

Advanced Rapid Library

independence

openness

modularity

completeness and integrity

reliability

plug & play

scalability

hotline

simplicity

flexibility

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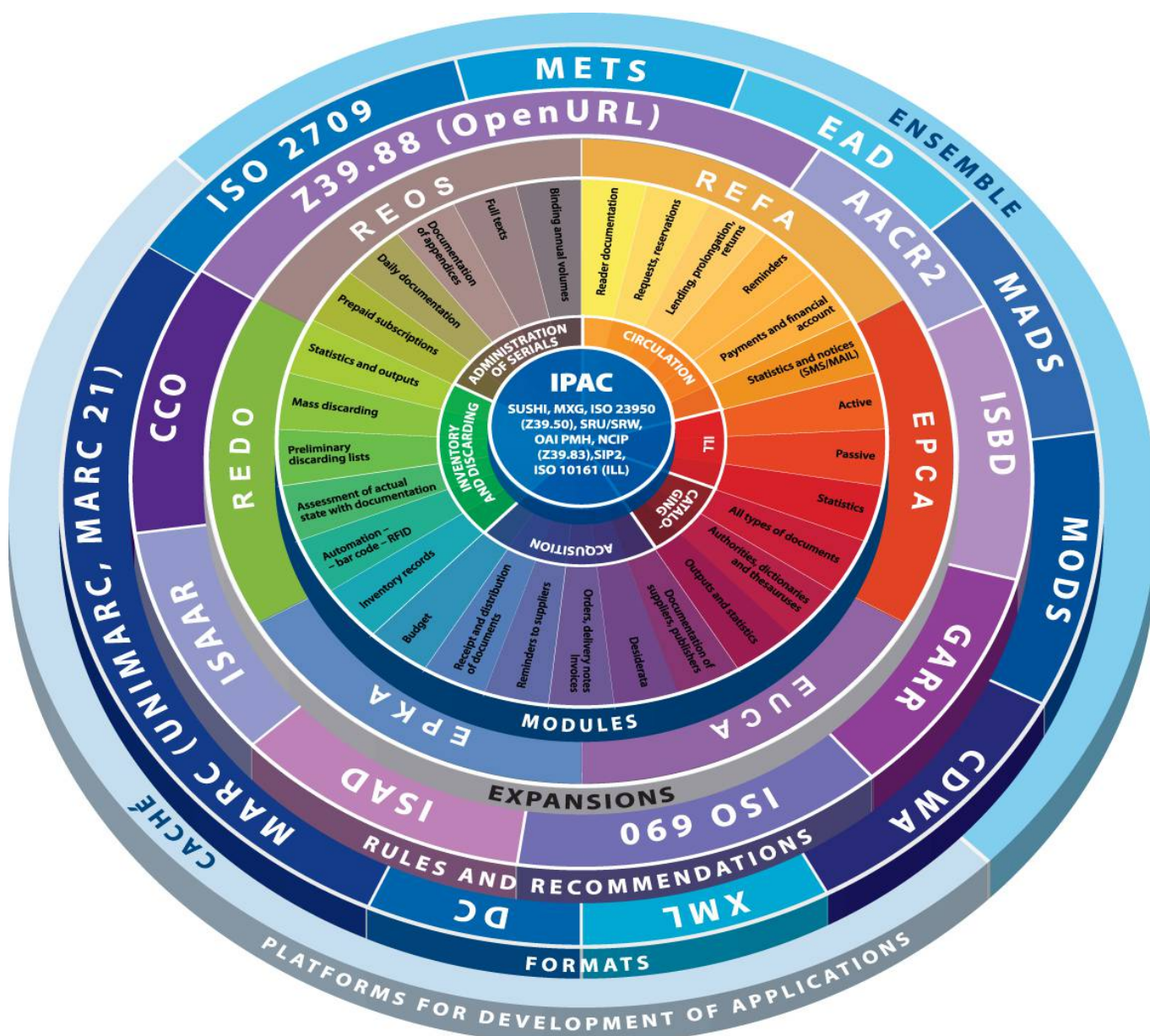
Advanced Rapid Library (ARL) is an information system designed for processing, administration and access to collections, catalogues and various types of information in memory and cultural heritage institutions and regional information centres.

ARL is a highly flexible, modular, open, scalable, robust, and fully reliable multilingual system. It comes from a multi-layer architecture of the client-server type and respects service-oriented architecture. ARL is the result of a successful fusion of the most modern information and communications technologies.

ARL was developed by the company Cosmotron that has over 20 years of experience in development and maintaining of library-management system. Cosmotron has implemented system of quality assurance according to ISO 9001:2009 for analysis, development, implementation and operating of the systems for keeping, administration and access of the collections and catalogues. Our staff is stable and well specialized on area of information systems development and memory institutions – this is our quality of services guarantee. We collaborated with librarians and other experts from memory institutions.

Use ARL as an adaptable information system – it fits to all types of libraries.

Use ARL as a perspective information – it is updated by annual updates which contains new features developed in cooperation with our customers and experts from libraries.



What attributes are typical for ARL?

- openness
- multi-layer architecture of the client-server type
- full graphics interface
- access by means of any www browser
- independence on the operation system – Windows, Linux
- work with MARC formats
- support of cataloguing rules and recommendations
- full support of authorities and authorities with added value
- support of building access to compilation
- display of formats supporting ISBD, AACR2, ISO 690
- Z39.50 server, Z39.50 client in accordance with BATH profile
- web services
- full UNICODE support
- multi-language capacity

Integration and interoperability

ARL is an open system, and it supports architecture oriented to services in full measure. This way, it enables two-way integration with other information systems. Depending on customer's demands, the integration can be executed on the application level but also with the use of integration platform and assembling web services in the form of orchestration.

