Project no. 027087

TENCompetence

Building the European Network for Lifelong Competence Development

Project acronym: Integrated Project TENCompetence

Thematic Priority: 2.4.10

**ID5.9: KRSM first cycle prototype evaluation outcomes**

Due date of deliverable: 31-05-2007
Actual submission date: 26-07-2007

Start date of project: 01-12-2005  
Duration: 4 years

GIUNTI Interactive Labs s.r.l.

Version 1.0

<table>
<thead>
<tr>
<th>Dissemination Level</th>
<th>PU</th>
<th>PP</th>
<th>RE</th>
<th>CO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public</td>
<td>Restricted to other programme participants (including the Commission Services)</td>
<td>Restricted to a group specified by the consortium (including the Commission Services)</td>
<td>Confidential, only for members of the consortium (including the Commission Services)</td>
</tr>
</tbody>
</table>
ID5.9: KRSM first cycle prototype evaluation outcomes

Workpackage: WP5
Task: -
Code name: ID5.9, Version: 1.0
Type of deliverable: Report
Security (distribution level): Public
Contributors: Alexander Grigorov (Sofia University), Krassen Stefanov (Sofia University), A.Marco Luccini (Giunti Labs)
Authors (Partner): Sofia University
Contact Person: Krassen Stefanov (Sofia University), Alexander Grigorov (Sofia University), A.Marco Luccini (Giunti Labs), Michele Dicerto (Giunti Labs)
WP/Task responsible: Giunti Labs
EC Project Officer: Hans-Jürgen Westhof
Abstract (for dissemination): Report on the outcomes of the evaluation of KRSM first cycle prototype activities.
Keywords List: WP5, internal deliverable, knowledge management, knowledge resources, KRSM, system, interfaces, usability, GUI, federated search, digital repositories, P2P, share, client, proof-of-concept, model, method, validation, plan.

TENCompetence Project Coordination at: Open University of the Netherlands
Valkenburgerweg 177, 6419 AT Heerlen, The Netherlands
Tel: +31 45 5762624 – Fax: +31 45 5762800
Table of Contents

TABLE OF CONTENTS .............................................................................................................. 1

1 INTRODUCTION .................................................................................................................. 2

2 EVALUATION REPORT ......................................................................................................... 3

  2.1 EVALUATION EXECUTION ............................................................................................. 3
  2.2 RESULTS FROM THE EVALUATION OF THE QUANTITY AND QUALITY OF THE SOFTWARE ........................................................................................................ 5
  2.3 FUNCTIONAL TESTING RESULTS ................................................................................ 6
  2.4 ANALYSIS OF THE EVALUATION RESULTS ................................................................ 10

3 NEXT STEPS AND CONCLUSIONS .................................................................................... 12

ANNEX A .................................................................................................................................. 13

1 FORMS AND TABLES ............................................................................................................. 14

  1.1 SUMMARY RESULTS FROM THE FUNCTIONAL TESTING ............................................ 14
1 Introduction

This document presents the experimentation and the evaluation report of the knowledge resource sharing and management components. The report refers to the plan developed for guiding the gap analysis performed on the first cycle KRSM releases. After that, the evaluation of the second cycle release will be performed between month 24 and month 28. Therefore, the evaluation plan (ID5.8) will be updated and upgraded according to the emerging needs that may occur during the project period lifespan.

The outcome of these evaluations will be used for the improvement of the system and will be given as input to task 2 of WP5.
2  Evaluation report

This is a preliminary version of the evaluation report. It is based mainly on the results of the Functional testing of the KRSM system since the evaluation of the quantity and quality of the software is still going on. When the evaluation is completed the final Evaluation Report will be delivered as an update of the current document.

2.1  Evaluation Execution

The execution of the evaluation of the KRSM system included the following steps:

- Preparation for the evaluation;
- Test execution (for Functional testing);
- Expert review of source code (for the evaluation of the quantity and quality of the software);
- Collection and analysis of the results.

