ARTE DL web portal properties](#), [Manage an ARTE DL workspace](#), [Services](#), [Manage Workspace](#), [Propose Archives to be Added to / Removed from DILIGENT](#), [Add a Service](#), [Remove a Service](#), [Add an Archive](#), [Remove an Archive](#), [Browse Archives and Services proposals](#)

ARTE_ucd07 Search

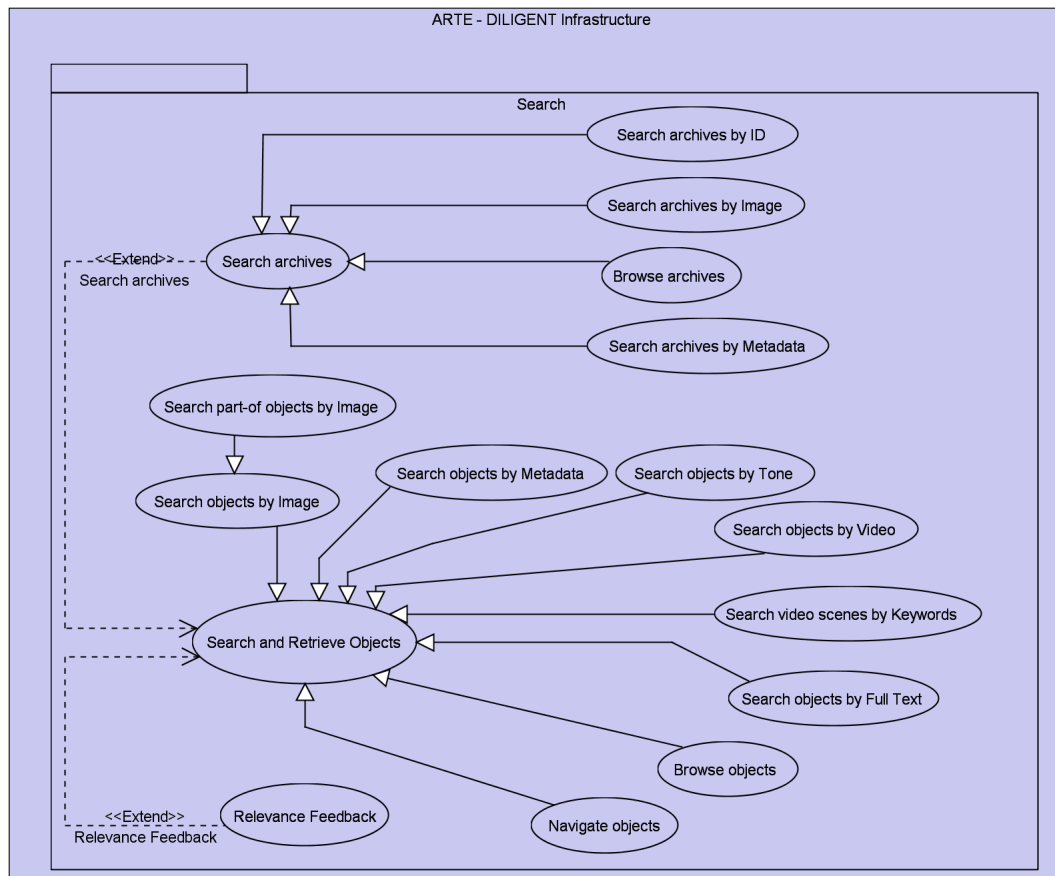












Diagram Content Summary

-  [ARTE - DILIGENT Infrastructure](#)
-  [Search](#)
-  [Search archives](#)
-  [Search archives by ID](#)
-  [Search archives by Image](#)
-  [Browse archives](#)
-  [Search archives by Metadata](#)
-  [Search and Retrieve Objects](#)
-  [Search objects by Full Text](#)
-  [Search video scenes by Keywords](#)









-  [Search objects by Video](#)
-  [Search objects by Tone](#)
-  [Search objects by Metadata](#)
-  [Browse objects](#)
-  [Search objects by Image](#)
-  [Relevance Feedback](#)
-  [Navigate objects](#)
-  [Search part-of objects by Image](#)

Diagram Content Detail

UseCase Search archives

Use Case Extends Hierarchy

- DILIGENT Resource Management
 - | +-Manage Workspace
 - | +-Manage an ARTE DL workspace
 - | +-Course Management
 - | +-Collection Management
 - | +-Update a Collection
 - | +-Define Membership Criteria
 - | +-Search and Retrieve Objects
 - | +-Search archives

Documentation

This Use Case deals with the search of archives capable to satisfy the needs of a user. This operation can be used in different contexts, e.g. when a DL is defined this operation allows the user to define the DL information space, when a new Collection is defined this operation allows the user to define the Membership criteria of the collection, when a search for objects is executed this operation allows the user to specify the pool of archives where the search has to be done.

Any search operation should produce a result page where archive descriptions are shown in a short form (heading). The user confirms/selects the one s/he is interested in and the system visualizes the complete description corresponding to that heading. The user looks at the complete archive description to verify whether that archive meets his requirements and can select that archive or pass to examine another archive description.

Rank : High**Parent :** [Search](#)**Include by:**[Define an ARTE DL](#)**Extend from**[DILIGENT Resource Management](#)[Search and Retrieve Objects](#)[Define Membership Criteria](#)[Redefine an ARTE DL](#)**Subclasses**[Search archives by Metadata](#), [Browse archives](#), [Search archives by Image](#), [Search archives by ID](#)**Use Case Description****Description**

Author	SNS-CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search for archives capable to satisfy the needs of a user.
Preconditions	There exists a DILIGENT portal that allows ARTE members to search all available archives.
Success end condition	0 to n archives are selected.
Failed end condition	No archive is found.
Trigger	New archives need to be added to an ARTE DL, collection or workspace.
Description	1: The Authorized User (AU) submits a search criterion. 2: The AU browses over the result set and eventually selects some of the archives.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to	ARTE web portal

actors	
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 UseCase Search archives by ID
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Documentation

The DILIGENT Portal allows a user to access an archive description by specifying the ID of that archive.

Rank : Medium

Parent : [Search](#)

Super Class

[Search archives](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search an archive by its ID.
Preconditions	There exists a DILIGENT portal that allows ARTE members to search all available archives.
Success end condition	0 to n archives are selected.
Failed end condition	No archive is not found.
Trigger	"Search by ID" was selected.
Description	1: The Authorized User (AU) submits the ID of the archive he/she is interested in as a search criterion. 2: The AU eventually selects the retrieved archive.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE web portal

 **UseCase** Search archives by Image
Documentation

This Use Case deals with a particular kind of search of archives able to satisfy the needs of a user. In this search the user submits an image as a query and the system finds the archives containing objects similar to the query image.

For example, the DILIGENT Portal should allow the ARTE Director or a Director Assistant to search the content of DILIGENT archives (all or a class of them, if DILIGENT can organize its archives into subject classes) by submitting an image as a query. The Portal first makes an "object search by image" in its archives and displays the results. Then, the actor accesses each of the retrieved images and, if it is of interest, lets the Portal identifies the archive where it is contained in order to include that archive in the ARTE Digital Library.

Rank : Medium

Parent : [Search](#)

Super Class

[Search archives](#)

Use Case Description**Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search archives containing images similar to the image of the query.
Preconditions	There exists a DILIGENT portal that allows ARTE members to search all available archives.
Success end condition	Similar images are found.
Failed end condition	Similar images are not found even though they exist.

Trigger	"Search archives by images" is selected.
Description	1: The Authorized User (AU) submits the image s/he is interested in as a search criterion. 2: The AU eventually selects some of the retrieved archives.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE Web portal

UseCase Browse archives

Documentation

This Use Case deals with a particular kind of search of archives capable to satisfy the needs of a user. In this operation the user wants that archive descriptions to be shown in a list ordered according to the content of one or more description elements. Then, s/he confirms/selects the description heading s/he is interested in and the system visualizes the complete description corresponding to that heading. The actors should be allowed to select the subject class of archives to be browsed.

Rank : Medium

Parent : [Search](#)

Super Class

[Search archives](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Browse through available archives. Archives could be selected.

Preconditions	There exists a DILIGENT portal that allows ARTE members to search all available archives.
Success end condition	0 to n archives are selected.
Failed end condition	Archives cannot be browsed.
Trigger	"Browse archives" option was required.
Description	<p>1: The Authorized User (AU) selects the description elements (name, ID, etc.) to be used by the system to show the heading's archives.</p> <p>2: The AU eventually selects some of the showed archives s/he is interested to read the complete description corresponding to that heading's archive.</p> <p>3: The AU browses over the headings and eventually select some of the archives.</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE web portal

UseCase Search archives by Metadata

Documentation

This Use Case deals with a particular kind of search of archives able to satisfy the needs of a user. In this search the user wants to specify the value of one or more archive description elements (metadata), for example, Archive name, Publishing Institution, keywords, etc. and the system must be able to find the archives satisfying these conditions.

For example, the Arte Director or a Director Assistant wants to select archives to be included in the ARTE DL and searches them by specifying the value of one or more archive description elements (metadata), for example, Archive name, Publishing Institution, keywords, etc. The retrieved archive descriptions should be displayed in a short form. Then

the actor confirms/selects the description heading s/he is interested in and the system visualizes the complete description corresponding to that heading.

Rank : Low

Parent : [Search](#)


Super Class

[Search archives](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search archives similar to the query (metadata fields).
Preconditions	There exists a DILIGENT portal that allows ARTE members to search all available archives.
Success end condition	0 to n archives are selected.
Failed end condition	No archive is found.
Trigger	An ARTE Member selects this search type.
Description	1: The Authorized User (AU) selects the metadata field(s) and the metadata field value(s) s/he is interested in as a search criterion. 2: The AU eventually selects some of the retrieved archives.
Priority	Highly desirable
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE web portal

 **UseCase** Search and Retrieve Objects

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-Define Membership Criteria
- | +-Search and Retrieve Objects

Documentation

This Use Case deals with a generic search operation. This generic task will be specialized in a set of particular search functions. In any ARTE DL the following search functions should be available:

- a) searching documents by specifying the content of one or more metadata elements;
- b) full text searching: a text is submitted as a query;
- c) searching documents by images : the user submits an image as a query to get "similar" images as a result.

[Note: "Similar" images are those shown in Appendix A, figs 1-3. Figure 1, 2 and 3 are similar because all contain a "tree of memory" and Figure 3 is different from Figure 1 and 2 because they do not contain human representations. For a detailed description of them see the corresponding Use Case.

For each type of search, it is possible to select a subset of the available archives, so search is performed over:

- i) all available archives, or
- ii) selected archives (subset of the available archives).

For each type of search, the display page showing the result set should allow the user:

- i) to select which document descriptions are to be saved;
- ii) to visualize the full document according to a personalized view;
- iii) to mark a document for relevance feedback searching.

It is to note that archives which ARTE scholars are interested in may contain different digital objects (whether texts or images or videos, or

a composition of them) and these objects might have different structures and be associated with different metadata formats. As a consequence, the possibility of searching heterogeneous archives would be extremely useful and a functionality for this should be available.

Rank : High

Parent : [Search](#)

Extended by

[Relevance Feedback](#),

[Search archives](#)

Extension Point

Name : Search archives

Name : Relevance feedback

Extend from

[Define Membership Criteria](#)

[Manage Workspace](#)

[Workshop Management](#)

Subclasses

[Search objects by Image](#), [Browse objects](#), [Search objects by Metadata](#), [Search objects by Tone](#), [Search objects by Video](#), [Search video scenes by Keywords](#), [Search objects by Full Text](#), [Navigate objects](#)

Use Case Description

Author	SNS - RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Find (and retrieve) objects using search, browse or navigate.
Preconditions	There exists an ARTE DL.
Success end condition	The required objects are retrieved, if they exist.
Failed end condition	The searched objects are not found, even though they exist.
Trigger	An ARTE user needs to search objects.
Description	1: The Authorized User (AU) submits a search criterion. 2: The AU browses over the result set and eventually

	selects some of the objects.
Extensions	<p>1a. Search archives: (extension point to Search Archives use case) 1: The AU performs the Search Archives use case</p> <p>2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case</p>
Priority	Mandatory
Performance	On line / Batch
Frequency	Several times per day
Channels to Actors	ARTE / ARTE DL web portal

UseCase Search objects by Full Text

Documentation

The user can express her/his query by submitting a text. The search is carried out to find all texts similar to the one used as a query.

Rank : Low

Parent : [Search](#)

Super Class

[Search and Retrieve Objects](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Find objects similar to the Full Text query.
Preconditions	There exists an ARTE DL.
Success end condition	The required objects are retrieved, if they exists.

Failed end condition	The searched objects are not found, even though they exist.
Trigger	An ARTE user wants to use this search.
Description	1: The Authorized User (AU) submits the full text s/he is interested in as search criterion. 2: The AU browses over the result set and eventually select some of the objects.
Extensions	1a. Search archives: (extension point to Search Archives use case) 1: The AU performs the Search Archives use case 2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE / ARTE DL web portal

UseCase Search video scenes by Keywords

Documentation

In this search the user wants to specify a keyword as a query and the system must be able to find the video scenes that can be associated with the given keyword.

