

KOHA ECOSYSTEM



KOHA ECOSYSTEM INTEGRATED LIBRARY MANAGEMENT SYSTEM

CHARACTERISTICS AND TECHNICAL
REQUIREMENTS

ABOUT THIS DOCUMENT

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EXECUTIVE SUMMARY

This document outlines the primary features, capabilities, and value propositions of Koha, an integrated library management software solution. Furthermore, it details the essential technical prerequisites for its proper installation.

Additionally, the document provides an overview of supplementary modules that enhance Koha's offering, enabling it to effectively address the evolving needs of libraries and their patrons.

**PROMOTE YOUR
COLLECTIONS,
KNOW YOUR
USERS, BRING
THE LIBRARY
CLOSER TO ITS
READERS**

KOHA

Koha is a comprehensive library management solution designed to streamline administrative tasks within libraries while fostering communication and engagement with patrons. The software supports an extensive array of library functions, including cataloging, authority management, periodicals administration, circulation, acquisitions, reporting, and statistical analysis.

Koha's Online Public Access Catalog (OPAC) not only showcases a library's content but also offers a variety of services to patrons, enabling them to engage with the library remotely. These services include document reservations, loan renewals, and acquisition suggestions, among others.

As a fully web-based solution, Koha is compatible with leading international standards in the library sector, such as UNIMARC, MARC21, Z39.50, MARCXML, ISO2709, SRU/SRW, and SIP2, which ensures interoperability with self-checkout systems.

Implemented in thousands of libraries worldwide—ranging from small personal collections to extensive university libraries with millions of items – Koha benefits from a vast community of developers. This active community guarantees ongoing enhancements to the software in terms of new features, security updates, and bug fixes.

No licensing costs

As an open-source software, Koha incurs no licensing fees for users.

Additionally, Koha operates on an open-source operating system and database, further contributing to cost reductions in both infrastructure and support software.

Vendor independent

Implementation and maintenance services for the software can be delivered by any qualified company.

This means that client institutions are not reliant on a sole service provider for software support, ensuring business continuity in the event of disruptions to the support service.

Configurable according to institutional needs

Koha is a highly configurable solution, enabling libraries to define custom loan rules, user profiles, document types, label configurations, and user cards, among other features.

Additionally, its graphical interfaces can be customized to align with the institution's visual identity.

Support for library networks

A single Koha instance can accommodate a network comprising dozens or even hundreds of libraries, each operating independently in line with their internal regulations.

This capability not only reduces costs but also enhances information management and organization as it enables cross-searching across all libraries.

A library closer to its users

Patrons, in addition to being able to search for existing documents in the library, can, from their personal area on the OPAC, make reservations or renew loans.

In addition, they can export, print, and save bibliographic records, consult their search history and loan history, check outstanding fines, manage their personal information, manage reading preferences, create lists of documents, among other actions.

The software provides a set of features that aim to bring the library to its readers, extending it beyond its physical space.

ARCHITECTURE AND FUNCTIONAL MODULES

Koha is composed of two application modules:

1. **Backoffice** – allows library professionals and administrators to manage and operate the entire system;
2. **Frontoffice** – allows patrons to search the catalogue and perform certain operations such as item reservations or loan renewals.

