Multi-interoperable CRIS repository

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Current Research Information Systems, 2014
Outline

1. Introduction
   - The Studied Problem
   - Approaches For Problem Solving

2. Results/Contribution
   - CRIS UNS
   - The Exporter Module
   - The Exporter Module Plugins

3. Conclusion
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3. Conclusion
CRIS systems and other systems

- CRIS is meant for processing all relevant entities of research domain
  - Number of CRISs
  - Number of published scientific-research results stored in CRISs
- Other systems for storing metadata about published scientific-research results
  - Library information systems
  - Institutional repositories
  - Digital libraries
  - Information systems of publishing activity
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Visibility of scientific-research results

- Related works about the importance of scientific-research results visibility
  - Knowledge-based society
  - Dissemination of scientific-research results
    - development of science
    - rating of authors
    - rating of institutions
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Manual input of data

- Metadata entered in various systems by researchers or by librarians
  - Hard job
  - Error-prone job
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Export of data

- Metadata entered in one system, exported from that system and imported to other systems
- Avoiding duplicated inputs on the two platforms
- Increasing metadata quality, reliability and reusability
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Our approach

- Migration of data about scientific-research results from CRISs to various systems will increase visibility of those results
- A module for data export from CRISs should support various protocols and metadata standardized formats
- The module should have open architecture
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The module Exporter

- Implemented using Java platform and set of open-source libraries
- Part of the CRIS of the University of Novi Sad (CRIS UNS)
- Facilitates export of scientific-research results metadata from CRISs
- Architecture is extensible with plugins for supporting various protocols and metadata formats
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the studed problem approaches for problem solving
Developed for the needs of the University of Novi Sad (2009)

www.cris.uns.ac.rs

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Scientific-research results in CRIS UNS

- Over 3000 researchers
- 14 faculties that belong to the University of Novi Sad
- Over 20000 published results, 3500 of which are PhD dissertations
- Over 7000 scientific conferences
- etc.
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- Implemented using Java platform and open source libraries written in Java
- It contains four components:
  - Request validator
  - Request processor
  - Response creator
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Architecture

- IR component
- DB component
- Formats Converter Component
- Request validator
- Request processor
- Response creator
- Server side protocol manager
- Export component
Request validator

- Checking syntax of request
- Validation of provided parameters
- The syntax of request
  - XML Scheme
  - ontology
  - CQL profile
  - etc.
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Request processor

- Creation and execution queries expressed in some notation (SQL, SPARQL, Lucene query, etc.)
- Invocation appropriate services of other layers of a CRIS system
- This component communicates with an Information retrieval (IR) component or a Database (DB) component of a CRIS system and retrieves a set of CERIF entities which should be exported
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Response creator

- Implements transformations or invokes appropriate services of a Formats Converter Component
  - Dublin Core
  - ETD-MS
  - MARC 21
  - CERIF xml
  - etc.
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Server side protocol manager

- Coordinates whole export data process
  - Invokes an appropriate class method belonging to Request validator component
  - If validation of request is successfully passed, invokes an appropriate class method from Request processor component which retrieves a set of CERIF entities which should be exported
  - Transforms the set of CERIF entities to a requested format
  - Creates response and send it back to a client system
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CRIS UNS
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The Exporter architecture is extensible with plugins for supporting various protocols and metadata formats:

- OAI-PMH protocol
- SRU protocol
- an XML non-standardized protocol for the needs of central repository of Autonomous province of Vojvodina
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A client-server protocol for exchanging the data in numerous formats

- CRIS UNS supports CERIF, Dublin Core, MARC 21 and ETD-MS
- The OAICat library is used for implementation
- CRIS UNS is a member of DART-Europe, OpenAIRE+ and OATD networks.
OAI-PMH

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SRU

- An XML-based search protocol for Internet search queries, utilizing Contextual Query Language (CQL) - a standard syntax for representing queries
- The new CQL profile named CRIS was defined
- The implementation is in progress and is planned to be put into operation in the summer of this year
- The component is integrated in the Exporter architecture
- SRU validator for validating a CQL query, SRU mediator for processing a CQL query and SRU response creator for formatting response to a format requested by a SRU client
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The protocol is based on XML and enables retrieving of data about researchers and published results.

This protocol includes data about evaluation of scientific results according to the rules proposed by the Serbian Government.

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Summary

- **Visibility** of published scientific-research results is very important
- Dissemination of those data improves visibility and it can be achieved by export of data
- The Exporter module is created within CRIS UNS system for purpose of exporting data
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Visibility of published scientific-research results is very important.
Dissemination of those data improves visibility and it can be achieved by export of data.
The Exporter module is created within CRIS UNS system for purpose of exporting data.
Plans for Future Study/Research

- Definition of plugins for export data by protocols through XML files or using some formal language for describing protocols
- Customization of this module for different protocols and formats should be as simple as possible
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Questions

- Thank you for your attention!!!
- If you have any questions, please do not hesitate to
  - ask me now
  - ask me during the conference
  - contact me via email dragan.ivanovic@uns.ac.rs