ARL also supports, in full measure, integration with the RFID technology in all working processes and technical activities.

ARL has also met the most stringent requirements for interoperability of information systems in memory institutions.

It supports a whole range of technical standards and recommendations.

Formats

MARC (UNIMARC, MARC 21), DC, XML, CDWA, MODS, MADS, EAD, METS, ISO 2709

Rules and recommendations

AACR2, ISBD, GARR, ISO 690, ISAD, ISAAR, CCO, OpenURL (Z39.88)

Protocols

ISO 23950 (Z39.50), SRU/SRW, OAI PMH, NCIP (Z39.83), SIP2, ISO 10161 (ILL)

Ontological framework

CIDOC/CRM (ISO 21127), FRBR, FRAD

Use your linked data heterogeneously.

ARL data model and web services

ARL data model is precisely designed for data re-use. One document record goes through all work processes from acquisition through cataloguing and displaying in various interfaces to circulation. With every step, it is enriched with new information and it gets specified status. Librarians and patrons can follow these information and easily find out the availability of a document.

Most of the records are linked. ARL uses a unique set of methods for using data from linked records and keeping linked data up-to-date. Any change in records is projected to linked records automatically to avoid manual global changes and to get the librarian's attention.

A group of web services allows the use of data from ARL in different interfaces including a library web page, personal web page etc. Web services are a standardized way of how to have information on a web page constantly current. Using web services the library can prepare a list of new documents integrated to library web page, a list of suggested books integrated to university course web page, a list of published articles integrated to personal web page of researcher etc.

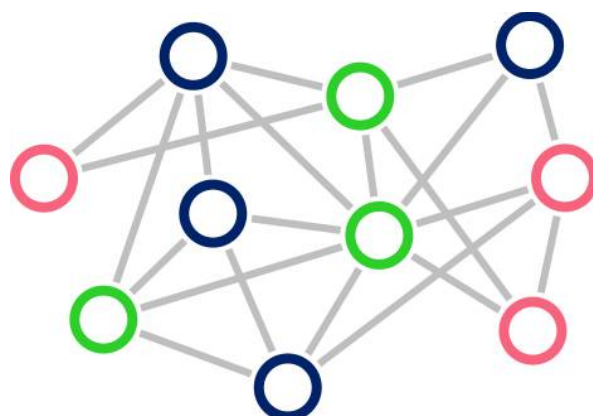
ARL web services can be implemented to any content management system.

Sharing of users' identities

Sharing of users' identities is typical for online catalogue and it is prepared with user convenience in mind. Users can get to their accounts with one name and password used in more information systems and interfaces.

ARL has implemented 4 ways how to share users' identities:

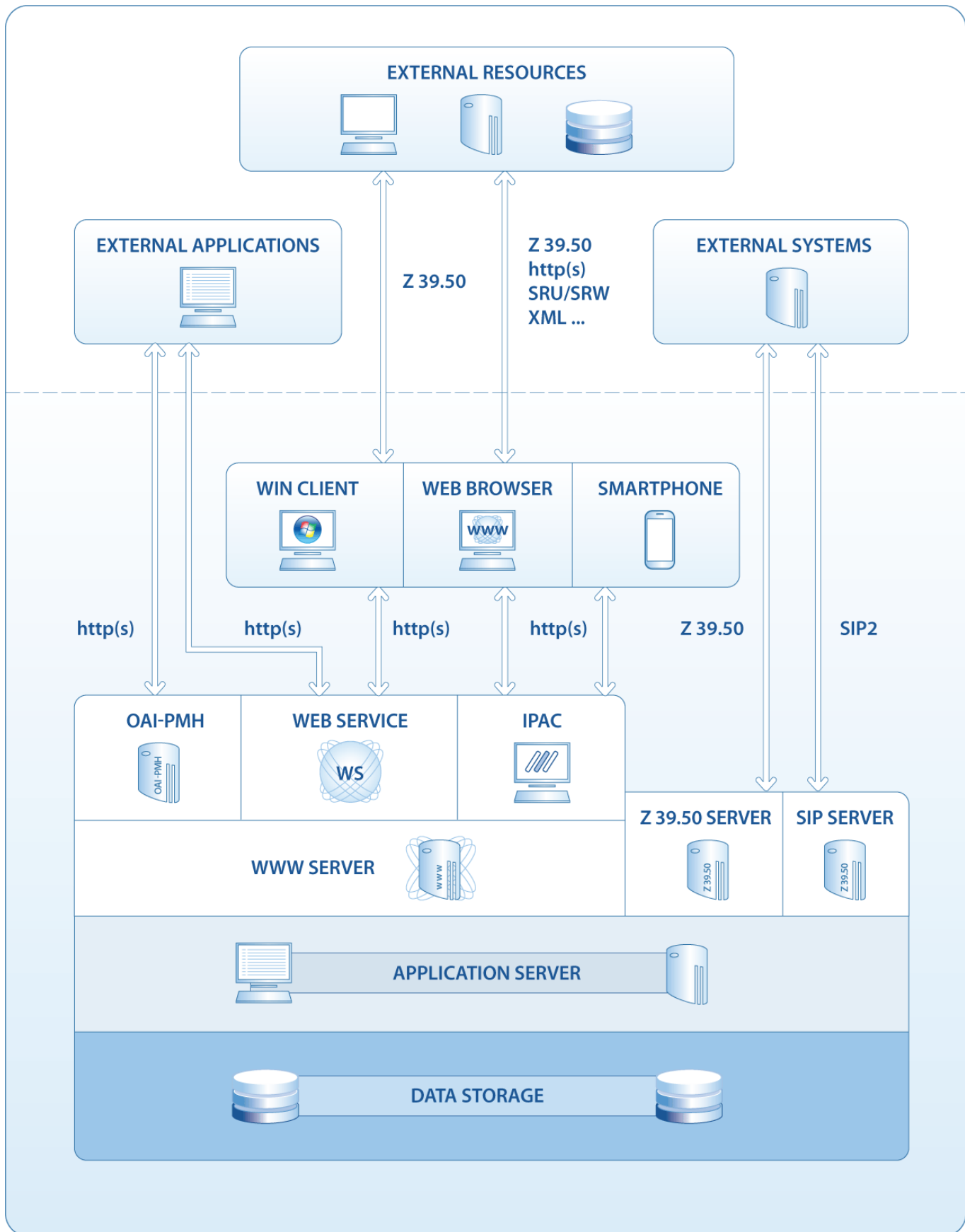
- LDAP – based on password verification. In this solution the central server with user database (e.g. university information system) is used for verification. User can use name and password from central database for login to library account;
- Windows Domain Controller (Kerberos etc.) – based on single sign-on;
- trustworthiness declaration between two servers. This is usually a proprietary solution based on secured communication between servers and login is possible after verification of secure key connected to the user;
- OpenID (e.g. Google+) – based on server with verified user's account, user (or system) have to join OpenID account with library account, after login, when moving to another page, the user is still logged in.