The concept of similarity can be based on various criteria, e.g. a scene could be considered similar to a keyword if its speech contains the keyword; a scene could be considered similar to a keyword if it is "about" the subject represented by that keyword, etc.

Rank : Low

Parent : [Search](#)

Include by:

[Process Video](#)

Super Class[Search and Retrieve Objects](#)**Use Case Description****Description**

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search video scenes similar to the query (keywords)
Preconditions	There exists an ARTE DL.
Success end condition	The required objects are retrieved, if they exist.
Failed end condition	The searched objects are not found, even though they exist.
Trigger	This search type is required by an user.
Description	1: The Authorized User (AU) submits a set of keywords as search criterion. 2: The AU browses over the result set and eventually selects some of the objects.
Extensions	1a. Select archives: (extension point to Search Archives use case) 1: The AU performs the Search Archives use case 2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case
Priority	Highly desirable
Performance	On line / Batch
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

 **UseCase** Search objects by Video
Documentation

This Use Case deals with a particular kind of search of objects capable to satisfy the needs of a user. In this search the user wants to specify a video as a query and the system must be able to find the objects similar to that video. The concept of similarity can be based on various criteria, e.g. a video can be considered similar to a text containing the transcript of that video, a video can be considered similar a paper dealing with the same topic, a video can be considered similar to an image of the same place, etc.

Rank : Low**Parent** : [Search](#)**Super Class**[Search and Retrieve Objects](#)**Use Case Description****Description**

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search for objects similar to a submitted video.
Prerequisites	There exists an ARTE DL.
Success end condition	The required objects are retrieved, if they exist.
Failed end condition	The searched objects are not found, even though they exist.
Trigger	Search by video is required.
Description	1: The Authorized User (AU) submits a video as search criterion. 2: The AU browses over the result set and eventually selects some of the objects.
Extensions	1a. Search archives:

	(extension point to Search Archives use case) 1: The AU performs the Search Archives use case 2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case
Priority	Desirable
Performance	On line / Batch
Frequency	Several times per week
Channels to actors	ARTE / ARTE DL web portal

UseCase Search objects by Tone

Documentation

This Use Case deals with a particular kind of search of objects capable to satisfy the needs of a user. In this search the user wants to supply a tone and the system must be capable to find the objects similar to this tone. In order to generate a tone a voice recognition tool could be used.

Rank : Low

Parent : [Search](#)

Super Class

[Search and Retrieve Objects](#)

Use Case Description

Description

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search objects by Tone.
Preconditions	There exists an ARTE DL.
Success end	The required objects are retrieved, if they exist.

condition	
Failed end condition	The searched objects are not found, even though they exist.
Trigger	An ARTE User selects this type of search.
Description	1: The Authorized User (AU) submits a tone as search criterion. 2: The AU browses over the result set and eventually selects some of the objects.
Extensions	1a. Search archives: (extension point to Search Archives use case) 1: The AU performs the Search Archives use case 2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case
Priority	Desirable
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

 **UseCase** Search objects by Metadata

Documentation

The user searches objects by the value of one or more metadata elements. It is to note that objects which ARTE scholars are interested in may be of very different types (whether texts or images or videos, or a composition of them), may have different structures and be associated with different metadata formats. As a consequence, the possibility of searching heterogeneous archives would be extremely useful and a functionality for this should be available.

To give an example of the special metadata elements used to represent the objects which the ARTE community is interested in, elements excerpted from the metadata set used to represent the objects of the ATLAS OF

MEMORY IMAGES collection (described under the DATA SOURCES Section) are reported below.

METADATA ELEMENTS TO DESCRIBE A SINGLE IMAGE: Indicative title (a title given by the cataloguer); Title of the work where the image appears; Functional description (Description - made by the cataloguer - of the various elements that compose the image; for example, "a man body whose parts are signed with alphabetical letters.. etc.); Related with (repeated): its value is linked with another semantically related image.

METADATA ELEMENTS TO DESCRIBE THE WORK WHERE THE SAME IMAGE APPEARS: Author; Title; Edition; Printing Office; Contains (repeated): its value is a link to an image contained in that work.

Rank : Low

Parent : [Search](#)

Super Class

[Search and Retrieve Objects](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 2004
Version	1.0
Goal in context	Search objects by metadata fields
Preconditions	There exists an ARTE DL.
Success end condition	The required objects are retrieved, if they exist.
Failed end condition	The searched objects are not found, even though they exist.
Trigger	An ARTE User selects this type of search.
Description	1: The Authorized User (AU) selects the metadata field(s) and the metadata field value(s) s/he is interested in as a search criterion. 2: The AU eventually selects some of the retrieved objects.
Extensions	1a. Select archives: (extension point to Search Archives use case)

	<p>1: The AU performs the Search Archives use case</p> <p>2a. Relevance feedback: (extension point to Relevance Feedback use case)</p> <p>1: The AU performs the Relevance Feedback use case</p>
Priority	Highly desirable
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Browse objects

Documentation

An ARTE DL should allow users to browse the content of a given archive. The short descriptions/heading of the objects contained in that archive should be presented in a list where objects are ordered according to the value of one of their metadata elements. The user confirms/selects the description heading s/he is interested in and the system visualizes the complete description corresponding to that heading.

Rank : Medium

Parent : [Search](#)

Super Class

[Search and Retrieve Objects](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Browse objects.
Preconditions	There exists and ARTE DL.
Success end condition	User has been able to find the object s/he is interested in.

Failed end condition	Objects cannot be browsed.
Trigger	An ARTE user wants to browse objects.
Description	1: The Authorized User (AU) selects the field (name, ID, etc.) over which to perform the browse. 2: The AU eventually selects some of the showed objects.
Extensions	1a. Search archives: (extension point to Search Archives use case) 1: The AU performs the Search Archives use case 2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Search objects by Image

Documentation

A scholar specialized in the study of Renaissance literature wants to analyse the changing of the way in which trees of memory have been represented during the XVIth and XVIIth centuries in the Art of Memory treatises. A tree of memory is a symbolic depiction used as a visual device to increase and improve memory. The figures 1-3 in appendix A, through apparently quite different from each other, are considered similar as they all contain different representations of tree image.

"Similar" images are those shown in Appendix A Figures 1, 2, and 3. Figure 1, 2 and 3 are similar because all contains a "tree of memory". So, the user submits an image as a query to get "similar" objects as a result. The retrieved objects are shown in a thumbnail format if they are images.

These objects may have different formats, but the ARTE DL embodies the knowledge required to recognize the most relevant formats and presents them to the users. If some objects are closer to the user's need than others, the user can input them to the relevance feedback mechanism and iterate the query a few times, until s/he is satisfied with the result.

Rank : Medium

Parent : [Search](#)

Super Class

[Search and Retrieve Objects](#)

Subclasses

[Search part-of objects by Image](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search objects by an image.
Preconditions	There exists an ARTE DL.
Success end condition	Similar images are found.
Failed end condition	Similar images cannot be found even though they exist.
Trigger	An ARTE user selects this search type.
Description	1: The Authorized User (AU) submits an image as search criterion. 2: The AU browses over the result set and eventually selects some of the objects.
Extensions	1a. Search archives: (extension point to Search Archives use case) 1: The AU performs the Search Archives use case 2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case

Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Relevance Feedback

Use Case Extends Hierarchy

Manage Workspace

- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-Define Membership Criteria
- | +-Search and Retrieve Objects
- | +-Relevance Feedback

Documentation

For each type of search, the display page showing the result set should allow the user to mark a document as "relevant" in order to use it for a relevance feedback searching. Thanks to the relevance feedback mechanism of the retrieval capability, the user can express relevance judgments on the retrieved objects, and can iterate the query a few times, until s/he is satisfied with the result.

Rank : Low

Parent : [Search](#)

Extend from

[Search and Retrieve Objects](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Mark documents as "relevant" in order to use them for a

	relevance feedback searching.
Preconditions	There is a result set from a search method.
Success end condition	A new result set from a previous one is obtained based on the selected "relevant" objects .
Failed end condition	No changes in the previous result set because of errors.
Trigger	An authorized user wants to use the relevance feedback search.
Description	1: The Authorized User (AU) selects a some documents from a result set as "relevant". 2: The AU performs relevance feedback (last query, with relevant objects from last result set) 3: The AU browses new result set.
Priority	Highly desirable
Performance	On line 7 Batch
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Navigate objects

Documentation

This functionality is related with a way to retrieve, via a sort of advanced browsing, objects that are semantically related to the original ones.

It is based on pre-existing/computed relationships among the objects belonging to an archive or a collection (see the description of metadata elements reported in the SEARCH OBJECTS BY METADATA UC).

We figure out that the pool of objects belonging to an archive/collection are linked together in a sort of semantic graph where:

- a) each node of the graph is an object, and
- b) if it exists a semantic relationship among two objects then there is an edge linking these nodes that allows to move between them.

For example, starting from an object composed by a text and containing a given image, it will be possible to reach all the objects that belong to the same archive/collection and contain that image, just following the links the original object is equipped with.

Rank : Low

Parent : [Search](#)

Super Class

[Search and Retrieve Objects](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Navigate through similar objects starting from a text associated to an image or from an image associated to text.
Preconditions	There exists an ARTE DL and an object has been selected.
Success end condition	The Navigation is performed .
Failed end condition	No operation is made.
Trigger	An ARTE user wants to navigate through objects.
Description	1: The Authorized User (AU) selects the navigation field over which to perform the navigation. 2: The AU eventually follows link (navigate) from current object to linked ones.
Extensions	1a. Search archives: (extension point to Search Archives use case) 1: The AU performs the Search Archives use case 2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case

Priority	Highly desirable
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Search part-of objects by Image

Documentation

An image is submitted as a query and a search is made to retrieve all the objects where the submitted image appears as a component part.

Rank : Medium

Parent : [Search](#)

Include by:

[Process Image](#)

Super Class

[Search objects by Image](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Submit an image as a query and search for all the objects where the submitted image appears as a component part.
Preconditions	There exists an ARTE DL.
Success end condition	The required objects are retrieved, if they exist.
Failed end condition	The searched objects are not found, even though they exist.
Trigger	An ARTE user selects this search type.
Description	1: The Authorized User (AU) submits an image as a search criterion. 2: The AU browses over the result set and eventually

	selects some of the objects.
Extensions	<p>1a. Search archives: (extension point to Search Archives use case) 1: The AU performs the Search Archives use case</p> <p>2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

Package Search

Parent : [Services](#)

Children:

[Search archives by Image](#), [Search objects by Video](#), [Browse archives](#), [Search archives](#), [Search archives by Metadata](#), [Search archives by ID](#), [Search objects by Full Text](#), [Navigate objects](#), [Search video scenes by Keywords](#), [Search objects by Tone](#), [Search and Retrieve Objects](#), [Search objects by Image](#), [Search objects by Metadata](#), [Browse objects](#), [Relevance Feedback](#), [Search part-of objects by Image](#)

System ARTE - DILIGENT Infrastructure

Children:

[Create an ARTE DL](#), [Update an ARTE DL](#), [Workshop Management](#), [Make an Exhibition Catalogue](#), [Manage Student Workspace](#), [Process Video](#), NB. La creazione di una ARTE DL implica la creazione del suo workspace, [Course Management](#), [Remove an ARTE DL](#), [Define an ARTE DL](#), [Redefine an ARTE DL](#), [Dispose an ARTE DL](#), [DILIGENT Resource Management](#), [Propose Services to be Added to / Removed from DILIGENT](#), [ARTE DILIGENT Management](#), [Edit an ARTE DL web portal properties](#), [Manage an ARTE DL workspace](#), [Services](#), [Manage Workspace](#), [Propose Archives to be Added to / Removed from DILIGENT](#), [Add a Service](#), [Remove a Service](#), [Add an Archive](#), [Remove an Archive](#), [Browse Archives and Services proposals](#)