Preparation for the evaluation

1. The full source code of the KRMS client was made available at the KRSM CVS.

2. A compiled version of the KRSM client was also made available and can be downloaded from http://www-it.fmi.uni-sofia.bg/TenC/KRSM/

3. The functional testing of the KRSM system is based on the Test Cases given in WP5 Evaluation Plan. For each Test Case we defined several tests that had to be executed and recorded in the Actual result field of the Test Case. For the convenience of the evaluator/tester we had already filled in the Actual result field and she/he had to run the test, fill in her/his name, the date, mark the test as Pass or Fail and carefully record all errors, problems and observations in the Notes field. Annex A-IV 1.6 contains a list of the Test Cases and tests for the functional testing.

4. Detailed evaluation instructions were written for the testers / evaluators (Annex A-IV 1.7). Also a description of the main functionality of the KRSM client (Annex A-IV 1.8) was made to assist the evaluation of the system.

5. The evaluation instructions, the test cases, the description of the main functionality of the KRSM client and all documents (tables,
questionnaires) needed for the evaluation were published and can be downloaded from http://www-it.fmi.uni-sofia.bg/TenC/KRSM/

**Test execution (for Functional testing)**
The testers / evaluators had to follow the evaluation instructions and execute the following steps:

1. Setting up the Evaluation Environment;
   • Documenting the hardware and software environment;
   • Downloading the KRSM client;
   • Compiling the KRSM client (optional);
   • Installing the KRSM client;
   • Configuring the KRSM client;

2. Running the tests.

3. Recording all test results, errors, problems and observations in the provided tables and questionnaires.

**Expert review of source code (for the evaluation of the quantity and quality of the software)**
This includes the following steps:

1. Setting up the Evaluation Environment;

2. Expert review of the source code of KRSM client;

3. Recording all problems and observations in the provided tables and questionnaires (Annex A-IV 1.1 and 1.2).

**Collection and analysis of the results**
This step includes the collection of all data (filled in tables and questionnaires) from the evaluation of the KRSM system and making summary and analysis of these results.

The final Evaluation Report should include the results of the performed questionnaires, expert reviews and analyses, tests, test summary, and test analysis. The report should also include gap analysis by providing a general statement of the capability of the system as demonstrated by the test, compared with the requirements, stating the system deficiencies and recommending improvements of the system.
2.2 Results from the Evaluation of the Quantity and Quality of the Software

The evaluation of the quantity and quality of the software is still going on since the KRSM system is very large and complex. Here are some of the most important preliminary remarks from one of the evaluators - Ruud Lemmers:

1. The basis for the work is Limewire 4.13 Beta and sources from Limewire itself have been adapted. This results in the following challenges / problems:
   - How are fixes / updates to Limewire integrated? Integrating a new Limewire version looks like a lot of work.
   - How do we track the files that have been changed for TENC?
   - How do we test if the TENCompetence changes don't cause bugs in Limewire?
   - A Beta version of Limewire was used, how stable is that version?
   In general, I'm strongly against changing sources from existing components.

2. The code from Limewire has GPL as its license. This has as a result, that a combination with commercial software (for instance as a plugin to TENCompetence) is not possible. GPL has a 'viral' effect which would cause the commercial software to be infected with the GPL license, thus making the commercial software suddenly open source. Using commercial software in combination with TENCompetence should be possible. I don't see how we can combine Limewire's license with the TENCompetence work (for which we use the BSD license).

3. Integration with TENCompetence client
   Integrating the Limewire client with the TENCompetence client looks hard or impossible. Is it intended to be integrated with the TENCompetence client and/or server in the future? If yes, how is this envisaged?

4. Developer knowledge
   Changing the internal Limewire code requires the developers to have a lot of detailed knowledge about Limewire. As Limewire has about 2300 Java files, this is a very difficult task. Another reason not to touch an external component's sources.
5. Design documentation
Note: I haven't studied the WP5 whitepaper(s) yet, perhaps the requested information is in there.
The CVS repository contains a number of projects besides the client. What is their relation to the KRSM client (How are they linked? Is the client already using them? Are they optional modules? etc.)? I would like to see information like this, to provide an overview to non-WP5 developers and architects.