At a glance

- efficient data re-use
- easy implementation of web services
- use for searching with many criteria
- get results sorted by title, date, author etc.
- display results in standardized format (e.g. citation), proprietary format or MARC/XML

System architecture



Cataloguing and authorities administration

Complex processing of documents and authorities with the possibility of accepting records from external sources (copy cataloguing).

Processing of documents is based on a 2-level model: bibliographic records and holding records. This model provides advantages in cataloguing such as simple registration of new library items and less data duplication. Cataloguing is naturally prepared for small libraries as well as for university or research libraries with a network of branches.

Cataloguing and authorities administration is possible in two ways:

- full windows based client,
- web interface for cataloguing.



Basic cataloguing schema

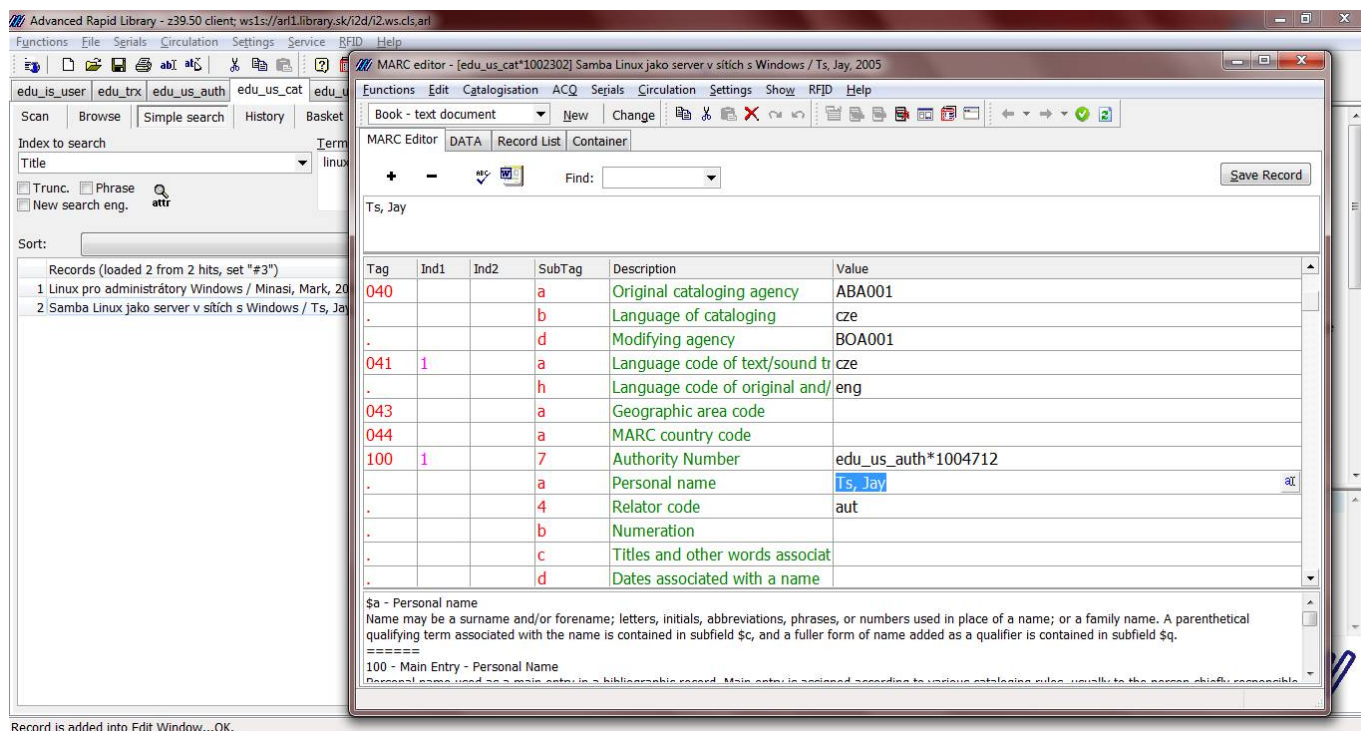
Full windows based client – cataloguing and authorities administration

At a glance

- simple search, index scan and expert search
- MARC21 editor – all standard fields available
- easy administration of MARC21 editor interface (possibility to add user-based fields, change quality of records control settings etc.)
- forms for all document types
- authority records
- quality of records control
- integrated help

Windows based client provides complete functionality for data management and library services. The client is based on Z 39.50 protocol used for local or external databases connection. Librarians have access to records and services according to their rights defined in their user account.