ARTE_ucd08 Services

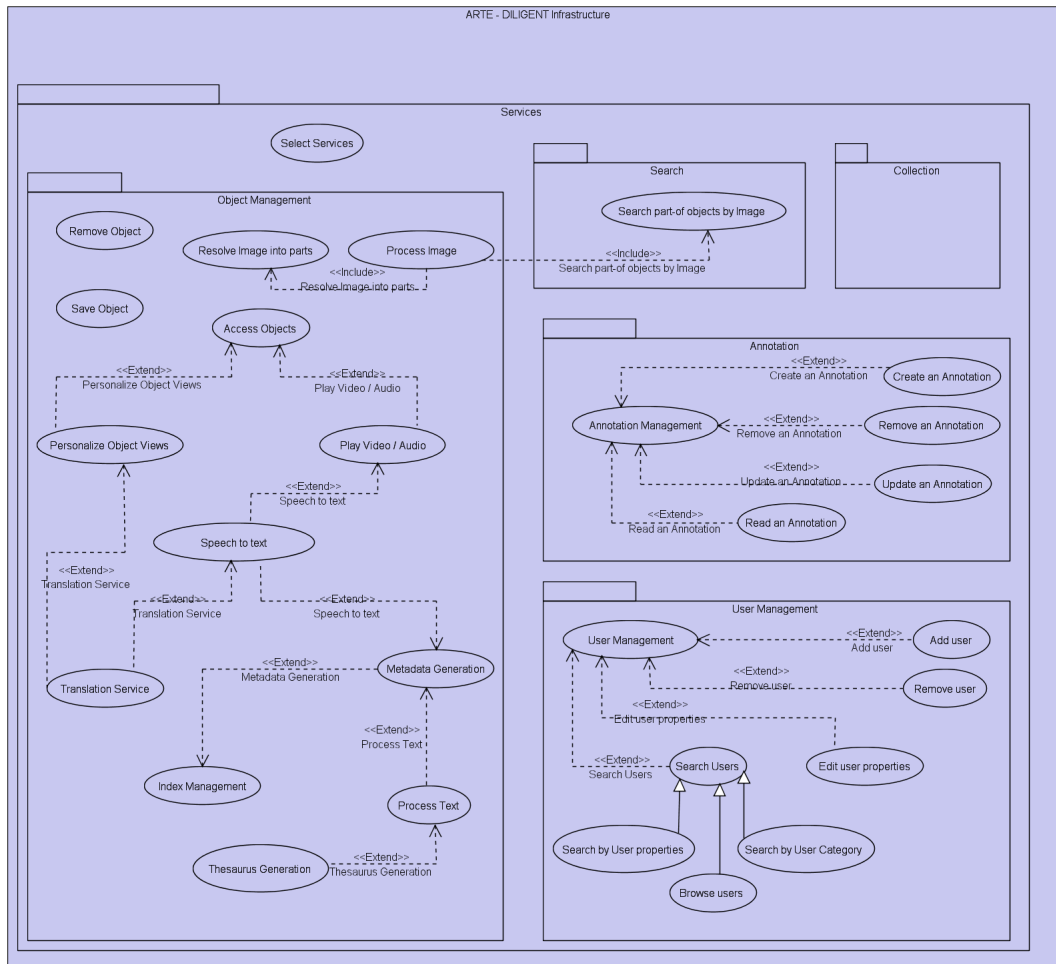


Diagram Content Summary

-  [ARTE - DILIGENT Infrastructure](#)
-  [Services](#)
-  [Search](#)
-  [Annotation](#)
-  [User Management](#)
-  [Object Management](#)
-  [Collection](#)





























-  [Annotation Management](#)
-  [Index Management](#)
-  [Metadata Generation](#)
-  [Personalize Object Views](#)
-  [Play Video / Audio](#)
-  [Speech to text](#)
-  [Translation Service](#)
-  [User Management](#)
-  [Select Services](#)
-  [Create an Annotation](#)
-  [Read an Annotation](#)
-  [Remove an Annotation](#)
-  [Update an Annotation](#)
-  [Add user](#)
-  [Remove user](#)
-  [Edit user properties](#)
-  [Browse users](#)
-  [Search part-of objects by Image](#)
-  [Search by User Category](#)
-  [Search Users](#)
-  [Search by User properties](#)
-  [Access Objects](#)
-  [Process Text](#)
-  [Thesaurus Generation](#)
-  [Save Object](#)
-  [Remove Object](#)
-  [Resolve Image into parts](#)
-  [Process Image](#)

Diagram Content Detail

UseCase Annotation Management

Use Case Extends Hierarchy

Manage an ARTE DL workspace

- | +-Course Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue

| +-Annotation Management

Documentation

The annotation service permits a user to

- a) make an annotation and reference it to a specific object (for example, a comment to the document content, or supplementary information, etc.);
- b) read an annotation associated to a given object;
- c) update or remove an annotation;
- d) set the access rights for an annotation.

Annotations, or part of them, must be accessible only by authorized users.

Rank : Medium

Parent : [Annotation](#)

Extended by

- [Create an Annotation](#) ,
- [Remove an Annotation](#) ,
- [Read an Annotation](#) ,
- [Update an Annotation](#)

Extension Point

Name : Create an annotation

Name : Remove an annotation

Name : Update an annotation

Name : Read an annotation

Extend from

- [Course Management](#)
- [Make an Exhibition Catalogue](#)

Communication Link [Annotation Management](#) to [Collaborator](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Manage annotations (add, remove, edit, and read).
Preconditions	Annotation service is available.
Success end condition	Annotations might be changed.

Failed end condition	Nothing changes.
Trigger	The user wants to make an annotation.
Description	1: The Authorized User (AU) performs an authorized operation.
Extensions	<p>1a. Create an annotation: (extension point to Create an Annotation use case) 1: The AU performs the Create an Annotation use case</p> <p>1b. Remove an annotation: (extension point to Remove an Annotation use case) 1: The AU performs the Remove an Annotation use case</p> <p>1c. Update an annotation: (extension point to Update an Annotation use case) 1: The AU performs the Update an Annotation use case</p> <p>1d. Read an annotation: (extension point to Read an Annotation use case) 1: The AU performs the Read an Annotation use case</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE DL web portal

UseCase Index Management

Use Case Extends Hierarchy

Create an ARTE DL

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management

- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection
- | +-Update an ARTE DL
- | +-Update a Collection
- | +-Metadata Generation
- | +-Index Management

Documentation

This Use Case deals with the automatic generation of an Index data structure. The ARTE community, in particular the ARTE Administrator, should be enabled to create an Index in order to allow to access objects in a new efficient way.

Rank : Low

Parent : [Object Management](#)

Extended by

[Metadata Generation](#)

Extension Point

Name : Metadata generation

Extend from

[Metadata Generation](#)

Use Case Description

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Generate an index from sources objects (video, audio, etc.).
Preconditions	Content/Object to index exists.
Success end condition	An index data structure is created.
Failed end condition	No index data structure is created.
Trigger	An index over objects is required.
Description	1: The Authorized User (AU) performs an authorized operation.

	2: The AU requests to generate an Index.
Extensions	1a. Metadata Generation: (extension point to Metadata Generation use case) 1: The AU performs the Metadata Generation use case.
Priority	Highly desirable
Performance	Batch
Frequency	Several times per month
Channels to actors	ARTE DL web portal

UseCase Metadata Generation

Use Case Extends Hierarchy

Create an ARTE DL

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection
- | +-Update an ARTE DL
- | +-Update a Collection
- | +-Index Management
- | +-Metadata Generation

Documentation

This Use Case deals with the automatic generation of metadata about objects. In particular, this operation is involved in two main Use Cases:

- i) the Create a Collection, and
- ii) the Create an ARTE DL.

There are various kinds of processes in order to automatically generate metadata. The ARTE community should be allowed to automatically extract the speech part of an audio / video file and to process text documents in order to automatically generate a thesaurus. Once new metadata have been

created, the ARTE community, in particular the ARTE Administrator, should be enabled to create an Index allowing to access objects via this available information in an efficient way.

Rank : Low

Parent : [Object Management](#)

Extended by

[Index Management](#),

[Speech to text](#),

[Process Text](#)

Extension Point

Name : Index management

Name : Speech to text

Name : Process text

Extend from

[Create an ARTE DL](#)

[Create a Collection](#)

[Update an ARTE DL](#)

[Update a Collection](#)

[Index Management](#)

Use Case Description

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Generate metadata.
Success end condition	Metadata generated.
Failed end condition	Nothing change into an ARTE DL.
Trigger	Metadata generation is required.
Description	1: An Authorized User (AU) performs an authorized operation. 2: The AU requests to generate metadata.
Extensions	1a. Speech to text: (extension point to Speech to text use case)

	<p>1: The AU performs the Speech to text use case</p> <p>1b. Process Text: (extension point to Process Text use case)</p> <p>1: The AU performs the Process Text use case</p>
Priority	Highly desirable
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE DL web portal



UseCase Personalize Object Views

Use Case Extends Hierarchy

Manage Workspace

| +-Access Objects

| +-Personalize Object Views

Documentation

Objects in the ARTE DL usually are composed of different parts: a text (possibly structured), images, annotations of different nature (comments, bibliographies, suggestions), links to remote objects, etc. Authorized users may personalize the ways the object is viewed by the different users.

Rank : Low

Parent : [Object Management](#)

Extended by

[Translation Service](#)

Extension Point

Name : Translation service

Extend from

[Access Objects](#)

Use Case Description

Author	SNS - CNR

Date	10 Nov 04
Version	1.0
Goal in context	Authorized users personalize the ways the object is viewed by the different users.
Preconditions	An object is selected.
Success end condition	Object's view is defined.
Failed end condition	Nothing changes into object's view.
Trigger	The personalization of object views is required.
Description	1: The Authorized User (AU) personalizes the ways the object is viewed by the different users. 2: The AU performs the authorized operation.
Extensions	2a: Requires a translation service (extension point to Translation Service use case) 1: The AU performs the Tranlation Service use case
Priority	Highly desirable
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Play Video / Audio

Use Case Extends Hierarchy

```

Manage Workspace
| +-Access Objects
| +-Play Video / Audio

```

Documentation

A video/audio file is executed in order to process its content.

Rank : Low

Parent : [Object Management](#)

Extended by[Speech to text](#)**Extension Point****Name** : Speech to text**Extend from**[Access Objects](#)**Use Case Description**

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Execute a video / audio file.
Preconditions	A video / audio file is retrieved.
Success end condition	Video / audio file is executed.
Failed end condition	No video / audio file is executed.
Trigger	An ARTE user needs to play a video / audio.
Description	1: An Authorized User (AU) plays a video/audio file.
Extensions	1a. Speech to text (extension point to Speech to text use case) 1: The AU performs the Speech to text use case
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channles to actors	ARTE / ARTE DL web portal

**UseCase** Speech to text**Use Case Extends Hierarchy**

Create an ARTE DL

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection
- | +-Update an ARTE DL
- | +-Update a Collection
- | +-Index Management
- | +-Metadata Generation
- | +-Access Objects
- | +-Play Video / Audio
- | +-Speech to text

Documentation

An audio file or the speech component of a video is translated into a written text in order to make it searchable, e.g. in Metadata Generation UC, or for the automatic generation of subtitle and caption in Play Video / Audio UC.

Rank : Low

Parent : [Object Management](#)

Extended by

[Translation Service](#)

Extension Point

Name : Translation service

Extend from

[Metadata Generation](#)

[Play Video / Audio](#)

Use Case Description

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Generate text from audio files.
Preconditions	A speech is selected.

Success end condition	Text from speech is generated.
Failed end condition	Nothing change into an ARTE DL.
Trigger	Speech-to-text required.
Description	1: An Authorized User (AU) requires to translate an audio file or the speech component of a video.
Extensions	1a: Requires a translation service (extension point to Translation Service use case) 1: The AU performs the Translation Service use case
Priority	Desirable
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE DL web portal

UseCase Translation Service

Use Case Extends Hierarchy

Manage Workspace

- | +-Access Objects
- | +-Personalize Object Views
- | +-Create an ARTE DL
- | +-Collection Management
- | +-Manage an ARTE DL workspace
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection
- | +-Update an ARTE DL
- | +-Update a Collection
- | +-Index Management
- | +-Metadata Generation
- | +-Play Video / Audio

- | +-Speech to text
- | +-Translation Service

Documentation

A user can request an on-demand Translation Service, which translates the spoken texts in the audio/video files in order to let the user able to search in multilingual archives or, more generally, in audio/video archives located in different countries.

Rank : Low

Parent : [Object Management](#)

Extend from

[Personalize Object Views](#)

[Speech to text](#)

Use Case Description

Description

Author	RAI - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Translate spoken texts.
Preconditions	An spoken text is selected.
Success end condition	Translation of spoken text is made.
Failed end condition	Nothing change into an ARTE DL.
Trigger	Request from translation.
Description	1: An Authorized User (AU) requests an on-demand translation of spoken texts in audio/video files.
Priority	Desirable
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE DL web portal

 **UseCase** User Management

Use Case Extends Hierarchy

ARTE DILIGENT Management

- | +-DILIGENT Resource Management
- | +-Manage an ARTE DL workspace
- | +-Workshop Management
- | +-Manage Workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-Redefine an ARTE DL
- | +-User Management

Documentation

This Use Case deals with all the functionalities related to the management of users: i) add users, ii) update user properties, iii) remove users and iv) search for users. Each user has a set of personal properties (e.g. name, e-mail, address, fields of interest, etc.) and other information needed for managing the rights the user has.