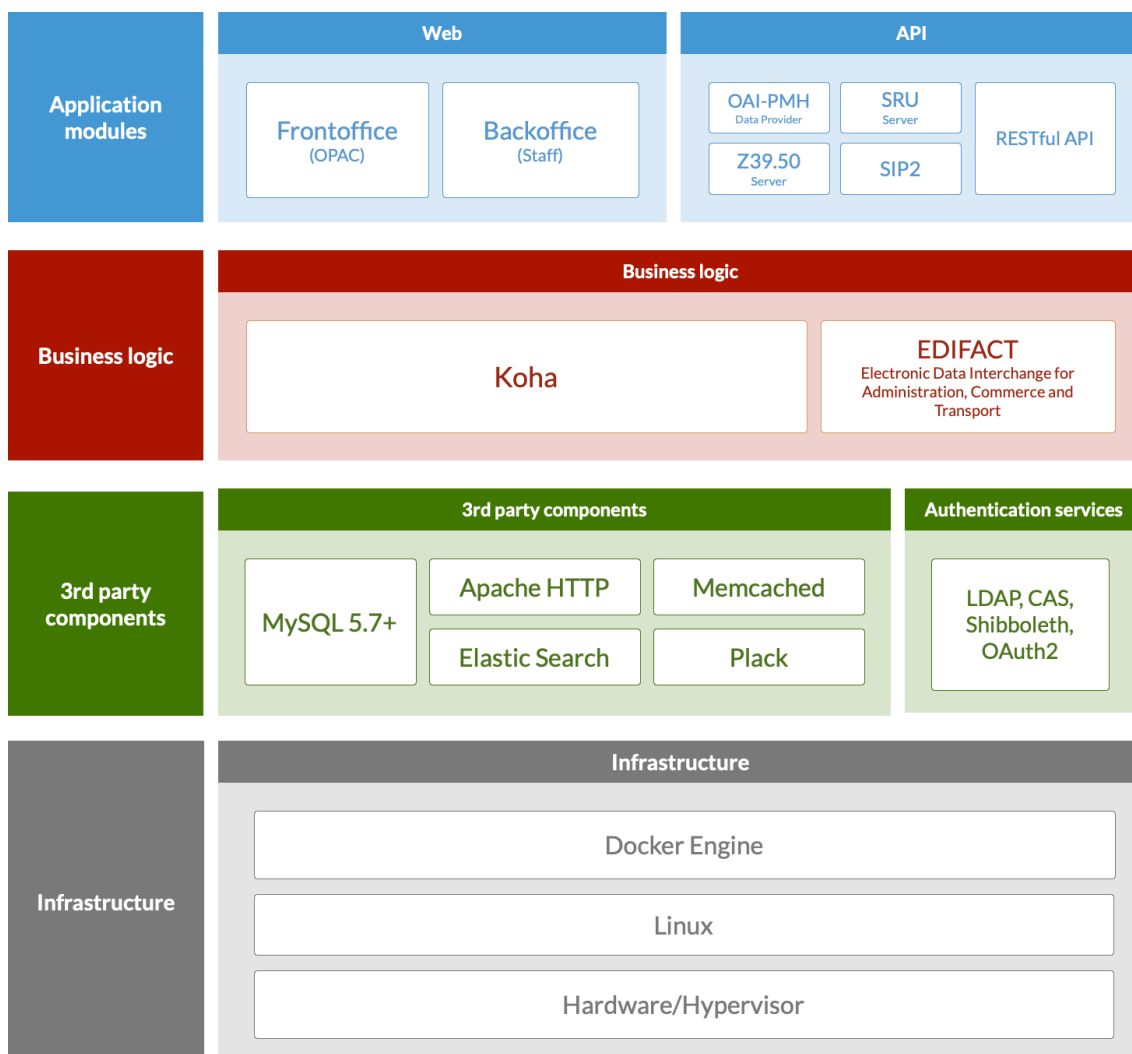


Figure 1 – Koha overall architecture.

FRONTOFFICE

The Frontoffice module, also known as OPAC (Online Public Access Catalogue), is responsible for establishing the bridge between the library and its readers. This module provides, through the Internet, document search services, as well as document reservation and renewal functionalities to the reader.

It is possible to adapt the design of this module to meet the client's branding identity (i.e., logos, colours, etc.). In addition, it fits perfectly on mobile devices with smaller screens, e.g., smartphones, tablets, etc.

This module guarantees the inclusion of all citizens in accessing library content, as it is compliant with the Web Content Accessibility Guidelines (WCAG 2.0), which cover a wide range of recommendations to make web content more accessible to a larger number of people with disabilities.

Compatible with any platform

Koha is 100% web-based. To use the system, users only need a web browser. The software is centrally hosted on a server, eliminating the need to install applications on individual workstations.

This universal accessibility allows users to connect to the system from any location and on any device, including desktop computers and tablets.