ARL cataloguing and authorities administration module is designed as a universal tool for MARC records searching and modification. Integrated help and quality of records control allow librarians to fill in all important information about bibliographic unit. The creation of intuitive links between records encourage FRBR, FRAD and FRSAD implementation and also the move from linear records to linked data.



MARC21 editor in full windows based client

Manage your collections effectively with ARL. Use all ARL tools for quick and easy cataloguing and registration of copies.

ARL client fully integrated with RFID – in cataloguing and circulation.

Web interface – cataloguing

Simple and intuitive web-based interface for cataloguing. It is suitable for small libraries, branches and non-professional librarians. The basic version of web client contains forms for books and serials based on standardized record structure (required by national bibliographic agency).

Librarians can easily add new holdings to existing bibliographic record. More data can be generated automatically (especially accession number, call number etc.).

Features of web interfaces (as drop-down menus, search boxes etc.) are useful for filling in data quickly.

At a glance

- basic functionality
- available by web browsers from everywhere
- safe – name/password, secure communication
- searching for bibliographic records
- creating and modification of bibliographic record
- creating and modification of holdings

The screenshot displays the 'Web cataloguing (arl, db: EduUsCat)' web interface. The main form includes fields for Title, Author, ISBN, ISSN, URL, Record ID, and UDC. A 'Title' dialog box is open, showing fields for Title, Remainder of title, Number of part/section of a work, Name of part/section of a work, and Statement of responsibility etc. The dialog box also has a 'Nonfiling characters' dropdown set to 'None nonfiling character'.

Web-based interface for cataloguing

Copy cataloguing and automatic cataloguing

Download records from various external resources (Library of Congress, British National Library etc.), add your information to records and finish cataloguing in a short time. Avoid mistakes in typing and save your time. ARL client (windows based and web based) offers all possibilities of copy cataloguing – search for records in external resources, online conversion from UNIMARC to MARC21 and reversely, automatically added or changed data according to library requirements etc.

A unique additional service integrated to ARL cataloguing and authorities module is automatic cataloguing that allows to search documents in external resources using ISBN or ISSN. If a record is found, it is automatically saved to the local catalogue. It is possible to change some data in the record and add as many items (copies) as necessary. All processes are integrated to one interface – dialogue window – that leads a librarian over all steps.

Quality of records control

A system of records quality control was developed exclusively in the ARL. It is based on a set of rules defined in the configuration, therefore it is possible to change them easily and customize them according to national and individual needs. Rules for quality of records control include:

- control of record syntax and formal aspects of records – it means whether fields and subfields are obligatory, whether the length of a field is correct, etc.,
- control of record semantic – control of obligatory fields in connection with document type or value of another fields,
- control of punctuation – especially prepared for MARC21 when international and national rules require punctuation, including punctuation filling in.

Circulation (lending)

Monitoring collective and individual users, evidence of various types of lending and transactions, setting differentiating conditions for individual categories of users, creation of requests and reservations, generation of reservation notifications, generation and sending out of over-due notices.

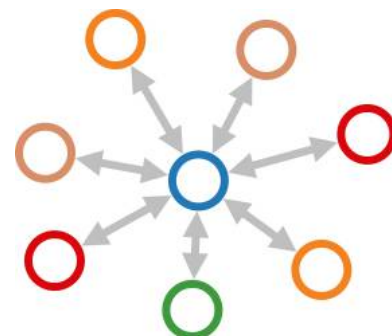
ARL circulation module is managed by the settings of users' account (as category of user), the settings of holdings (as location, dislocation, type of document etc.) and general settings of circulation (as check-out limit, check-out duration, fees for services etc.).

Users can get e-mails or SMS with information about prepared holds, oncoming end of check-out, oncoming end of users' card validity, over-due notices etc. A special feature of the ARL circulation module is user's financial account that allows users to get all paid services in a non-cash mode.

Any information from the circulation module is immediately displayed in the catalogue (including online catalogue). Availability of documents is evaluated in the moment of when the document is being displayed. The quality of software design and database solution enable to evaluate several criteria and data from circulation module and display the result in the online catalogue without any delay. Users get current information about document and it's availability whenever.

ARL circulation module is operated in two interfaces (much like cataloguing):

- full windows based client,
- web interface for circulation.



Full windows based client – circulation and services

At a glance

- modify and create user's record
- interface for circulation with complete functionality
- basic reports about user and circulation
- automated over-due process
- financial account of users

ARL circulation module in full windows based client is a unique set of features and services created for librarians in all types of libraries. Circulation module is fully integrated with RFID.

Web interface for circulation and services

At a glance

- basic functionality
- available by web browsers from everywhere
- safe – name/password, secure communication
- intuitive use
- search, modify and create user's record
- check-in, check-out, holds etc.

Simple interface for non-professional libraries. Available from everywhere.

Web-based interface for circulation

Interlibrary lending service (ILL)

Interlibrary lending service is prepared as special part of circulation that covers all requirements for this service. It is possible to oversee requests, to document the state of availability, to generate delivery notices of requested documents.

IPAC (online catalogue)

At a glance

- main access point for end users (readers)
- simple-search box
- access to user's library account
- services for users
- basic tools of social networks
- integration of external resources
- optimization for search engines

Simple search box is enriched with autocomplete that provides end-user comfort.