Rank : High

Parent : [User Management](#)

Include by:

[Define an ARTE DL](#), [Course Management](#), [Create a Collection](#)

Extended by

[Add user](#),
[Remove user](#),
[Search Users](#),
[Edit user properties](#)

Extension Point

Name : Add user

Name : Remove user

Name : Search users

Name : Edit user properties

Extend from

[ARTE DILIGENT Management](#)
[DILIGENT Resource Management](#)

[Workshop Management](#)

[Update a Collection](#)

[Redefine an ARTE DL](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Add, Remove, Edit user properties, and Search ARTE users.
Preconditions	User Management service is available.
Success end condition	If an operation is performed, the required operation is executed.
Failed end condition	No user information changes.
Trigger	ARTE users management is required.
Description	1: The Authorized User (AU) performs an authorized operation.
Extensions	<p>1a. Add a user: (extension point to Add user use case) 1: The AU performs the Add user use case</p> <p>1b. Remove a user: (extension point to Remove User use case) 1: The AU performs the Remove User use case</p> <p>1c. Edit user properties: (extension point to Edit user properties use case) 1: The AU performs the Edit user properties use case</p> <p>1d. Search users: (extension point to Search users use case) 1: The AU performs the Search users use case</p>
Priority	Mandatory

Performance	On line
Frequency	Several times per day
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

UseCase Select Services

Use Case Extends Hierarchy

DILIGENT Resource Management

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-ARTE DILIGENT Management
- | +-Redefine an ARTE DL
- | +-Select Services

Documentation

This Use Case deals with the operation of selecting services capable to satisfy the needs of a user. It is used in two main contexts: i) the definition of an ARTE DL, and ii) the creation of a collection.

For example, the ARTE Director or a Director Assistant selects which DILIGENT services have to be included in an ARTE DL after browsing the available services and selecting one or more of them. An authorized user selects which services a collection must be equipped with after identifying the services capable to deal with the collection content.

Rank : High

Parent : [Services](#)

Include by:

[Create a Collection](#), [Define an ARTE DL](#)

Extend from

[DILIGENT Resource Management](#)

[Update a Collection](#)

[Redefine an ARTE DL](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Select services to be included into an ARTE DL or in a collection.
Preconditions	DILIGENT is up and running.
Success end condition	0 to n services are selected.
Failed end condition	No service is selected.
Trigger	Services need to be discovered in order to be added to an ARTE DL or to a collection.
Description	1: The Authorized User (AU) browses over available services and eventually selects some of them.
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	DILIGENT / ARTE / ARTE DL web portal



UseCase Create an Annotation

Use Case Extends Hierarchy

Manage an ARTE DL workspace

- | +-Course Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Annotation Management
- | +-Create an Annotation

Documentation

When an authorized user wants to make an annotation to a given object, first s/he accesses to that object through one of the permitted search types. The page that displays the retrieved object should contain a menu option that allows the user to make an annotation.

Rank : Medium

Parent : [Annotation](#)

Extend from

[Annotation Management](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Create an annotation over a collection's object .
Preconditions	There exists an available Annotation Service.
Success end condition	An Annotation is created.
Failed end condition	No changes are made.
Trigger	An ARTE user wants to create an Annotation.
Description	1: The Authorized User (AU) selects an object on which s/he wants to create an annotation. 2: The AU selects an annotation type (Important, Idea, Comment, etc.) 3: The AU inputs the annotation 4: The AU saves or cancels the current annotation
Priority	Mandatory
Performance	On line
Frequency	Several times per day week
Channels to actors	ARTE DL web portal

 **UseCase** Read an Annotation
Use Case Extends Hierarchy

Manage an ARTE DL workspace

- | +-Course Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Annotation Management
- | +-Read an Annotation

Documentation

When an authorized user wants to read an annotation to a given document, or a part of it, first s/he accesses to that document through one of the permitted search types. The page that displays the retrieved object should contain a menu option that allows the user to read the annotation associated with that object.

Rank : Medium

Parent : [Annotation](#)

Extend from

[Annotation Management](#)

Use Case Description**Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Read an Annotation.
Preconditions	There is an available Annotation Service.
Success end condition	An Annotation is read.
Failed end condition	No annotation is read.
Trigger	An ARTE user wants to read an Annotation.
Description	1: The Authorized User (AU) selects the object on which he wants to read annotations.

	2: The AU browses over that object's annotations and eventually selects one of them to be read. 3: The AU reads the selected annotation.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE DL web portal

UseCase Remove an Annotation

Use Case Extends Hierarchy

Manage an ARTE DL workspace

- | +-Course Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Annotation Management
- | +-Remove an Annotation

Documentation

When an authorized user wants to remove the annotation s/he appended to a given document, first s/he accesses to that document through one of the permitted search types. The page that displays the retrieved object should contain a menu option allowing the user to remove her/his annotation.

Rank : Medium

Parent : [Annotation](#)

Extend from

[Annotation Management](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0

Goal in context	Remove an annotation from a collection's object.
Preconditions	There is an available Annotation Service.
Success end condition	An Annotation is removed.
Failed end condition	No changes are made.
Trigger	An ARTE user wants to remove an Annotation.
Description	1: The Authorized User (AU) selects the object from which he want to cancel an annotation. 2: The AU browses over object's annotations and eventually selects some of them to be deleted. 3: The AU confirms or cancels selection
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE DL web portal

UseCase Update an Annotation

Use Case Extends Hierarchy

Manage an ARTE DL workspace

- | +-Course Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Annotation Management
- | +-Update an Annotation

Documentation

When an authorized user wants to update the annotation s/he appended to a given document, first s/he accesses to that document through one of the permitted search types. For authorized users the page that displays the results should contain a menu option allowing the user to update her/his annotation.

Rank : Medium

Parent : [Annotation](#)

Extend from

[Annotation Management](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Update an Annotation.
Preconditions	There is an available Annotation Service.
Success end condition	An Annotation is updated.
Failed end condition	No changes are made.
Trigger	An ARTE user wants to update an Annotation.
Description	<p>1: The Authorized User (AU) selects the object on which he wants to update an annotation.</p> <p>2: The AU browses over object's annotations and eventually selects one of them to be updated.</p> <p>3: The AU edits the annotation type (Important, Idea, Comment, etc.)</p> <p>4: The AU edits the annotation.</p> <p>5: The AU saves or cancels current annotation changes.</p>
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	ARTE DL web portal



UseCase Add user

Use Case Extends Hierarchy

```

ARTE DILIGENT Management
| +-DILIGENT Resource Management
| +-Manage an ARTE DL workspace
| +-Workshop Management
| +-Manage Workspace
| +-Course Management
| +-Collection Management
| +-Update a Collection
| +-Redefine an ARTE DL
| +-User Management
| +-Add user

```

Documentation

Users are added by registering their personal properties (name, e-mail address, fields of interest, etc.) and assigning them to a given category (ARTE Member, or Collaborator or Student).

Rank : High

Parent : [User Management](#)

Extend from

[User Management](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Add a user into the pool of ARTE users.
Preconditions	User Management service is available.
Success end condition	If operation is performed user data are updated.
Failed end condition	Nothing changes into DILIGENT.
Trigger	A new ARTE user is to be added into ARTE users.
Description	1: The Authorized User (AU) fills in a new user form (name, contact information, etc.) 2: The AU creates new user account or cancels current user

	form.
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

UseCase Remove user

Use Case Extends Hierarchy

```

ARTE DILIGENT Management
| +-DILIGENT Resource Management
| +-Manage an ARTE DL workspace
| +-Workshop Management
| +-Manage Workspace
| +-Course Management
| +-Collection Management
| +-Update a Collection
| +-Redefine an ARTE DL
| +-User Management
| +-Remove user

```

Documentation

The ARTE Director, a Director Assistant or the DILIGENT Administrator can remove a user.

Rank : High

Parent : [User Management](#)

Extend from

[User Management](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0

Goal in context	Remove an user from the pool of ARTE users.
Preconditions	User Management service is available.
Success end condition	If operation is performed user data are updated.
Failed end condition	Nothing change into DILIGENT.
Trigger	An ARTE user is to be removed from the ARTE DILIGENT infrastructure
Description	1: The Authorized User (AU) inputs an existing user ID and eventually selects the user to be deleted. 2: The AU confirms to remove selected user or cancel removal of that user.
Extensions	1. User ID does not exist: 1: The AU inputs an existing user ID
Priority	Mandatory
Performance	On line
Frequency	Several times per month
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

UseCase Edit user properties

Use Case Extends Hierarchy

- ARTE DILIGENT Management
 - | +-DILIGENT Resource Management
 - | +-Manage an ARTE DL workspace
 - | +-Workshop Management
 - | +-Manage Workspace
 - | +-Course Management
 - | +-Collection Management
 - | +-Update a Collection
 - | +-Redefine an ARTE DL
 - | +-User Management

| +-Edit user properties

Documentation

The ARTE Director or a Director Assistant can edit user properties, i.e. user personal data (name, e-mail address, fields of interest, etc.) and user category (ARTE Member, or Collaborator or Student).

Rank : High

Parent : [User Management](#)

Extend from

[User Management](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Edit ARTE user properties.
Preconditions	User Management service is available.
Success end condition	If operation is performed user data are updated.
Failed end condition	Nothing change into DILIGENT.
Trigger	An Authorized User wants to edit user properties.
Description	1: The Authorized User (AU) inputs the ID of and existing user. 2: The AU edits user information. 3: The AU saves or cancels current user information changes.
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

 **UseCase** Browse users
Documentation

Inspect the users by browsing an ordered list of them, or by browsing one of the indices created on the values of user properties.

Rank : High

Parent : [User Management](#)

Super Class

[Search Users](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Browse ARTE users.
Preconditions	User Management service is available.
Success end condition	Users are browsed.
Failed end condition	It is not possible to browse users.
Trigger	An authorized user wants to browse ARTE users.
Description	1: The Authorized User (AU) selects the field (name, address, etc.) over which to perform the browsing. 2: The AU eventually selects some of the showed users.
Priority	Mandatory
Performance	On line
Frequency	Several times per week
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

 **UseCase** Search part-of objects by Image

Documentation

An image is submitted as a query and a search is made to retrieve all the objects where the submitted image appears as a component part.

Rank : Medium

Parent : [Search](#)

Include by:

[Process Image](#)

Super Class

[Search objects by Image](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Submit an image as a query and search for all the objects where the submitted image appears as a component part.
Preconditions	There exists an ARTE DL.
Success end condition	The required objects are retrieved, if they exist.
Failed end condition	The searched objects are not found, even though they exist.
Trigger	An ARTE user selects this search type.
Description	1: The Authorized User (AU) submits an image as a search criterion. 2: The AU browses over the result set and eventually selects some of the objects.
Extensions	1a. Search archives: (extension point to Search Archives use case) 1: The AU performs the Search Archives use case 2a. Relevance feedback: (extension point to Relevance Feedback use case) 1: The AU performs the Relevance Feedback use case
Priority	Mandatory

Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Search by User Category

Documentation

All users belonging to a given category can be identified. For example, in the Course Management UC, the ARTE Member in charge for the course organization should be enabled for searching Students and then using the Search By User Properties selects those having interests related to the course topic in order to invite them to take part to the course.

Rank : Low

Parent : [User Management](#)

Super Class

[Search Users](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Identify all the users belonging to a given user category.
Preconditions	User Management service is available.
Success end condition	Users who satisfy search criteria are found, if they exist.
Failed end condition	No user is found, even if user exists.
Trigger	An authorized user wants to search users by a given category.
Description	1: The Authorized User (AU) submits a search criterion based on user categories (ARTE Administrator, Director Assistant, Student, etc.).

	2: The AU browses over the result set and eventually selects some of the users.
Priority	Highly desirable
Performance	On line
Frequency	Several times per week
Channels to actors	DILIGENT / ARTE / ARTE DL web portal



UseCase Search Users

Use Case Extends Hierarchy

ARTE DILIGENT Management

- | +-DILIGENT Resource Management
- | +-Manage an ARTE DL workspace
- | +-Workshop Management
- | +-Manage Workspace
- | +-Course Management
- | +-Collection Management
- | +-Update a Collection
- | +-Redefine an ARTE DL
- | +-User Management
- | +-Search Users

Documentation

This Use Case deals with all the functionalities related to the search of users:

- i) search users by properties,
- ii) search users by category, and
- iii) browse users.

Rank : High

Parent : [User Management](#)

Include by:

[Create a Collection](#)

Extend from

[User Management](#)

Subclasses

[Search by User Category](#) , [Browse users](#) , [Search by User properties](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Search for users.
Preconditions	User Management service is available.
Success end condition	Any users who satisfies a given search criterion is found.
Failed end condition	Searched users are not found, even if they exist.
Trigger	An authorized user wants to search users.
Description	1: The Authorized User (AU) submits a search criterion. 2: The AU browses over the result set and eventually selects some of the users.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	DILIGENT / ARTE / ARTE DL web portal



UseCase Search by User properties

Documentation

Search users by the value of one or more of their properties.

For example, in the Workshop Management UC, the ARTE Member in charge for the workshop organization should be enabled for searching users having interests related to the workshop topic in order to invite them to take part to the workshop.