BACKOFFICE

The Backoffice module offers an extensive suite of operations tailored specifically for library technicians. These operations encompass a variety of tasks, from cataloging and indexing materials to reviewing the overall performance of the library and its team members. Consequently, the Backoffice module is organized into distinct functional sub-modules, with the most notable ones including:

Cataloguing

The cataloguing module allows library technicians to create bibliographic records and their respective copies. Bibliographic records can be created from scratch or imported from another library (e.g., National Library of Portugal, Library of Congress) using the Z39.50 communication protocol.

The software allows for the configuration of specific cataloguing forms for each document type. These forms simplify the cataloguing process by presenting only the essential fields to the user and enabling automatic filling of certain information.

Editing, duplicating, and merging bibliographic records are also operations available to the library staff.

Management of authorities

The authorities' management module aims to control the values that can be entered in certain fields of the bibliographic record. Typically, authorities are used to control the values entered in the subject, author, and publisher fields, but it is not limited to these.

Similarly, to the creation of bibliographic records, an authority record can be created through its respective data entry form or imported from other libraries via Z39.50.

This module also provides operations for editing, deleting, and merging records.

Interoperability

Koha offers communication API based on the OAI-PMH and Z39.50 protocols, allowing for the export and import of records from other information systems (e.g. Europeana, PORBASE - National Bibliographic Database of the National Library of Portugal).

The system also supports the import and export of bibliographic records and user data in multiple formats (including ISO 2709, CSV and XML). This feature ensures effortless interoperability with other library management systems and enables the reuse of existing information from external sources.

Journals management

Serials are a type of document whose publication occurs at given time intervals. Their acquisition by the library is usually done through a subscription.

The journals management module allows managing subscriptions as well as handling the receipt of new issues.

Subscriptions are associated with a particular bibliographic record, and they include information about the supplier, the frequency of the issues, the duration of the subscription, among other options.

Circulation

The circulation module is responsible for borrowing and returning library items, as well as the calculation of fines, reservations, and renewals.

These operations are carried out in a simple user interface by using a barcode scanner or a keyboard.

The module functions in compliance with customizable borrowing rules, such as the number of authorized loans, loan duration, fines, and more. These rules can be tailored to suit specific libraries, document types, and user categories.

Acquisitions

The acquisitions management module enables users to efficiently track and manage orders placed with suppliers, as well as oversee budget allocation, streamlining the entire process of obtaining new titles and journal issues for the library.

Additionally, this module facilitates the handling of acquisition suggestions submitted by readers through their personal accounts, incorporating a straightforward approval workflow to ensure seamless processing.

Acquisitions can originate from various sources, such as existing bibliographic records, journal subscriptions, or new purchase intentions, offering flexibility in expanding the library's collection.

Reporting and statistics

Reports serve as a means of acquiring information on the present or historical state of a system. They facilitate the retrieval of various data stored in the database, such as information about users, bibliographic records, items, and more. All reports can be exported in Microsoft Excel or CSV format for further analysis.

On the other hand, statistics provide users with aggregated data on the system's performance, including metrics like the total number of monthly loans and the sum of accrued fines. These insights allow for better decision-making and system optimization.

The Koha provided by KEEP SOLUTIONS comes pre-installed with over 50 custom reports tailored to meet the unique requirements of library institutions.

User management

The user management module facilitates the administration of user accounts, including the registration of new patrons, as well as viewing and updating information for existing users.

Upon successful registration, users can print patrons reader card, customize permissions for each individual, and access users' personal information.

Koha supports integration with external authentication systems such as LDAP (Lightweight Directory Access Protocol), CAS (Centralized Authentication System), OAuth2, and Shibboleth, ensuring secure and seamless user access.

Tools

Koha provides a set of tools specifically designed to meet the needs of librarians.

These include the ability to publish news on the OPAC homepage, configure labels, barcodes, and reader cards.

It is also possible to manage the library's operational calendar (holidays, vacations, etc.), moderate comments and tags entered by readers via the OPAC, import and export bibliographic records, among many other operations.