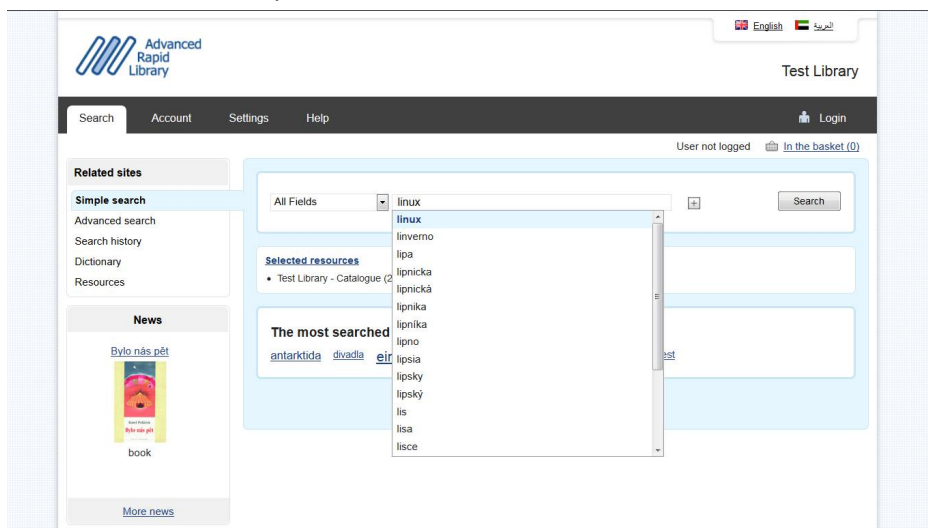
Advanced search offers the joining of criteria based on Boolean algebra and the selection of additional criteria like language of document, type of document etc.

Results can be sorted by the criteria defined by the library (the most frequent sorting criteria is title or date).

User can view short information about the document in the result list, go to the record's detail or use facets for search redefinition.

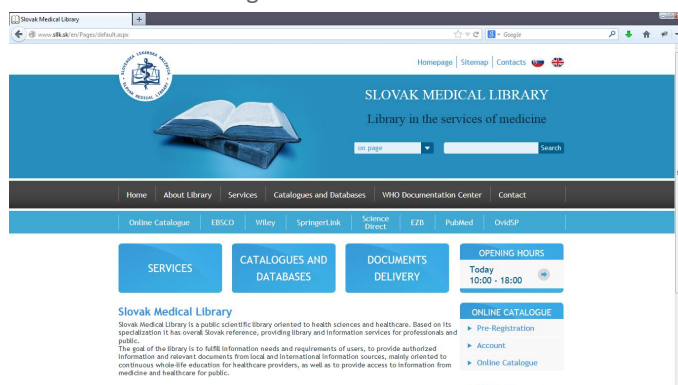
Searches on the basis of various criteria, display of results of inclusive relations and links, integration of external information resources into one IPAC interface; access to the user account; personalization and electronic services.

IPAC in basic functionality can stand for a discovery system, it has integrated features for federated search within local and external resources from different suppliers. For external resources integration, IPAC can use Z39.50 protocol, EZ Proxy or proprietary solution if necessary.



Simple search in IPAC with autocomplete

The structure of IPAC is prepared for easy customization – separated data, functionality and design offer opportunity for the creation of a new appearance for IPAC to completely match the library web page. IPAC home page can integrate information from library – as information about opening hours, new books, interesting collections and services. Configuration of IPAC allows to add any new page to IPAC structure (e.g. to main menu, submenu of user's account) for publishing important information or to navigate users to other services and resources in the library.



Example of customization – on the left is a library web page, on the right is the IPAC homepage

EZ Proxy

EZ Proxy is a service supported by OCLC and it is one of way of how to integrate external licensed information resources to one information portal (online catalogue). EZ Proxy helps to provide users with remote access to Web-based licensed content offered by libraries. It is middleware that authenticates library users against local authentication systems and provides remote access to licensed content based on the user's authorization.

We recommend to set up and maintain EZ Proxy as a part of IPAC installation. It is possible to add new resource to EZ Proxy at any time.

At a glance

- it connects to a wide variety of authentication services
- robust middleware solution for remote user authentication
- it connects to a large number of content providers

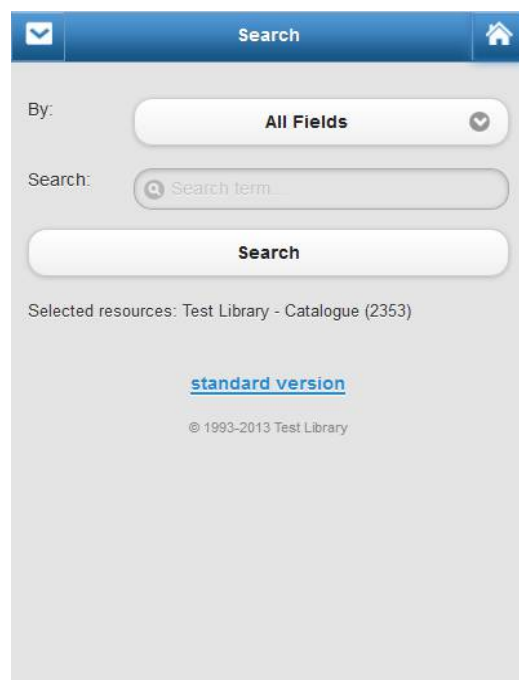
IPAC for mobile phones

IPAC for mobile phones is not only a minimized version of the online catalogue, but it is the application with all the elements for the mobile devices, and the maximum function of the standard IPAC is kept as well.