Rank : High**Parent** : [User Management](#)**Super Class**[Search Users](#)**Use Case Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Identify all users with a given user property.
Preconditions	User Management service is available.
Success end condition	Users who satisfy search criterion are found, if they exist.
Failed end condition	Searched users are not found, even if they exist.
Trigger	An authorized user wants to search users by a given user property.
Description	1: The Authorized User (AU) submits a search criterion based on user properties (name, address, affiliation, etc.). 2: The AU browses over the result set and eventually select some of the users.
Priority	Highly desirable
Performance	On line
Frequency	Several times per week
Channels to actors	DILIGENT / ARTE / ARTE DL web portal

 **UseCase** Access Objects
Use Case Extends Hierarchy

Manage Workspace

| +-Access Objects

Documentation

Starting from a retrieved object description, the authorized user can access to that object, e.g. see the content, and look at it using a personalized view.

Rank : High**Parent** : [Object Management](#)**Extended by**[Personalize Object Views](#) ,[Play Video / Audio](#)**Extension Point****Name** : Personalize object views**Name** : Play Video / Audio**Extend from**[Manage Workspace](#)**Use Case Description**

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Access to an object.
Preconditions	There is a retrieved object description.
Success end condition	Object is visualized.
Failed end condition	No object is visualized.
Trigger	An authorized user wants to access to an object.
Description	1: The Authorized User (AU) accesses to an object. 2: The AU performs an authorized operation.
Extensions	2a. Personalize the object views: (extension point to Personalize Object Views use case) 1: The AU performs the Personalize Object Views use case 2b. Play Video / Audio: (extension point to Play Video / Audio use case)

	1: The AU performs the Play Video / Audio use case
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Process Text

Use Case Extends Hierarchy

Create an ARTE DL

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection
- | +-Update an ARTE DL
- | +-Update a Collection
- | +-Index Management
- | +-Metadata Generation
- | +-Process Text

Documentation

This Use Case is involved in the Metadata Generation UC and deals with the operation of text processing. In particular, it allows to stem words in order to enable the Thesaurus Generation UC to identify word roots, similar meanings, synonyms and associations already existing into a text object/document.

Rank : Low

Parent : [Object Management](#)

Extended by

[Thesaurus Generation](#)

Extension Point

Name : Thesaurus generation

Extend from

[Metadata Generation](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Process text to stem words so that it can be searched by "word affinity".
Preconditions	A text (object) is retrieved.
Success end condition	Text processing successfully finished.
Failed end condition	Nothing change into an ARTE DL.
Trigger	An authorized user need to process text to stem words.
Description	1: The Authorized User (AU) process text by stemming of words, detecting similar meanings, etc..
Extensions	1a. Thesaurus generation: (extension point to Thesaurus Generation use case) 1: The AU performs the Thesaurus Generation use case.
Priority	Desirable
Perfomance	On line
Frequency	Several times per week
Channels to actors	ARTE DL web portal

 **UseCase** Thesaurus Generation

Use Case Extends Hierarchy

Create an ARTE DL

- | +-Manage Workspace
- | +-Manage an ARTE DL workspace
- | +-Course Management
- | +-Collection Management
- | +-Workshop Management
- | +-Make an Exhibition Catalogue
- | +-Create a Collection
- | +-Update an ARTE DL
- | +-Update a Collection
- | +-Index Management
- | +-Metadata Generation
- | +-Process Text
- | +-Thesaurus Generation

Documentation

A multilingual thesaurus is used or a Learning Application package is applied to a text object after a partial text processing operation in order to generate a data structure containing a lot of associations among the terms like: word roots, synonyms, similar meanings, etc.

Rank : Low

Parent : [Object Management](#)

Extend from

[Process Text](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Learn term and intellectual associations based on different things: word roots, synonyms, similar meanings, etc.
Preconditions	A text object is selected.
Success end condition	Data structure containing associations among the terms is generated.
Failed end condition	Nothing change into an ARTE DL.

Trigger	An authorized user need to learn term and intellectual associations.
Description	1: The Authorized User (AU) requests to apply a multilingual thesaurus (or a Learning Application) over a text object.
Priority	Desirable
Performance	Batch
Frequency	Several times per month
Channels to actors	ARTE DL web portal

UseCase Save Object

Use Case Extends Hierarchy

```

Manage Workspace
| +-Save Object

```

Documentation

Any authorized user can save a retrieved object into a workspace.

Rank : High

Parent : [Object Management](#)

Extend from

[Manage Workspace](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Save a retrieved object into a workspace.
Preconditions	There is a retrieved object.
Success end condition	An object is saved into the ARTE DL workspace.
Failed end condition	Nothing change into the ARTE DL.

Trigger	An authorized user wants to save a retrieved object.
Description	1: The Authorized User (AU) saves a retrieved object into a workspace.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Remove Object

Use Case Extends Hierarchy

```

Manage Workspace
| +-Remove Object

```

Documentation

Any authorized user can remove objects from a workspace.

Rank : High

Parent : [Object Management](#)

Extend from

[Manage Workspace](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Remove an object from a workspace.
Preconditions	There is a retrieved object.
Success end condition	An object is removed from an ARTE DL.
Failed end condition	Nothing change into an ARTE DL.
Trigger	An authorized user wants to remove an object from a

	workspace.
Description	1: The Authorized User (AU) removes an object from a workspace.
Priority	Mandatory
Performance	On line / Batch
Channels to actors	ARTE / ARTE DL web portal

UseCase Resolve Image into parts

Documentation

This Use Case is a component part of the Process Image Use Case. It represents the operation of finding/identifying the component images of an original one.

It would be interesting to analyse every single letter that makes up the images -contained in some Art of Memory treatises from XVith-XVIIth Century.

See the examples given in Fig, 4 and 5 in the Appendix A.

Rank : Medium

Parent : [Object Management](#)

Include by:

[Process Image](#)

Use Case Description

Description

Author	SNS - CNR
Date	10 Nov 04
Version	1.0
Goal in context	Identify images inside an image.
Preconditions	An image is selected.
Success end	Images inside an image were identified and probably saved

condition	into an ARTE DL workspace.
Failed end Condition	Nothing change into an ARTE DL.
Trigger	An authorized user needs to identify images inside an image.
Description	1: The Authorized User AU identifies part of an image from an original one.
Priority	Mandatory
Performance	On line
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

UseCase Process Image

Use Case Extends Hierarchy

```

Manage Workspace
| +-Process Image

```

Documentation

This Use Case deals with particular image processing operations. Sometimes it is required to make a search operation with a part of an image; for this, the original image is resolved into its component parts and any of them can be used as a single image.

Rank : Medium

Parent : [Object Management](#)

Include:

[Resolve Image into parts](#) , [Search part-of objects by Image](#)

Extend from

[Manage Workspace](#)

Use Case Description

Author	SNS - CNR
Date	10 Nov 04

Version	1.0
Goal in context	Analyze an image using ad-hoc services.
Preconditions	An image is selected.
Success end condition	Image processing results are stored somewhere.
Failed end condition	Nothing change into an ARTE DL.
Trigger	Image processing is required.
Description	1: The Authorized User (AU) searches part-of an object starting from an image. 2: The AU select some of the parts of an image by resolving an original image into its components.
Priority	Mandatory
Performance	On line / Batch
Frequency	Several times per day
Channels to actors	ARTE / ARTE DL web portal

 **Package** Services

Parent : [ARTE - DILIGENT Infrastructure](#)

Children:

[Select Services](#), [Search](#), [Annotation](#), [User Management](#), [Object Management](#), [Collection](#)

 **Package** Search

Parent : [Services](#)

Children:

[Search archives by Image](#), [Search objects by Video](#), [Browse archives](#), [Search archives](#), [Search archives by Metadata](#), [Search archives by ID](#), [Search objects by Full Text](#), [Navigate objects](#), [Search video scenes by Keywords](#), [Search objects by Tone](#), [Search and Retrieve Objects](#), [Search objects by Image](#), [Search objects by Metadata](#), [Browse objects](#), [Relevance Feedback](#), [Search part-of objects by Image](#)

 **Package** Annotation

Parent : [Services](#)

Children:

[Annotation Management](#), [Create an Annotation](#), [Read an Annotation](#), [Remove an Annotation](#),
[Update an Annotation](#)

 **Package** User Management

Parent : [Services](#)

Children:

[User Management](#), [Add user](#), [Remove user](#), [Edit user properties](#), [Browse users](#), [Search by User Category](#) , [Search Users](#), [Search by User properties](#)

 **Package** Object Management

Parent : [Services](#)

Children:

[Resolve Image into parts](#), [Personalize Object Views](#), [Process Image](#), [Play Video / Audio](#),
[Speech to text](#), [Metadata Generation](#), [Translation Service](#), [Index Management](#), [Access Objects](#),
[Process Text](#), [Thesaurus Generation](#), [Save Object](#), [Remove Object](#)

 **Package** Collection

Parent : [Services](#)

Children:

[Update a Collection](#), [Create a Collection](#), [Remove a Collection](#), [Define Membership Criteria](#),
[Collection Management](#)

 **System** ARTE - DILIGENT Infrastructure

Children:

[Create an ARTE DL](#), [Update an ARTE DL](#), [Workshop Management](#), [Make an Exhibition Catalogue](#), [Manage Student Workspace](#), [Process Video](#), NB. La creazione di una ARTE DL implica la creazione del suo workspace, [Course Management](#), [Remove an ARTE DL](#), [Define an ARTE DL](#), [Redefine an ARTE DL](#), [Dispose an ARTE DL](#), [DILIGENT Resource Management](#), [Propose Services to be Added to / Removed from DILIGENT](#), [ARTE DILIGENT Management](#),

[Edit an ARTE DL web portal properties](#), [Manage an ARTE DL workspace](#), [Services](#), [Manage Workspace](#), [Propose Archives to be Added to / Removed from DILIGENT](#), [Add a Service](#), [Remove a Service](#), [Add an Archive](#), [Remove an Archive](#), [Browse Archives and Services proposals](#)

High level requirements

1. High level requirements

There is a community of Scholar(s), working in Institutions distributed all over the world, who have decided to start working together in order to set up the basis for a new research discipline that merges together experiences from the medical, humanity, social science, and communication research areas. In order to achieve their objectives these researchers need to establish a common background knowledge base. The institutions and the Scholar(s) engaged in such a collaboration - which will be referred to as a Virtual Organization (VO) - are producing archives of digital content accessible on the DILIGENT Infrastructure.

The specific community chosen for the demonstration of this scenario consists of researchers of a three years research project, named ARTE and funded by MIUR, the Italian Ministry for Higher Education and Research. This is a community of Scholar(s), distributed all over the world, who have decided to start working together in order to set up the basis for a new research discipline, that will explore the different aspects related to representation and perception of images and texts, merging together experiences from the medical, humanity, social science, and communication research areas.

In order to achieve their objectives these researchers need to establish a common background knowledge base, composed of all digital information content they are producing. DILIGENT will be experimented as a means to provide them, in a short time framework, a cost-effective instrument for setting up a DL i.e. a common multimedia knowledge repository equipped with a number of services, specifically tailored to the needs of this community. A special interest of this community is the possibility of searching by images, because searching by textual queries may be hampered by the different languages or the different contexts in which the same image may have been described.

This DL will enable the ARTE researchers to exploit the benefits of a DL

despite the limited duration and funding resources available for the ARTE project. DILIGENT will also be used experimentally as means for supporting other typical activities of the ARTE project members, as organizing workshops and/or courses. Specific DL collections that address the knowledge for those needs can be created from the ARTE DL. This DL automatically updates its content following the changes in the original archives. As a result, the ARTE Member(s) and the Student(s) of each course have access to the most updated material on the topic of their interest.

Activities of the ARTE Project are described in more details below. The first goal is to create the ARTE Digital Library.

There are many institutions engaged in research activities on the different aspects related to representation and perception of images and texts. These institutions, which will be referred to as a Virtual Organization (VO), are producing archives of digital content and make them accessible on the DILIGENT Infrastructure. When starting the DILIGENT-ARTE interaction, the ARTE Director and her team, the Director Assistant(s) decide the definition criteria to Create an ARTE DL, i.e. which archives, resources and services might be useful in support of the activities to be held within the ARTE project (research, courses, workshops, expositions, etc.).

The following decisions are taken by the ARTE Director and the Director Assistant(s):

The ARTE DL should contain:

- all the archives produced by the Institutions which the ARTE Scholar(s) are collaborating with,
- other archives possibly referred to by the collaborating Institutions, if they are judged to be of interest
- other archives to be found on the DILIGENT Infrastructure by (image, movie, etc.) searching. The objective of this search is to find archives where images used to illustrate literary texts are used to illustrate different kind of texts, for example texts of medicine history or science history.

It is to be noted that such archives might contain different digital objects - whether texts or images or videos, or a composition of them. - and these objects might have different structures and be associated with

different metadata formats

All the selected archives should:

- be created by Institutions of well-known cultural value
- give free access

The following services should be available at least:

- Search by Text
- Search by Image
- Search by Video
- Browse
- Create a Collection
- Annotation of documents (Annotation Service)
- Personalize Object Views
- User Management Service

In more details, the ARTE Virtual Community would use DILIGENT for the following aims.