ADMINISTRATION

Koha is a highly configurable software. In the administration module, users with appropriate privileges have hundreds of options available and the ability to define dozens of system configuration parameters.

As an example, the following configurations are available:

- Definition of libraries to be managed by the software;
- Configuration of document types;
- Definition of user groups and their respective permissions;
- Definition of circulation rules;
- Management of controlled vocabularies;
- Configuration of cataloguing forms;
- Etc.

Owing to its high configurability, this product can adapt to the distinct regulations of each institution without requiring further development.

KOHA PLUGINS

Over time, KEEP SOLUTIONS has developed a range of plugins for Koha to address the diverse requirements of its clients. These exclusive plugins, offered solely by KEEP SOLUTIONS, augment the user experience and equip Koha with added functionality which can range from straightforward modifications, such as redefining barcode generation, to more complex features, including content management, media viewers, and customizing the application's graphical interfaces.

Media Viewer

A plugin that empowers readers and librarians to view digital media seamlessly, eliminating the need for external applications.

This plugin also streamlines the process of uploading media assets and effortlessly associate them with bibliographic records, bridging the divide between traditional and digital libraries.

OPAC Cookies

A plugin that presents a notification to OPAC users, informing them about the cookies used by the system.

This essential plugin ensures compliance with European legislation on privacy and cookies.

The text pertaining to the system's cookies is fully customizable by the administrator of the system.

OPAC Branch Filter

A plugin that allows items to be displayed in the OPAC organised by library.

This allows for a differentiated view for each library configured on the system.

OPAC Images Search

A plugin that provides a distinct and image-focused search interface.

It allows for easy searching of certain types of records that have an associated cover image.

OPAC Google Analytics

A plugin that facilitates integration with Google Analytics, enabling users to access detailed system usage statistics. This valuable insight allows for a comprehensive understanding of user engagement and system performance.

OPAC Last Documents

A plugin that showcases a curated selection of item covers from the library catalogue on the system's front page.

Users can create dedicated sections to highlight the latest additions, featured books, works by the author of the month, or books centered around a specific theme, enhancing the user experience and promoting engagement.

OPAC News

Plugin that provides an interface for viewing all the news that have been added to the system.

It functions as an agenda, allowing the user to consult all current news as well as the history of past news.

OPAC Other Views

Plugin that adds two new views to bibliographic records, NP405 and APA, in addition to the existing Normal, ISBD, and MARC views.

OPAC Reading Preferences

Plugin that facilitates readers in defining their reading preferences, also known as selective dissemination of information.

With this plugin, Koha is able to send an email with all new items that have been added to the catalogue and match the reader's interests.

OPAC Read Speaker

Plugin that allows the activation of ReadSpeaker, an essential tool for improving the system's accessibility to visually impaired individuals.

The plugin allows the system to explain through voice what the reader is consulting.

OPAC Social Networks

Plugin that expands Koha's social network functionality, enabling the integration with more social networks and simplifying their configuration.

OPAC Texts

A plugin that enables the addition of new static information pages in multiple languages to the system. This feature allows Koha to function as a Content Management System (CMS), empowering users to manage and communicate vital information through various pages, such as contact details, regulations, informative pages, and more.

Authorities navigator

Plugin that enables users to navigate sequentially through various authority records.

Biblio Navigator

Plugin that allows users to navigate sequentially in bibliographic records by internal record number.

Biblio Lock

A plugin that allows locking record for editing to unauthorized users.

In the settings, it is possible to define which users are authorized to lock and unlock bibliographic records.

Biblio Label Print

A plugin that allows printing labels with call numbers, barcodes, and other information from records or copies directly from the details page of a bibliographic record.

Borrowers Card Number Assigner

A plugin that enables the assignment of card numbers independently of Koha's automatic numbering system.

This feature allows for the modification of a reader's card number in cases such as a change in category or library (with varying numbering patterns), or assigning a card number to readers who have been added to Koha through pre-registration.

Circulation Hide Check-in

A plugin that allows hiding the return options from the loan table on a reader's page.