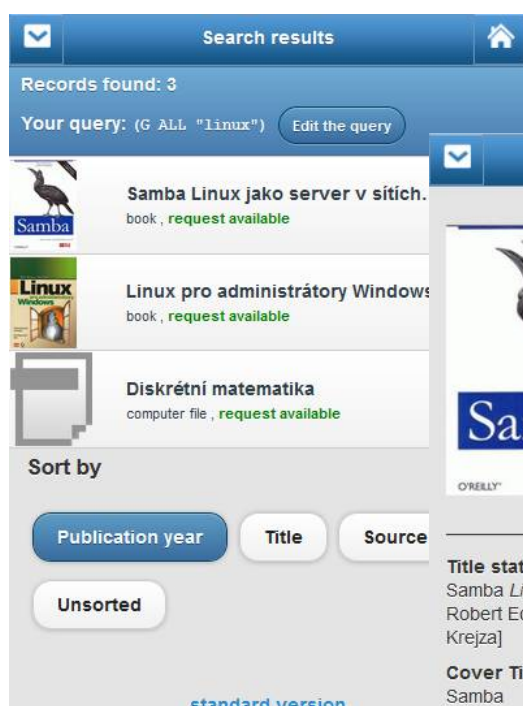
Beside other things the application allows:

- searching in the library catalogue,
- searching in the library external sources,
- summary of the book news in the collection,
- document loan or reservation,
- access to the reader's account with the summary of the loans, reservations,
- loans renewal and reservations,
- view library contacts – e-mail, skype, map...,
- display help page.

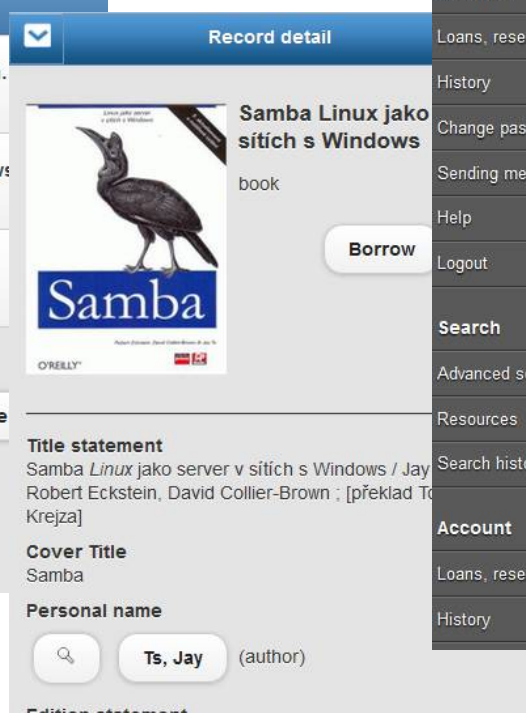
Its use is very intuitive, easy, quick and well arranged and also available as an application in Google Play and similar services.



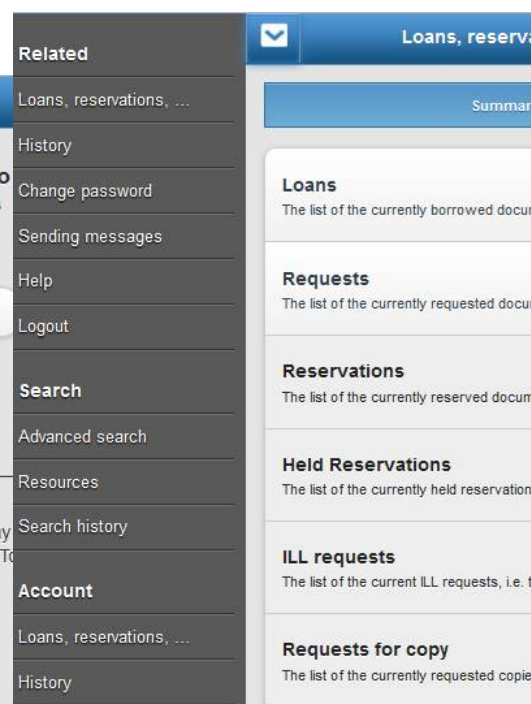
Simple search in mobile IPAC



Search result in mobile IPAC



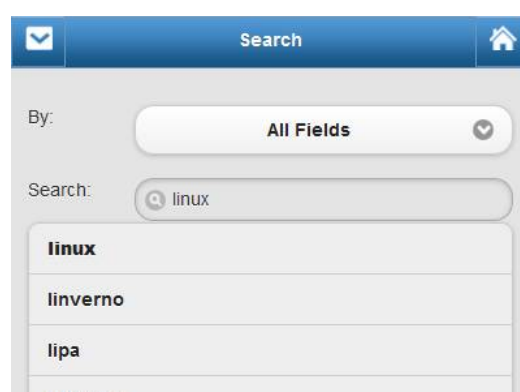
Record detail in mobile IPAC



Related pages in user's account



Information about loans in mobile IPAC



Autocomplete in simple search

Image server

Image server enables to connect pictures and other objects to a bibliographic record automatically; there is no need to interconnect pictures/objects manually to a particular record. It is possible to find a record identifier in the file path of an object.

More local and distant repositories (directories) can be connected. These are periodically scanned and thus the internal database of objects, which are linked to the individual records, is updated.

The already existing pictures' repositories located in any address structure on a disc or the web (if it is possible to identify the record they belong to from their address path) can be connected without any repository reorganization.

The result is the automatic generation of previews.

The preview is linked to

- a full sized version of the picture
- a new browser panel with the full sized version of the picture
- a lightbox gallery with all the record pictures
- a detailed displaying format or to a particular displaying format
- HTML page of the user's own choice
- a generated HTML page enabling to display a large picture by a tiled technology Zoomify or IIPImage