1.1. Create an ARTE DL

It is assumed that there exists a DILIGENT Portal that allows operations. This requirement is described by the following points:

-- Accessing the DILIGENT PORTAL --

The authorized user (e.g. ARTE Director) access the PORTAL and, after identification, selects the Option "Create an ARTE DL" or "Update an ARTE DL". In the first case, the use is requested to give the DL a name. In the latter case, the name of the DL to be updated is requested.

The PORTAL should allow users to define the information space (or subject class /classes) they are interested in.

-- Select Archives --

The user want to select one or more know DILIGENT Infrastructure archives to insert them in the DL, whether to create it ex-novo or to update it. The user knows the archive ID or some elements of the archive description.

The user search the DILIGENT Portal to find the archive he wants to select

for inclusion in the ARTE DL (possibly s/he knows the Archive ID or another element of the archive description). Then s/he browses the archive description to see if selection criteria regarding access/policy rights etc. are met, and if all is OK include that archive in the ARTE DL.

If during her/his browsing, the user has seen a link to another DILIGENT Infrastructure archive of possible interest, then s/he access that archive, evaluate its content, policy rights, etc, and repeat s the selection/inclusion operations.

The following options should be offered to Select Archives:

- Search by ID
- Search by Metadata, i.e. by one or more elements of the archive description: Name, Publishing Institution, keywords, etc.
- Search by Image
- Browse archives

These options should produce a DISPLAY page where one or more description headings are shown, if any. The user confirms/selects the one s/he is interested in and the system visualizes the complete description corresponding to that heading.

The user looks at the archive description to verify whether the archive meets user requirements regarding access/policy rights etc. and can APPROVE or REJECT the insertion of that archive in the DL o pass to examine another archive description.

If the archive description contains a link to the description of another DILIGENT Infrastructure archive of possible interest, then the user should be allowed i) to access that archive description, ii) evaluate its content, policy rights, etc, iii) APPROVE or REJECT the selection of that archive and return back to examine other archive descriptions.

-- Searching archives containing given images and include these archives in the DL (Select archives similar to an image) --

After selecting well-known archives for inclusion in the ARTE DL, the user wants to enrich the ARTE DL with other possibly interesting archives available on the GRID. The user doesn't know any description element of the archives which s/he is interested in, s/he knows instead which content

s/he is interested in. For example, the user presumes that a given image contained in a literary text has later been used to illustrate texts of different kinds, for example texts of medicine- or science history. S/he wants to verify such an hypothesis and see:

- whether archives different from the well-known ones contain that image; and, if so,
- whether those archives are to be included in the ARTE DL.

To this aim, the user search the DILIGENT Infrastructure archives (all or a class of them, if DILIGENT can organize archives into subject classes) by submitting that image as a query. (see also 3 Searching/ Navigating). Then the user accesses each of the retrieved images and, if it is of interest, identifies the archive where it is contained in order to APPROVE the inclusion of that archive in the ARTE Digital Library or REJECT it.

-- Select Services to the DL --

The ARTE team judge the following services to be very useful:

- Text and image searching
- Personalization of objects views
- Browsing of archive content or indexes
- Definition of virtual collections
- Annotation of documents
- Personalization of access rights

1.2 Remove an ARTE DL

1.3. Work with collections

Occasionally, collections within the ARTE DL may be defined to respond to specific requirements, for example a course to be given or an exhibition to be organized together with distant partners. An ARTE Member(s) or an Student decide to Create a Collection or to Update a Collection, selection which documents of the ARTE DL might be useful in support of the specific goal to be reached; then the collection requirements are defined and the resulting collection is given a proper name. A collection can be created by and removed (Remove a Collection) by its creator, but can be searched by all authorized users, which were selected during creation and/or updating.

The collection should be a virtual one, that is, it should automatically be composed by all the documents meeting the selection criterions and be automatically updated when new objects are added to the DL archives. The Collection population is carried out by using the following services:

- Search by Image
- Search by Metadata
- Browse
- Search by Full Text
- Search by Keywords

A special user interface should help specifying the selection criterions which might regard:

- the archives from which the collection documents should be selected
- the content of one or more metadata elements
- one or more features of the objects themselves

Also conditions to access the collection might be imposed; for example, access might be permitted only to users belonging to a given community.

Permitted users should be alerted when the collection is updated.

For example, a special collection of documents/images could be requested in order to study what political use of emblems has been made in the 16.-17. century.

To define such a collection, the following selection criterions might be stated:

- the collection should be based on all ARTE DL archives containing emblems "books"
- dating: 16. or 17. century
- dedication: containing words such as "prince" or "duke", etc.
- description: containing words such as "anniversary" or "nuptials", etc.

Another example regards the special case when a collection of well known digital objects is needed. In this case the selection criterions reduce to enumerating the ID's of the objects to be included in the collection and no automatic updating is made.

1.4. Search/browse/navigate

One of the most important activities of the Scholar community is searching in, browse, and navigating through the knowledge base they are creating, as the search function generally is the starting point of most of the different activities on the ARTE Project: intellectual research, organization of courses and workshops, etc.

At the present, Search by Full Text and/or Search by Metadata is made available in all archives produced by the Institutions/Scholar(s) belonging to the ARTE community. Digital objects, whether texts, images or videos, are carefully described and made searchable through standard metadata elements such as titles, authors, dating, subjects, classification, types of images (miniature, medals, ...), etc. Moreover, objects are often related with other objects through relators as "contained in" or "contains" - and so on - which allow users to navigate within the objects in the same or in different archives.

In many databases the English language is used for object descriptions, even though it is not the language of the described object - whether a text or words inscribed in an image. Thus text/metadata searching may be hampered by the different languages or the different contexts in which texts, images or videos have been described. The same holds for the user interface of the different databases. Differently from what happened with the Z39.50 protocol in the library environment, in our environment no standard protocol is being proposed to search heterogeneous text, image or video collections at the same time.

For the above reasons, the capability of Search by Image or Search by Video as a query would be of great interest, because images and videos would become the "words" of a truly universal language. Thus the following cases could be possible.

A Scholar is interested in determining the different images/videos that have been used to illustrate a given topic. Then, s/he makes a Search by Full Text or Search by Metadata, selects one document among the ones retrieved, which is deemed particularly appropriate for the topic, and uses it to retrieve textually similar documents. The frames used to illustrate

the result of this latter query, may be related to each other, as "illustrative synonyms" of the selected topic.

Dually, when studying a text or a manuscript or a picture, the Scholar is attracted by a particular image and would very much like to know whether that image has also been used in different contexts (e.g. novels, films). Then s/he submit that image as a query, send this query, possibly makes use of the relevance feedback mechanism to adjust the results, and finally uses the metadata information associated with each object retrieved to know in which contexts that image appears.

The following functionalities are mostly requested to search documents. As already noted, archives which ARTE scholars are interested in may contain different digital objects - whether texts or images or videos, or a composition of them. - and these objects might have different structures and be associated with different metadata formats. As a consequence, the possibility of searching heterogeneous collections would be extremely useful and a functionality for this should be available.

Searching

- Search by Keywords, searching documents by free words
- Search by Metadata, searching documents by specifying the content of one or more metadata elements
- Search by Full Text, full text searching: a text is submitted as a query
- Search by Images, searching documents by images : the user submits an image as a query to get "similar" images as a result. [Note: "Similar" images are those shown in figs 1-3. Figure 1, 2 and 3 are similar because all contains a "tree of memory"]

Browsing, Browse documents ordered according to the content of one metadata element.

Note: For each type of search/browsing , the display page showing the result set should allow the user:

- to mark a document for relevance feedback searching
- to visualize the full document according to a personalized view (see below)
- to mark a document for relevance feedback searching
- to visualize the full document according to a Personalized view (see

below)

Navigating

- Navigate starting from a text containing a given image, find all the text on the same topics illustrated with different images [for example: A scholar is interested in determining the different images/videos that have been used to illustrate a given topic. Then, s/he makes a Search by Full Text or Search by Metadata, selects one document among the ones retrieved, which is deemed particularly appropriate for the topic, and uses it to retrieve textually similar documents. The images used to illustrate the result of this latter query may be related to each other, as "illustrative synonyms" of the selected topic].

- Navigate starting from a retrieved image, Search by Image, finding all documents where such an image appears [for example, the scholar is attracted by a particular image and would very much like to know whether that image has also been used in different contexts (e.g. novels, films). Then s/he submit that image as a query, send this query, possibly makes use of the relevance feedback mechanism to adjust the results, and finally uses the metadata information associated with each object retrieved to know in which contexts that image appears.

Image Processing, part of the Resolve an image into parts processing
It should be possible to process retrieved images with Image Filtering techniques to study the various components of complex images (see fig. 4 and 5) separately. For example, a scholar might be interested in making comparisons among several figurative alphabets in order to analyse different letter representations such as the ones shown in Figs. 4 and 5.

Personalization of object views, i.e. Personalize Object Views

It should be possible to visualize the digital objects according to the user's level of authority. Personalization might be "full object description plus annotations", or "Textual description without images/annotations", and so on.

1.5. Organizing a Workshop with an Exhibition

The organization of the workshop entitled "Use of emblems in the daily life of 16 and 17 century" and the related exhibition is described as an

example. This workshop aims at analysing how the different typologies of emblems images and literatures are utilized, with special attention to image uses in fancy goods, numismatics, fresco cycles, portrait painting and so on. Also the contemporary artistic production will be considered.

Organize a Workshop

Speakers (or Collaborator) will be chosen from well-known experts, but the group of candidates will include other scholars to be searched in the ARTE DL archives; for example, by searching co-authors of known significant essays, or authors of essays on significant known images. If a well-known author has written significant essays together with a co-author who is not known, then other possible essays of this co-author are searched to evaluate her/his work . If an images is considered to be of particular interest, then this images is submitted as a search query. If annotations are associated to the retrieved image, then scholars that have studied it can be found and their work can be evaluated by further search on the EMBLEM collection

Make an Exhibition Catalogue

The exhibition aims at making known the emblems books kept by the Pisa University Library and Scuola Normale Superiore. It will consist in four Sections:

- 1 - Exhibition of "physical" documents (bound volumes in the main part). The selection of the documents (or of book pages) to be shown will be based on their importance or preservation state.
- 2 - Exhibition of physical objects (daily life goods, medals, banners , military uniforms etc.) decored with the images presented in the Exhibition
- 3 - A printed Guide/catalogue including the images shown in the Exhibition. Each image will be documented by i) the description of why it has been selected; ii) the description of the book where it is contained; iii) the bibliography of the essays regarding that image, the book that contains it or its author.
- 4 - The digital version of the Guide / Catalogue.

The following description only refers to Section 1.4. A first group of images will be selected for the exhibition and their digital version will be included in ARTE DL as a collection (Create a Collection). Access to the

"Exhibition Catalogue" collection is reserved to cooperating scholars. Through the Annotation Service, people looking after the exhibition can have a dialogue with their colleagues and, accordingly, update the Catalogue by inserting or drawing images, and/or inserting/correcting bibliographic information etc. This process ends when a valuable result is reached. The final version of the Exhibition Catalogue will be publicly accessible as an ARTE DL archive during the Exhibition time and later even though not all parts of the objects (for instance, comments) might be visible by generic users. Moreover the "Exhibition Catalogue" collection will go on being used as an instrument for communication and cooperation among interested scholars.

1.6. Organize a course

An authorized user (Course Teacher, i.e. ARTE Member) Create a Collection for an ARTE course, given a proper name, from the ARTE DL. For example, an ARTE Member wishes to illustrate, in a course given for the ARTE Project, the different uses of tree images in different historical periods, with special emphasis on theological contexts.

The user uses the ARTE DL, created to support the ARTE project team, as a starting point and as temporary container for the course material within the new created collection. This ARTE DL enables user to search several heterogeneous archives of interest at the same time thanks to the interoperability support, so the user is asked whether would like to focus search on certain specific archives, or wants to search all available collections archives.

The user checks the latter option, as he does not want to limit the search in any way, at this point. Then, he selects an image he deems particularly illustrative of his information need, such as a graphical depiction of a tree, found in several manuscripts of the period she is interested in. He submits this image to the system as a query.

The ARTE DL is equipped with services for content-based image retrieval (i.e. Search by Image), so no textual or formal specification of an information-need is required in order to extract information. In response, a few dozens of paintings and pictures are retrieved, and showed in a

thumbnail format. These images may have different formats.

Some images are closer to researcher's need than others. Using relevance feedback mechanism of the retrieval capability, he can express relevance and irrelevance judgments on the retrieved images, and can iterate the query a few times, until he is satisfied with the result. At this point, he update created collection adding the set of documents so far obtained and he enable the use of an annotation service over the course's collection.

Then he asks her colleague, a philosopher, working in another country to have a look at the collection just created for the course. The philosopher (Collaborator), after browsing the collection content, annotate some of the pictures using the Annotation Service, and adds a copy of a picture he discovered at his last visit to the Vatican Museum and finds very characteristic for the considered topic. The course's collection is modified accordingly.

After that, the researcher resumes the work on the course's collection, and passes the selected collection of images through several specialized Image Processing (part of the Resolve an image into parts processing) and Synthesis Algorithms to generate new images that illustrate specific characteristics of the original ones. The software that implements these algorithms resides at creator's sites.