It is useful for libraries that want to have greater control over returns and associated reservations.

Circulation Modal Confirmation

A plugin that shows a confirmation message to users before a loan and/or return operation.

The confirmation step is useful to avoid errors in the execution of these processes.

Circulation Print Slip

A plugin that expands Koha's receipt printing capacities, which by default only offers the loan receipt and the general loan status receipt.

This plugin adds two new options to the system: the renewal receipt and the return receipt.

Generate password

A plugin that enables backoffice users to generate new passwords for patrons and print them.

This feature is particularly helpful in instances where a patron forgets their password and requires assistance at the counter to regain access, or during the initial registration of readers in the system.

User Manual

A plugin that provides a complete manual of Koha in Portuguese.

The manual can be printed or consulted directly from the backoffice interface.

Reserve Available Item

A plugin that improves Koha's reservation mechanism so that readers and technicians can only reserve specific copies that are available for reservation.

It blocks the "Next available copy" option in Koha.

Shelves Print Formats

A plugin that expands the option to export a list of bibliographic records, adding different export formats.

ADDITIONAL MODULES

This section describes a set of modules developed and distributed exclusively by KEEP SOLUTIONS that aim to complement the business processes implemented by Koha and create a true ecosystem of integrated solutions that cover the entire set of needs of a modern library.

INTERLIBRARY LOAN

The Interlibrary Loan module allows readers to request resources that are not available in the library, but that can be requested from peer institutions.

The module supports all the necessary activities for efficient processing of the request, including the automatic emailing of budget requests to one or more libraries, sending the budget to the reader for approval, management of payments, requesting the loan if the budget is accepted, and recording deliveries and returns, etc. Each request goes through a predefined flow that can be tracked by both the library and the reader.

At all stages of the flow of interaction between the user and the library, email notifications are sent to the respective participants.

The module also includes a set of statistics that display the number of documents that were borrowed or requested in certain periods of time.

TRAINING MANAGEMENT

The Training Management module empowers libraries to oversee and promote training activities effectively. Readers can browse available training courses, enroll in sessions, and access their participation history.

This module also facilitates the creation of courses, administration of available trainers, and management of training rooms. Upon establishing a training event, users can view the list of registered participants and send notifications to all attendees.

Throughout all user-library interactions, such as registrations or cancellations, the system automatically sends email notifications to the involved parties. Automatic reminders are generated as well, ensuring participants receive advance notice of upcoming training dates.

The Training Management module includes an array of annual statistics and reports, encompassing information on various aspects, such as training sessions, user types, trainers, and more.

COMPUTER RESERVATION IN THE READING ROOM

This complementary Koha module enables the management of computer reservations and optimal utilization of usage time within the library's reading room.

The system can be accessed from any computer on the network, and it is possible to manage users, change the remaining time in a particular session, send individual messages to users, close sessions, see which computers are available and which are being used, etc.

In terms of authentication, the module allows users the same users database as Koha. Thus, users do not need have additional authentication credentials.

INTEGRATION WITH RFID EQUIPMENT

The use of RFID tags in libraries is becoming a growing trend, as they allow for greater control and security over library items. In pursuit of elevating the efficiency of library circulation, a cutting-edge module has been developed to seamlessly integrate RFID equipment with Koha.

Presently, this module boasts compatibility with state-of-the-art RFID equipment from esteemed manufacturers such as Bibliotheca, TagSys and Nedap. This advanced integration module revolutionises circulation operations by enabling batch processing, rather than the conventional one-document-at-a-time approach. For instance, when executing a loan transaction, users can simply position multiple documents near the RFID antenna, and with a single click, the entire loan process is concluded in one swift action.

Embracing the power of RFID technology, this innovative module optimizes library circulation processes, enhancing efficiency and elevating the overall user experience.

FULL TEXT EXTRACTION AND INDEXING

The innovative full-text extraction and indexing module introduces an array of automated mechanisms that empower users to locate items based not only on metadata but also on the content of text documents associated with bibliographic records.