6. Warnings / Exceptions
When running the client, the console shows a lot of warnings and error messages. Is this caused by standard configuration (which does not apply to my machine)? Ideally, a clean installation shows no warning and error messages at all.

7. Packages com.altran.sdb... and de.l3s...
Some packages have the name of project partners in them. If those packages have been created specifically for TENCompetence, they should start with org.tencompetence.... Partner names should not be used for TENCompetence sources.

2.3 Functional Testing Results
The functional testing of the KRSM client was executed by the following evaluators/testers:
- Krassen Stefanov, Sofia University
- Michele Dicerto, Giunti Labs
- Gideon Zenz, L3S
- Naiara Sacristán, Altran SDB
- Alexander Grigorov, Sofia University
- Alexander Dimov, Sofia University

The tests were run on different computers with the following hardware and software characteristics:
- Hardware
  - Processor: Athlon XP 2600+, Intel (Celeron, Pentium 4, Dual Core) from 2.8 GHz to 4 GHz
  - Memory: 512 MB-2 GB
  - HDD space: 40-200 GB
  - Internet connectivity: high speed
- **Software**
  - OS: Windows XP SP2
  - Java Runtime Environment: 1.5.0_09; 1.6.0_01-b06
  - Java Development Kit: 1.5.0_09
  - Eclipse: 3.2.1, 3.2.2
  - Ant: 1.6.0; 1.6.5; none
  - Adobe Acrobat: Acrobat 7.0; 8.0; 8.1; Acrobat Reader 7.0

Some of the computers were behind a firewall which caused some of the tests for searching, sharing and browsing resources to fail.

Some of the evaluators found some difficulties with the execution of the tests because the description of the Test cases was at a logical level (it is based on the Use Cases of the KRSM) and did not correspond directly to the current interface of the client (the interface will be surely changed).

The summary results from the execution of the tests is given Annex A-IV 1.9.

Below we will discuss some of the results:

**Create a knowledge resource**
The current version of the KRSM client supports only MS Word, MS Excel and Adobe Acrobat as resource editors. The tests show that the creation of a MS Word and MS Excel documents is successful while starting Adobe Acrobat fails in some cases due to configuration issues.

*Recommendations:* the user should be able to add and configure additional resource editors.

**Delete a knowledge resource**
Deleting a locally stored knowledge resource is fully implemented in the current version of KRSM.

**Edit a knowledge resource**
The tests showed that editing is currently implemented for MS Word, MS Excel and PDF documents. The evaluators found it confusing that in order to edit a document they have to press the Launch button.

*Recommendations:* the interface of the KRSM client has to be improved for the next version.
Share a knowledge resource
Sharing a knowledge resource is realized in KRSM in two ways:
• by copying the resource to a KRSM shared folder;
• or by changing the properties of the resource by selecting the file with the right mouse button and choosing Share file from the popup menu.

The tests showed that some of the testers found it difficult to use the second way and failed to complete the tests.

Recommendations: the interface of the KRSM client for sharing a resource by changing it’s properties has to be improved for the next version.

Store a knowledge resource
Storing a resource locally can be done by copying/saving it manually to KRSM Library.

“Store in a repository” is equivalent to Publishing - at the moment only one repository (Ariadne) is supported.

The tests showed that storing a resource locally works fine while publishing to a repository generates an internal error. This error was caused by some missing components. After reporting the error to the development team it has been fixed.

Add a new repository
This feature is not supported by the KRSM client. It is done on the server side, via updating the respective UDDI registry

Nevertheless, repositories can be included or excluded from Repositories and KRSM search by clicking the “instrument” icon next to “Repositories” or “KRSM” labels in the “Search” tab.

Browse resources
The tests showed that locally stored resources and P2P host can be browsed.

The list of locally stored resources is shown in the “Library” tab of the KRSM client.