Lastly, the researcher use an Index Service to index the images in the collection, to make it possible to use them in further retrieval operations, and endows the new collection with further Retrieval Service, Authoring Service, Set-Up Access Rights (through the User Management Service), and sets up an access point to the collection.

1.6.1 Research and didactics over images in movement

A Course Teacher (i.e. ARTE Member) gives a course on cinema at a University Department. She would like to show to the course Student(s) how certain stylistic and technical procedures are used by film makers. To prepare her lessons, she decides to conduct her analysis on the corpus of films (or related videos) of the Italian cinema after the second World War. The Department D. L. contains a collection of such film, but the teacher creates her own film/video collection (Create a Collection) adding

to the Department collection the content of other collections residing at the RAI or at the Italian Film Archive.

She also knows that somewhere on the DILIGENT Infrastructure there are Index Service(s) to make Indexes of film/video stylistic elements (such a close-ups, backgrounds, visual effects -whether special or not - montage cuts, etc). She ask the ARTE Administrator to search those services and include (Select Services) them in her film/video collection. Among such services, there is a language (together with a graphical User Interface) to select the films with a certain number of a given stylistic element, or having a predominance of one element with respect to the others. This language makes uses of the statistical data on the frequency of each stylistic element present in each film.

From this collection, she selects a set of films that are relevant for the lesson, and that will be made available to the students. This sub-collection will have a number of search services that can be specific of the type of stylistic elements contained in the videos.

1.7. Students at work

A Student of an ARTE course, is assigned the task of discovering theological texts, which have been illustrated with images identical or similar to those in the given, previously created collection.

When the course started, he access to his personal workspace, which reflect a personalized access point and conceptualization of the content. Now, he includes the given collection in his own workspace, thereby extending the contents of the latter with those of the former.

Then he uses the Retrieval Service, with the images in his workspace as queries, against archives containing illustrated theological texts. In particular, he asks the Retrieval Service to retrieve documents including texts and images, the latter similar to the one(s) in the query. In order to answer this kind of queries, he use a service that exploit two different content sources, one for images and the other for text, and will fuse their results in the appropriate way.

The result of this query will form a separate sub-collection in student's workspace, possibly giving the different contexts in which these images have been used as an illustration.

A team of students of the same course, are assigned the task to determine the hidden, common visual structures of images that have been used to illustrate a given theological topic.

They access through their own workspace to very sophisticated Image Processing software, which are located somewhere outside students' workstation. This software is computationally intensive, so require a processor architecture that goes well beyond the capabilities of students' workstation.

They use services integrated into their workspace to interactively set up a process that invokes the above mentioned software on each image of the collection, collects the resulting detailed descriptions of the image features, and stores them in a newly created collection.

1.8. Content search on Audio & Video data (Process Video)

The goal is to search multiple audio & video archives to identify materials (to be used for multiple purposes: courses, exhibitions, etc) using a basic text search.

User who intends to Search for Content in order to Create a Collection for specific purposes. It could be a Course Teacher (i.e. ARTE Member) willing to organize his/her course, or a department/faculty organizing an exhibition. This scenario could comprehend a journalist (Collaborator) looking for specific video-audio feeds for a news service or a TV or radio program, or an article.

The Course Teacher needs to find specific audio or video content by searching a large number of audio visual archives. The archives do not have an associated text database or metadata used for searching or indexing the video and audio feeds. A typical situation in many institutions that do not have funds to use for an Index Service that over the video and audio feeds.

The Course Teacher knows the topic he-she is searching for, but it would take quite a number of hours to listen/look at the audio and video materials to identify the files and define the exact time frames within each file (i.e. a program could be 2 hours long but the topic could be addressed only in the last 13 minutes).

The Course teacher would Search by Keywords (enter a text query containing the subject of the topic he-she is looking for) to submit to the DILIGENT Infrastructure which would trigger the following tasks:

1. Search all the available archives (DL's) to identify video and audio archives
2. Execute all the video and audio files (Play Video / Audio)
3. Write to temporary files the spoken data in the files using a Speech-to-text Application and analyse the text to find a suitable match
4. Define a tentative time frame in which the text of the query appears in the video-audio file, i.e.: if the words "futurism" and "surrealism" - subject of the query - appear only in a specific time frame within the file or are used thoroughly for the entire video-audio feed (Video-Text Analysis).
5. Cache the found results (Create a Collection)
6. Return the results to the user in a customisable organized way (i.e. archive name, file type, length of the footage, copyright on the material or not, etc)
7. Use the Index Service to automatically associate the query (metadata) to the search result, so to provide a constant growing index to speed up future searches on that subject (Metadata Generation: generate metadata from queries)

The search interface should evidently allow the user to use:

- boolean operators (it explains itself)
- text affinity searching (synonyms, etc) (i.e.: if I am looking for the subject "Sleeping figure"
- Search by Image (use an image recognition application)
- Search by Tone (voice recognition could used)

The audio files are evidently language specific. This could generate a request for an on-demand Translation Service, which translate the spoken texts in the audio-video files to let the user search in multilingual

archives and more generally in audio-video archives located in different countries.

Though the quality of an automatic indexing of a audio-video material is normally incomplete, in terms that it is not filtered through a intellectual association but through a insensitive task of text search, it is possible this situation is not applicable to all scenarios. But it will provide a comprehensive overview of all the available data. We must keep in mind that we are trying to achieve a fast and effective way to create and manage DL's, thus meaning that the quantity of the data is a factor that should not be underestimated. The application could include a Learning Application package that allows it to learn term and intellectual associations based on different things: word roots, synonyms, similar meanings, etc.

Candidate Class	Extracted Text	Type	Description
Director Assistant	Director Assistant	Actor	
ARTE Director	ARTE Director	Actor	
Search archives by Image	Search by Image	Use Case	
Search objects by Video	Search by Video	Use Case	
Browse archives	Browse	Use Case	
Create an ARTE DL	Create the ARTE VDL	Use Case	
Update an ARTE DL	Update the ARTE VDL	Use Case	
Search archives	Select Archives	Use Case	
Search archives by Metadata	Search by Metadata	Use Case	
Search archives by ID	Search by ID	Use Case	
ARTE Member	ARTE Member	Actor	
Update a Collection	Update a Collection	Use Case	
Create a Collection	Create a Collection	Use Case	

Remove a Collection	Remove a Collection	Use Case	
Student	Student	Actor	
Search objects by Full Text	Search by Full Text	Use Case	
Search by Keywords	Search by Keywords	Use Case	
Navigate objects	Navigate	Use Case	
Resolve Image into parts	Decompose Image	Use Case	
Personalize Object Views	Personalize Object Views	Use Case	
Workshop Management	Organize a Workshop	Use Case	
Make an Exhibition Catalogue	Make an Exhibition Catalogue	Use Case	
Collaborator	Collaborator	Actor	
Filter Image	Image Filtering	Use Case	
Synthesis Algorithms	Synthesis Algorithms	Use Case	
Retrieval Service	Retrieval Service	Use Case	
Authoring Service	Authoring Service	Use Case	
Manage Student Workspace	Students at work	Use Case	
Process Image	Image Processing	Use Case	
ARTE Administrator	ARTE Administrator	Actor	
Process Video	Process Video	Use Case	
Search video scenes by Keywords	Search for Content	Use Case	
Play Video / Audio	Play Video / Audio	Use Case	
Speech to text	Speech-to-text Application	Use Case	
Process Video-Text	Video-Text Analysis	Use Case	
Metadata Generation	Metadata Generation	Use Case	
Search objects by Tone	Search by Tone	Use Case	
Translation Service	Translation Service	Use Case	

Learning Application	Learning Application	Use Case	
Index Management	Index Service	Use Case	
Annotation Management	Annotation Service	Use Case	
Course Management	Organize a course	Use Case	
Remove an ARTE DL	Remove the ARTE VDL	Use Case	
User Management	User Managment Service	Use Case	
Select Services	Select Services	Use Case	
Scholar	Scholar	Actor	
Create an ARTE DL	Create an ARTE DL	Use Case	
Update an ARTE DL	Update an ARTE DL	Use Case	
Remove an ARTE DL	Remove an ARTE DL	Use Case	
Resolve an image into parts	Resolve an image into parts	Use Case	

Data sources

The archives already available for exploitation are the following:

1. An Atlas of Memory Images
2. Narrated Dream in Modern Literature
3. Brown University- Department of Italian Studies
4. Centre de Recherche en Histoire des Sciences et des Techniques
5. Universidad de Coruña- Research Team on Hispanic Emblematic Literature

6. Universitat de Barcelona and Istituto Italiano di Cultura di Barcellona
7. Studio Azzurro Produzioni
8. RAI

Data sources description

1. An Atlas of Memory Images

[www.ctl.sns.it/projects](http://wwwctl.sns.it/projects)

Work has begun on the creation of an archive of the images contained in treatises on the art of memory of the XVI Century. The project will continue with the compilation of an archive of the texts and memory images employed in different sectors of Medieval and Renaissance culture (the visual arts, literature, mystical and devotional practices, etc.).

This archive at present is made of about 50 texts -full length original versions- and 1000 images.

Is being developed by the CTL.

2. Narrated Dream in Modern Literature

[www.ctl.sns.it/projects](http://wwwctl.sns.it/projects)

An indexed archive of literary texts and visual images that narrate or describe dreams. The archive of texts is already available for consultation on the Internet. A second archive specifically dedicated to digitalized images is currently under preparation.

The XML archive at present contains 857 dreams narrated by about 100 authors.

The documents are marked XML, according to the experience of the previous projects edited by CRIBeCu, the Computer Research Centre for Cultural Heritage of the Scuola Normale Superiore of Pisa. The database contains three different types of documents:

a) textual excerpts, of different length, presenting accounts of dreams, coming from Italian and European literature, from the origins up to contemporary age

b) images referring to oneiric subjects (e.g.: emblems); images accompanying a text in which a dream is told (e.g.: illustrations from the poems of chivalry).

This initial stage of indexing corresponds to an initial stage of gathering information about the texts.

Is being developed by the CTL.

3. Brown University- Department of Italian Studies

<http://www.brown.edu/Research/Decameron/>

The guiding question of the project is how contemporary informational technology can facilitate, enhance and innovate the complex cognitive and learning activities involved in reading a late medieval literary text like Boccaccio's Decameron.

Through a creative use of technology, the project provides the reader with an easily accessible and flexible yet well-structured wealth of information on the literary, historical and cultural context of the Decameron, thus allowing a vivid yet rigorously philological understanding of the past in

which the work was conceived. At the same time, this project is meant to facilitate the creative expression of a multiplicity of perspectives which animate our contemporary readings. By reconciling in a collaborative fashion the reader's freedom with a sound cognition of serious, scholarly achievements in the study of the Decameron, this project is also an example of how new technologies can provide an innovative pedagogical medium for a fulfilling educational experience based on a literary text that is open to a variety of cultural interests and levels of learning. Intended primary beneficiaries of the project are college and high school teachers and students, but independent readers and scholars interested in the Decameron itself or aspects of it that are related to their specific areas of interest will benefit from it, regardless of their geographic location or institutional affiliation.

The group and classroom at Brown University will serve as the gateway to a virtual community of readers and students of the Decameron who are engaged in a variety of didactic and scholarly pursuits and as a forum for discussions of their methodologies and critical perspectives. In short, this project can provide its beneficiaries with a sort of specialized bookshelf or mini-library generated from and existing alongside a reading of Boccaccio's masterpiece. This mini-library or virtual encyclopedia includes the text in its established critical edition, sources, translations, annotations and commentaries, bibliographies, a growing selection of critical and interpretive essays, as well as visual and audio materials.

These resources are all hyper-textually linked and complemented by a variety of analytical tools and search engines meant to make your exploration of the site easy and rewarding. Most importantly, this corpus and its basic structure are a point of departure for a wide range of collaborative activities which will enhance the project's future growth according to the interests and contributions of the virtual community of students, teachers, scholars and readers of the Decameron.

There are different kind of search: the search box located in the upper right hand corner of the Decameron Web header allows users to conduct a quick word search of the entire site; users wishing to perform other queries should use the following modules:

- "Advanced site search". This option allows users to locate single and multiple keywords in the Decameron Web's articles, bibliography, newsletter, etc., using Boolean terms "and," "or" and "not." It does not allow for searches of Boccaccio's works.
- "Text search functions". Based on an XML markup of the Decameron and Boccaccio's minor works, users may conduct complex text searches in such categories as characters, geographic locations, and multiple words.

4. Jean-Baptiste Lamarck : works and heritage

<http://www.lamarck.net/>

Centre de Recherche en Histoire des Sciences et des Techniques

The site Jean-Baptiste Lamarck works and heritage, directed by Professor Pietro Corsi (Directeur of the Centre de Recherche en Histoire des Sciences et des Techniques,

Professor at the University of Paris 1 Panthéon Sorbonne), is designed to make available the works of a much quoted but little read French naturalist, as well as documents relating to his career and life. Some of the works here reproduced in text format are edited for the first time since their publication more than two hundred years ago. The Chronology highlights the main phases of Lamarck's life and career, with links to documents available in the site.