This groundbreaking feature enables users to conduct searches for specific terms, such as "economy," and receive results encompassing bibliographic records containing the term within

their metadata fields, as well as records linked to documents featuring the term "economy" in their content.

As libraries increasingly embrace the digital age and expand their digital document collections, this indispensable tool plays a crucial role in bolstering search and retrieval operations. By facilitating more precise and comprehensive searches, the full-text extraction and indexing module greatly enhances the user experience and elevates the overall functionality of modern library systems.

SCIM SERVER

The SCIM Server module allows for the synchronization of user accounts between the Microsoft Azure Active Directory and Koha.

By using this component, it is no longer necessary to develop integration services on the Identity Management System side, and integration becomes as simple as adding a URL to the Azure Active Directory system configuration.

Synchronization is done in real-time, which means that immediately after creating a new account in Azure Active Directory, that user can authenticate in Koha. The same applies to updates to the personal information of a given user.

WEB CONTENT ACCESSIBILITY

The Web Content Accessibility Guidelines (WCAG) 2.0 are a set of recommendations issued by W3C that aim to make Web content more accessible. Compliance with these guidelines makes content published on the Web more accessible to people with disabilities, such as blindness and low vision, hearing loss and poor hearing, learning disabilities, cognitive limitations, movement limitations, speech impairment, photosensitivity, and others.

Following these guidelines also allows Web content to become more usable by users in general and by mobile devices such as smartphones, tablets, or wristwatches.

Given the importance of this issue, legislation was created to promote the adoption of these guidelines throughout public bodies of the European Union - *Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies.*

KEEP SOLUTIONS supports this initiative and ensures that all of its products are in full compliance with the AA+ level of the Web Content Accessibility Guidelines (WCAG) 2.0.

Information **security**

Koha incorporates a set of features that make it a highly secure system. Among these, the following stand out:

- 1) Data exchanged between client applications and the server are encrypted using the HTTPS/TLS protocol;
- 2) Access to information and system operations is conditioned by permissions;
- 3) Authentication can be accomplished by means of centralized authentication systems using various protocols.

TECHNICAL REQUIREMENTS

Koha can be installed on any Linux server with conventional hardware characteristics.

For speed and security, it is recommended that the database be hosted on a server independent of the Web server.

Since the entire application works in a Web environment, user workstations (internal or external) only need a browser to access the application (e.g., Internet Explorer, Chrome, Mozilla Firefox or other).

The following table illustrates the technical characteristics of a server capable of supporting a Koha instance with 100.000 bibliographic records¹.

DATABASE SERVER + APPLICATION

RAM	8 GB 16 GB recommended for environments with more than 20 back-office users.
CPU	1 GHZ Intel Quad-Core or higher
Disc	50 GB Depends on the number of bibliographic records, associated images and their growth rate
Operating system	Ubuntu 16.04 LTS or compatible No licensing costs
Software	MySQL 5.7 or higher No licensing costs
Network	100 Mbit/s or higher 1 Gbit/s is recommended in the context of incorporating large volumes of digital representations

WORKSTATION

RAM	4 GB
CPU	Intel Dual-Core or higher
Display	1280x768 pixels or higher
Operating system	Windows/Linux/MacOS
Software	Web browser
Network	100 Mbit/s or higher 1 Gbit/s is recommended in the context of incorporating large volumes of digital representations

¹ These requirements do not consider additional plugins or modules. For more information on the requirements of additional modules, please contact KEEP SOLUTIONS.



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KEEP SOLUTIONS

KEEP SOLUTIONS is a company whose mission is to provide advanced solutions for information management and digital preservation.

Our approach consists in providing software and services to allow our customers to make a more efficient management of their information assets.

The company started its activity in 2008, having acquired the status of academic spin-off of the University of Minho, for being a business initiative with strong bonds with research centres and departments from this institution.

Our clients are mostly found in the public sector, more specifically in the areas related to archives, libraries and museums.

We invest in the continuous development of innovative solutions. To support that, we remain active in the production of scientific knowledge while engaging in large-scale R&D projects in cooperation with national and international institutions.