Browsing a P2P host can be done by select an item from the search results (“Search” tab) and pressing the “Browse Host” button.
**Search resources**

Searching resources is performed through the Search Tab of the KRSM client. “All Types” can be used as a search type in order to maximize the search results. The search can be tuned (valid only for Peer-to-peer search) by selecting the type of the searched object (Audio, Video, Images, Documents, Programs), and stating some additional data for each type (like Title, Artist, Album, Year, etc – depending on the object’s type).

There are three different ways to search for:

- **P2P Search** – searching in the Gnutella network of peers (using Gnutella protocol) – this search is implemented by the Limewire client searching functionality
- **Repositories** – federated search in the repositories inside the “Lionshare” network, which is implemented inside the Limewire client.
- **KRSM** – federated SQI-based search, which is developed and implemented in the KRSM client.

All these three different ways of search can be combined together, as well as both Repositories and KRSM search can be further fine-grained by including or excluding specific repositories from the search (for such fine-graining the “instrument” icon next to “Repositories” or “KRSM” tabs has to be pushed, and desired repositories from the list appeared on the screen can be selected or de-selected).

Several searches can be started simultaneously. The results from each search appeared in a new tabbed window.

The tests showed that searching resources in all three modes (P2P Search, Repositories and KSM) returns appropriate results. If a computer is behind a firewall the P2P search may not return any results.

**Access (retrieve) a resource**

Results from P2P search can be downloaded, while results from federated searches can be launched in a Web browser.

The tests showed that retrieving/downloading resources works fine in the current version of KRSM. In some cases on some computers the download of a resource does not fully complete (may be due to a different version of Limewire installed on the computer).
Rate a quality of a resource
Rate a quality of a document resource - each result from the search can be Rated (how useful and needed was this resource according to the user).

Currently KRSM rates only resources which have been found in some repository. This feature has been implemented and tested successfully in the previous versions of KRSM. However, during the tests the rating of a resource caused an internal error. This error was caused by some missing components. After reporting the error to the development team it has been fixed.

2.4 Analysis of the Evaluation Results
The results from the Functional testing the KRSM client show that all basic functionalities as described in the KRSM Use cases and scenarios are in general fully or partially implemented. These critical functionalities include:
- Create a knowledge resource
- Delete a knowledge resource
- Edit a knowledge resource
- Share a knowledge resource
- Store a knowledge resource
- Browse resources
- Search resources
- Access (retrieve) a resource
- etc.

During the tests some errors (concerning for example publishing and rating resources) have been encountered and reported. The development team analyzed these errors (these are due to some missing components) and had already fixed them.

Very useful comments, observations and suggestions for improvements are also given by the evaluators / testers of the system. All these will be considered and used for the improvement of the functionality and interface in the next versions of the KRSM system.

In principle we share most of Ruud Lemmers' comments, and that is why we proposed during our last WP5 meeting in Giunti to move out from Limewire, and to stick to the current TENCompetence communication architecture. Most of Ruud's remarks backs such a decision.
We used Limewire mainly to demonstrate some communication-based functionalities (peer-to-peer, search, etc.), because we have no TENC client & server at hand. These issues (how to use the current communication model of TENCompetence for the implementation of the KRSM functionalities) will be discussed further during the next TENC meeting in Barcelona.
3 Next steps and conclusions

The experiments and tests with the KRSM client showed that not many useful resources can be found using search in repositories and P2P networks. These results, the discussions at the last WP5 meeting in Giunti and the comments from Ruud Lemmers lead to some changes and improvements of the architecture of the KRSM system:

- we need to step out of the use of Limewire (or any other P2P client), and to re-design KRSM client in order to use the current TENC client;
- as a consequence, we need to store all shared personal resources on the server;
- there will be no direct peer-to-peer communications;
- searching should be improved to include more Web 2.0 components and Web resources;
- use of taxonomies to classify knowledge resources;
- fixing a Metadata standard for knowledge resource descriptions and using this standard in our re-designed search.