The section 'Works of Lamarck' contains a complete bibliography of his scientific production, as well as the corpus of his theoretical works electronically edited, and freely available in word and pdf format : books, journal and dictionary articles, lectures...

The section 'Theories of evolution' contains others materials about the lamarck's century.

Finally, the section 'Pupils of Lamarck' offers the complete list of students attending Lamarck's lectures from 1795 through 1823 which included pupils coming from several European and American countries. 560 students have already been identified, the result of an international research programe started in 1994.

Over 6500 pages of Lamarckian texts are already available in text mode, and

will shortly and freely be available in word and pdf format. Photos of pages of the 'Mémoires de physique et d'histoire naturelle' and of the 'Système des animaux sans vertèbres' can also be consulted. The biographical section is also undergoing radical improvement, with the planned addition of further testimonies and documents. Since 2004, a new interrogation interface for the 'pupils of Lamarck' database is open. It will allow access to all the bio-bibliographical information so far collected.

5. Universidade de Coruña- Research Team on Hispanic Emblematic Literature

<http://rosalia.dc.fi.udc.es/emblematica/>

This archive consists in a collection of about thirty rare Emblem books dating from the 16th and 17th centuries, illustrated with more than 2,000 engraved images (xilographic or chalcographic).

The publication on the INTERNET of this particular material make this archive available to a wide range of researchers of Hispanic culture (historians of Literature and Art, and of the disciplines of Philosophy and Sociology of the 15th to 17th centuries). In addition, there is a great amount of information taken from the study of the works, either from a literary (epigraphs or mottos, especially those written in Latin, epigrams glosses or commentaries) or Iconographic point of view, stored in database format. Researchers will have access, through simple Hypertext Menus, to these digitalized images and complementary information stored in a UNIX disk connected to the INTERNET which works as node server of the WWW.

6. Universitat de Barcelona and Istituto Italiano di Cultura di Barcellona

<http://www.ub.es/boscan/index2.htm>
<http://www.iicbarcellona.com/>

The Progetto Boscán aims at the creation of a Digital Catalogue reconstructing the history of the main Spanish translations of Italian literary works from the end of the XIIIth Century (starting by the Trésor by Brunetto Latini), to the end of the Spanish Civil War (1939).

The website is organized in two parts: a Catalogue, where it is possible to look through the description files of the collected works and a Digital Library called BITELI (Biblioteca Telemática de Traducciones Españolas de la Literatura Italiana) where it is possible to read directly the texts and to search on full texts and/or metadata both in the texts in the original language and in translation.

The Digital Library is based on the technology of "Powered by Fmx Hosting"; the Catalogue is in File Maker Pro6.

7. Studio Azzurro Produzioni

<http://www.studioazzurro.com>

Studio Azzurro's research is aimed at creating 'sensitive environments' where technology is married to narration and space, where the outcome comes from people's choices, where the relationship among men coexists with the relationship between man and machine. The interactive environments are supported by 'natural interfaces' that allow the audience's interactions without technical tools, but through 'natural' actions such as touching, stomping or talking. This allows people to approach the technology in a natural way; it stimulates the dialog and favors a spontaneous immersion in the sensorial experience.

Studio Azzurro has developed its original research not only in the typical experimental venues, but also in the more traditional art world, especially in art exhibits and museums. Research has been applied not only to video, but also to movies, theatre, musical theatre and dance, each time finding original narrative ideas and visual images to generate a genuine and visionary melting of genres. Studio Azzurro has produced several documentaries on artists' works; it has also played an important educational role, has produced theoretical work and has sponsored and participated in workshops and seminars.

The database consists in a collection of video and installations created by Studio Azzurro; the search options are by "work" or "place" in alphabetical order and by "year".

8. RAI

<http://www.educational.rai.it/>

Rai (Radio Televisione Italiana) owns one of the world's largest multimedia archives, composed of over 600.000 hours of audiovisual materials. An archive that grows continuously as digital archiving has been determined to be a strategic task that is regularly accomplished on an every day basis by the division called Rai Teche. A task that includes the digitizing of the broadcast of 4 24/7 TV channels, 5 8/7 channels, 4 24/7 radio channels. This adds up to a total of more than 200 hours of audio video feeds a day.

Rai Educational has ownership of a number of Digital archives consisting of mostly cultural materials related directly to the Divisions mission. The archives are stored in different formats (RealMedia, WindowsMedia), mostly made available through a web (internet and intranet) front end via Microsoft SQL server, and are partially visible from the division's portal: www.educational.rai.it.

In particular, some of these archives are unique due to their content: EMSF (philosophy), Idea (art), Mediamente (IT-WEB), Medita (various). Following is a brief description of the archives.

EMSF: www.filosofia.rai.it is a digital archive containing a number of interviews, texts, lessons related to philosophy. The archive has been established since 1994 and is partially published in the website. Most of the materials are text.

Idea: no front end available. Idea is a digital archive of over 13.000 images of pieces of art ranging from ancient Rome to contemporary art. The only range limitation is that the art pieces reside within Italian museums or institutions (i.e, La Gioconda by Leonardo is not included as it is resident in the Louvre, Paris).

Mediamente: www.mediamente.rai.it is the first website created by Italian public TV. Derived directly from the homonymous TV program (which has been broadcast continuously from 1995 to 2003), it contains interviews to the IT and WEB technology Guru's.

Medita: www.medita.rai.it is a digital archive of video and audio materials, 2d and 3d animations, multimedia objects (Macromedia flash and shockwave technology) dedicated to the public education system: the units are to be an aid for professors and tutors in the everyday teaching routine and comprehend a number of various subjects (see table below).

Rai Educational will provide the following MEDITA audio and video materials to be used in DILIGENT:

Category (NUnits, Hours, Minutes)

Philosophy and Psychology (136, 19, 32)

Religion (32, 7, 58)

Social Sciences (295, 48, 44)

Information, communication and mass-media sciences (52, 9, 33)

Mathematical, physics and natural sciences (294, 48, 51)

Technology (81, 11, 21)

Art, entertainment and sport (443, 89, 21)

Literature and languages (380, 64, 32)

Geography, History and Biographies (422, 70, 12)

TOTAL, NUnits = 2135, hours = 370.06

All contents available in MEDITA are subject to the conditions mentioned in the contract. As for the other digital archives, there is no current agreement with RAI Educational to share the data, but it could be possible in the future that RAI Educational could share part or all of them.

Services

1. ARTE DL

<http://arte-sns.isti.cnr.it>

ARTE is a DL managed by the OpenDLib system; it has been created within a collaboration between CTL-SNS and ISTI to experiment how a DL can correspond to the special needs of the ARTE community as regards managing and searching documents of heterogeneous types and formats.

Presently this DL manages the documents produced within two ARTE research projects, namely the projects called ATLAS of the Memory Images and Narrated Dreams in the Literature, respectively.

The functionalities of the ARTE DL presently are much satisfactorily used to make different types of searches (by free words, by metadata content, by images - but this is an experimental function). In particular, the "Advanced Search" function allows users to express queries able to fully exploiting the document metadata information. Moreover, all search and browse functions display result pages that allow the users to mark a document for relevance feedback searching and to visualize the full document according to a personalized view. This last function is very important because the digital objects which CTL people are interested in, as already noted, may have different structures, be composed by different parts, each of which associated with different metadata formats. Also the system functions to create and manage collections together with their authorized users are exploited.

The OpenDLib system has also proved able to let users to "navigate" through the objects of the DL to reach all the objects semantically related with the original one. For example, starting from an object composed by a text and an image, the system makes it possible to reach all the objects that belong to the same archive/collection and contain that image, just following the links the original object is equipped with. This functionality is based on the information given in those metadata elements

where the relationships among the objects belonging to an archive or a collection are indicated.

2. TreSy-Text retrieval System

<http://www.ctl.sns.it/projects>

The TreSy software, developed by CRIBeCu, has been designed to manage efficiently the huge volume of information contained in one or more SGML/XML conformant texts. TReSy's numerous potentialities make it a program destined to meet the needs of its users especially thanks to its flexibility that allows for a wide range of practical applications. The encouraging experimental results and the growing interest in the scientific communities all over the world for SGML and XML have lead TReSy to be a part of a wider project aiming at the study of SGML/XML software and at the development of the search engine which should establish itself as an efficient tool for text retrieval on texts. The project has been called after the engine with the generic name of TReSy.

TReSy is made up of two main data structures: one to manage the research on the text, and another to manage the research on the documents structure. Both these data structures have been designed in collaboration with the Computer Science Department of Pisa University to offer new and interesting perspectives in the domain of information management on SGML conformant texts. For the realisation of TReSy both already known data structures and new ones have been used: their implementation allows for the combination of a remarkable efficiency and expressive interrogations of many different kinds on indexed documents.

Some of the solutions adopted even tough already known by the scientific community, set a precedent because of the original way they have been used to deal with such problems. The managing of the textual information retrieval uses an optimised variant of the suffix-array, whereas the managing of the text structure has been solved with a classic data structure never used before in the Information Retrieval domain.

The distinguishing features of this search engine are:

- TReSy is a native storage system. This capability permits to have

efficiency in text retrieval and in export operations.

- TReSy is a real full-text search engine with a powerful information retrieval functionality. The data structure of the textual search engine is based upon the full-text indexing of the documents. The same degree of efficiency is thus guaranteed for the single word search as well as for the phrase search or for the portion of words search.
- TReSy manages SGML conformant texts (ISO 8879). It offers the possibility of retrieving information on both the text and its structure. Since indexing is completely independent of the chosen SGML DTD the software suits the largest possible number of texts, from those in which structure is a fundamental feature, to those in which structure is irrelevant.
- TReSy retrieves every information in a document. Because of the data structures used in TReSy, many different types of query are possible, all of which prove equally efficient.

The main types of possible interrogation are the following:

- Pattern search independently of its context.
- Pattern search depending of its context.
- Context search on indexed documents.

Terminology - Glossary - Actors

Actor - A kind of user of the system, where user is anything external to the system that interact with it.

Archive - An information source, whether networked or not, created or maintained by an institution.

ARTE Project - A Research Project coordinated by the Scuola Normale Superiore-CTL Pisa, Italy (Key People: Lina Bolzoni) and funded by MIUR, the Italian Ministry for Higher Education and Research.

ARTE DL - A digital library created by the ARTE community. More than one ARTE DL are possible, each identified by its own name.

ARTE DL Collection - Any collection created in an ARTE DL.

ARTE DL Workspace - Any workspace an ARTE DL is equipped with.

Collection - A set of object collected accordingly to certain criteria. A collection is composed by three parts: i) its content, ii) the set of services enabled to act on the collection content, and iii) the set of users enabled to access the collection content using the collection services. It is virtual, i.e. its parts are identified and verified at run-time.

CTL - Center for the Data Processing of Texts and Images in the Literary Tradition: a research center of Scuola Normale Superiore.

Digital Library - A pool of Archives and Services glued together to form an entity where authorized users are entitled to perform certain activities (those the DL have been built for) acting on the information space (the pool of archives or a subset of them) via services.

DILIGENT Archive - An archive accessible through DILIGENT.

DL - A Digital Library.

Project - The ARTE Project

RAI - Radio Televisione Italiana, the Italian national broadcast institution.

Service - An entity a DL can be equipped with offering a particular DL functionality, e.g. search, browse.

UC - Use Case.

UML - Unified Modeling Language

Use Case - A formal plus a narrative description capturing a kind of task which has to be done with the support of the system.

Use Case Diagram - An UML diagram showing the interactions among Actors and Use Cases.

Virtual Organization - A dynamic group of individuals, institutions and resources, possibly remotely distributed, which are virtually grouped together to achieve a common goal.

VO - Virtual Organization.

Workspace - A shared virtual space accessible through an ARTE DL where authorized users can i) have access to certain functionality and ii) store digital objects.

ACTORS

ARTE Director

Decides - together with her Assistants - the content and services of an ARTE DL and the content and services of an ARTE DL collection. The ARTE Director can delegate a Director Assistant to perform operation on his/her behalf in a well identified period of time. After this period, or before as direct consequence of a request of the ARTE Director, the Director

Assistant loses his/her privileges.

Director Assistant

Cooperates with the ARTE Director (Project Director); is a project member from another (possibly geographically distant) institution..

ARTE DL Administrator

Technical user of the ARTE DILIGENT Infrastructure.

ARTE Member ("Project Member" in general)

Uses an ARTE DL and/or its collections within the Project's different activities for searching documents and/or communicate with distant cooperating institutions/scholars.

Course Teacher

An ARTE member who uses an ARTE DL or uses/creates collections to produce documentation for their courses.

Collaborator

An ARTE member who occasionally collaborates with an activity within the ARTE project but is not responsible for that activity.

Student

Uses an ARTE DL or its collections for searching documents or making course exercises.

DILIGENT Administrator

Technical user of the DILIGENT Infrastructure.

Collection owner

An ARTE member who has created a collection or is authorized to manage it.