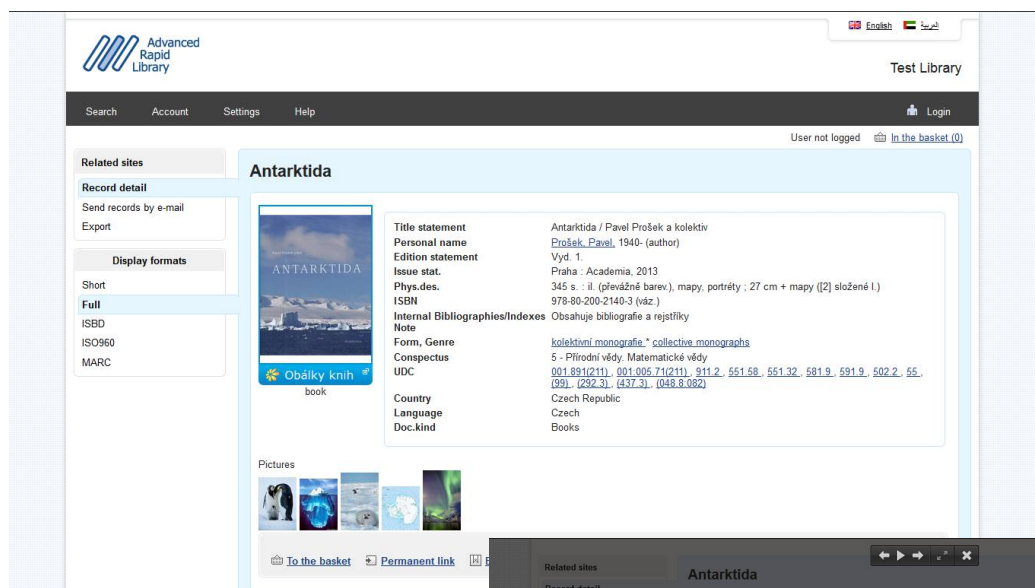
Prerequisites

- URL of the internal Image Server repository accessible on the web
- functional automatic preview generation

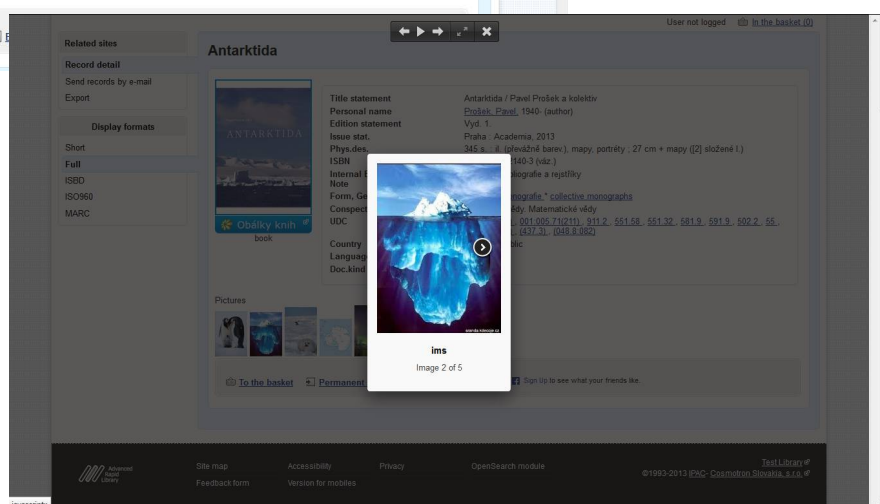
Requirements

- a sufficient disc capacity for cache objects' previews
- in case of the local repository, a sufficient disc capacity for the full sized version of pictures/objects
- a local repository – rights for reading are sufficient, not necessarily published on the web
- a distant repository – URL of the regularly updated repository listing
- if a customer owns their own repository, it is necessary to define a clear record identifier in the file path of each object

Create attractive online catalogue.



Record detail with pictures displayed from image server at the bottom



Light box with picture from image server

Digital library – Content Server

A part of the ARL is a digital library – i.e. set of tools designated for the digital objects' administration and presentation, including the control and the verification of the access to these digital objects. The digital library can be delivered separately, or it is fully integrated in other modules within the ARL system.

Content Server is an independent module of the ARL system for saving, administration and presentation of digital objects of any types, including operational and user metadata (insert date, optional publishing date, file type, file size,...).

The direct connection with the digital library is ensured in the modules for data processing (e.g. Cataloguing and authorities' administration, EPCA, REOS, REFA and others). The digital library is also interconnected with the IPAC module which is designated for data presentation.

Uploader

Saving is ensured by a configurable page „uploader“ through which an authorized user can upload a file / object to a server into the Content Server repository. It will cause its saving in a persistent repository (disc/disc field directly accessible for the server).

Administration

A service page is available. It is used for metadata editing of each file, a file deletion or a file status change. As an option there is a summarizing page with the files of the logged in author / processor who is divided according to the files status. On the basis of their role, a user can easily change files' status and move them in their life cycle or change their metadata.

Files are managed automatically in a server files system by generated names. The link with the original file name and the record is in the metadata. They can be exported in an XML format.

At a glance

- add every digital object to every record
- digital objects are available according to end-user's rights
- simple for use
- available from online catalogue for registered users with relevant rights

Presentation

Making a file / object available is ensured by sub module CSG (Content Server Gateway). Those kinds of objects which are known to a browser will be opened in an expected way (e.g. PDF in a PDF viewer), the rest is offered to download.

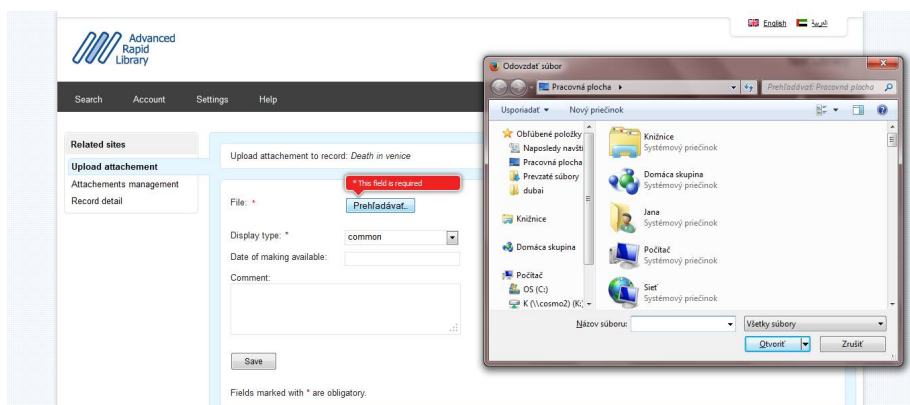
Files' presentation is possible through a displaying record format in a web interface of IPAC. An exact number of downloads of each file is also available.