We have also to complete the evaluation of the quantity and complexity of the system, and the evaluation of the quality of the software.

New functional testing should be performed after fixing the errors and implementing the suggested improvements of the KRSM system.

New and complete Evaluation report has to be written, including and analyzing the results from the previous steps.

New and updated Evaluation Plan should be written, in order to conform to the changed Use cases, to the new KRSM system functionality, and for the evaluation of the second cycle KRSM prototype.
Annex A

1 FORMS AND TABLES ........................................................................................................14

1.1 SUMMARY RESULTS FROM THE FUNCTIONAL TESTING. ........................................14
# Forms and tables

## 1.1 Summary Results from the Functional Testing.

<table>
<thead>
<tr>
<th>Test Case/Test</th>
<th>Giunti</th>
<th>L3S</th>
<th>Altran</th>
<th>SU-KS</th>
<th>SU-AG</th>
<th>SU-AD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a knowledge resource</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create a MS Word document</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Create a MS Excel document</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Create a PDF document</td>
<td>N/A</td>
<td>Fail</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
</tr>
<tr>
<td>Delete of a knowledge resource</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delete a MS Word document</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Delete a MS Excel document</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Delete a PDF document</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Delete an image resource</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Delete an audio resource</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Delete a video resource</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Edit a knowledge resource</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edit a MS Word document</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Edit a MS Excel document</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Edit a PDF document</td>
<td>N/A</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Share a knowledge resource</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share a document by copying it to a KRSM shared folder</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Share an image resource by copying it to a KRSM shared folder</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Share an audio resource by copying it to a KRSM shared folder</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Share a video resource by copying it to a KRSM</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Test Case/Test</td>
<td>Giunti</td>
<td>L3S</td>
<td>Altran</td>
<td>SU-KS</td>
<td>SU-AG</td>
<td>SU-AD</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
<td>--------</td>
<td>------</td>
<td>--------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>shared folder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share a document by changing its properties</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>Share an image resource by changing its properties</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>Share an audio resource by changing its properties</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>Share a video resource by changing its properties</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td><strong>Store a knowledge resource</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Store a document by copying it to a KRSM save folder</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Partially</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Store an image resource by copying it to a KRSM save folder</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Partially</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Store an audio resource by copying it to a KRSM save folder</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Partially</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Store a video resource by copying it to a KRSM save folder</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Partially</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td><strong>Add a new repository</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Add a new repository</td>
<td>Fail</td>
<td>Fail</td>
<td>Fail</td>
<td>Partially</td>
<td>Fail</td>
<td>Pass</td>
</tr>
<tr>
<td><strong>Browse resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Browse locally shared resources</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Browse a P2P host</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td><strong>Search resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search a document in KRSM</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Search a document in P2P</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Search a document in repositories</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Search an image resource in KRSM</td>
<td>Pass</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Search an image resource in P2P</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Search an image resource in repositories</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
</tbody>
</table>
### Test Case/Test

<table>
<thead>
<tr>
<th>Test Case/Test</th>
<th>Giunti</th>
<th>L3S</th>
<th>Altran</th>
<th>SU-KS</th>
<th>SU-AG</th>
<th>SU-AD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search an audio resource document in KRSM</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Search an audio resource in P2P</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Search an audio resource in repositories</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Search a video resource in KRSM</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Search a video resource in P2P</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Search a video resource in repositories</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td><strong>Access (retrieve) a resource</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retrieve (download) a document resource</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>Retrieve (download) an image resource</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>Retrieve (download) an audio resource</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td>Retrieve (download) a video resource</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Fail</td>
</tr>
<tr>
<td><strong>Rate a quality of a resource</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate a quality of a document resource</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>Rate a quality of an image resource</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>Rate a quality of an audio resource</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Fail</td>
</tr>
<tr>
<td>Rate a quality of a video resource</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Pass</td>
<td>Fail</td>
<td>Fail</td>
</tr>
</tbody>
</table>