Files are connected to catalogues' records via their metadata, the records themselves are not affected. Any other user metadata can be added to a file through the uploader. Based on the metadata, it is possible to evaluate rights to files, or to display metadata after the edit of the displaying template.

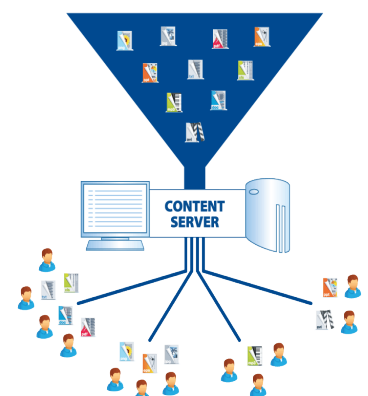
Content Server has the use of a broadly configurable authorization subsystem which enables individual user roles to allow/deny particular operations with objects based upon the object status. When accessed to CSG, rights to URL for a file are evaluated every time. Rights are configured for these operations:

1. file upload / metadata inserting,
2. file download / display,
3. metadata file editing,
4. file deletion including metadata,
5. file status change (e.g. unauthorized / authorized).

Professional management of digital objects.



File upload to Content Server – available from IPAC for authorised users



ARL – system administration and reports

ARL is created as an open system with a wide range of settings and customization. Tools for administration are available as web-based interface for librarians, or IT specialists with given rights. Reports about every module are available as integrated part of windows based client.

Settings

Some settings of windows based client are connected to staff station. Individual librarian can change:

- basic circulation settings – printing of receipts,
- appearance of MARC21 editor etc.

An administrator can change common settings for windows-based client and web-based client:

- list of indexes for search,
- display formats,
- forms in MARC21 editor, lists of languages, countries etc.

Also it is possible to use administration tools for circulation settings:

- checkout period, number of allowed loan renewal etc. – for every combination of: type of user, location and dislocation of item, item type,
- settings of over-due notices – period, fee, way for sending, text of over-due notice,
- text in receipts about checkout, checkin, payment.

ARL has complex settings of user's rights. It is possible to set access policies for librarians from general to detailed ones. Settings of access policies include:

- rights for every database – on the level of read, write, delete records,
- rights for groups of reports and operations (as combining of records, circulation process, sending overdue notices, global changes etc.).

Administration tools

Administration tools are prepared as web interfaces. The first – called the Code list editor – is prepared for IPAC settings (change of texts in IPAC), client settings (e.g. the structure of forms for documents, the content of help for cataloguing). The second administration web interface is called Data manager and it is intended for selection of records on a deep level, using complex combination of criteria and also it is intended for global changes in data. Administrator can use a “wizard” for global changes and easily add new fields with default value, swap values in selected records etc.

Chronology and changes watching

ARL has created a detailed system for observation of changes. Every change in records is saved in chronology included time and user's login. In that case it is possible to see how the record was changed. This system is independent of the database system backup (known as journaling file system).

Integrity of databases

Automated processes are implemented in the ARL to provide integrity of databases. These processes include regular searching for errors in records based on invalid links between records; regular reconstruction of authority data used in bibliographic records and regular updates of indexes. All these processes are scheduled at the time of low server operation therefore they don't have impact on server operation capacity.

Reports

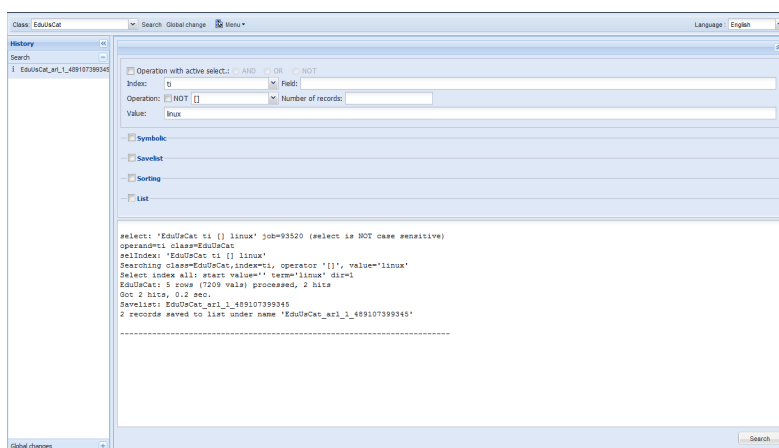
Reports are available as a part of every module. Librarians can get basic information and statistics about:

- collections – new documents added to collection (in date range) summarized by language, acquisition method (as purchase, as gift etc.), document type etc.,
- circulation – statistics of new users, number of checkouts (in date range) etc.,
- online catalogue (IPAC) – number of accesses inside library, outside library, the most searched terms, statistics of resources usage etc.

Main statistics about changes in databases are also available. An administrator can set the level of particularity in this statistics. It is possible to generate an overview of new records and their count sorted by user name, the number of changes sorted by user's login for every day with monthly or annual summary.

Librarians can also use reports in the form of data export. It is possible to print/save lists of records in display formats, or in exchange formats (line MARC, ISO 2709, MARC/XML). One record, a group of individually selected records or a group of records selected by any criteria can be exported. Also, a specialized report in the CSV format is available.

As many possibilities for administration as you need.



Web interface Data manager – searching for records