

Implementing the open-source Koha ILS - The Panjab University, Ankur School Experience

^[1] Amardeep Singh, ^[2] Neeraj Kumar Singh, ^[3] Laveena Sehgal
^[1] Internal Quality Assurance Cell, Panjab University, Chandigarh.
^[2] AC Joshi Library, Panjab University, Chandigarh.
^[3] USET, Rayat Bahra University, Mohali.

Abstract: - The traditional methods of managing libraries are no longer dynamic and efficient. For quick retrieval and dissemination of information and better service for the patrons, application of modern techniques has become essential. A fully computerized library will help its users with quick and prompt services. Automation process helps to restructure library functions and reinvents its services. The motive of this study is to explain how the authors successfully carried out the implementation of the Koha open source integrated library system (ILS) at The Panjab University, Ankur School Experience. This study broadly illustrates the requirements for implementing the Koha-ILS and how it can be successfully succeeded even with limited funding and staff crunch. This paper is based on experiences and facts collected before and during the implementation phase. It elaborates the basics and suggests steps toward successful implementation of ILS. This study is aimed to motivate and help the libraries and serve as a stepping stone that is in dare need to implement KOHA Library automation software.

Key words: Open-Source, Koha, Library, Implementation, case study, ILS.

1. INTRODUCTION

A library is a collection of similar resources whether electronic or physical, it provides access to a defined community for the purpose of borrowing or reference. The library is an important part of an educational institution like Universities and Schools. The traditional methods of managing libraries are no longer dynamic and efficient. It took a huge effort and time-consuming in maintaining the library and providing services to its patrons. Therefore, In the modern era of Information Technology, the Library should be able to cope up with the latest trends in technology and meets international standards for managing its resources and providing access to its users. It plays an important role in research and academic curriculum.

1.1 Importance of School Libraries

The library is the soul of institutional academic activities. The academic curriculum of a school is remarkably influenced by the quality of its library. The library plays an essential component in academic curriculum processes such as self-learning, preparation for exams and seminars etc. A library is an essential instrument for developing desirable study habits in students. A library motivates both students and teachers, develops an interest in reading. A library helps a student in exposure with the most advanced knowledge, which introduces students to facts, thoughts and ideas. Today, When Information Technology and research are growing at a very fast pace, textbooks no longer provide students with sufficient knowledge. In that situation, the

library helps a student with extra supplementary resources and references. A library also plays a significant role in improving a teacher's classroom performance and effectiveness. Library also helps students in promoting individual and group learning, vocabulary, evolving the habit of silent reading, enhancing knowledge, and incorporating problem-solving attitude in students.

1.2 Basic functioning of School Libraries

Commonly, the function of a library is to provide learning material and resources to its patrons i.e. students, teachers and research scholars. Library provides a silent environment for reading and self-study from references and books. Library also provides circulation facility of resources like books, journals etc. for borrowing purposes. Earlier, the record maintaining and housekeeping work were done manually. But with the advancement of Information Technology, many routine works can be automated.

1.3 Aim of the study

1. To implement the Koha open-source software.
2. To provide a search facility to patrons for available books and resources.
3. To fully automate the workflow of the library with minimum expenses.

1.4 Methodology

There are many paid software like SLIM++, LIBSYS, VTLS, etc. and open-source software like Koha, NewGenLib, Evergreen, etc. available on the internet. The paid software is very expensive and require AMC for any modifications to suit our needs also the source code is

encrypted. But to minimize the cost of implementation we choose open-source software. After searching the features and reviews of all the open-source software, we decided to use Koha as a Library Management System for Automation of the library as it meets all the requirements for the proper functioning of the library. A server was needed to install Koha, there was one server in the computer room that was kept unused from last 3 years. so we decided to install Koha on that server. That saved us around 2 Lakhs. But there was another concern for power backup, so we purchased 2KVA online ups with 3-4 Hours backup for 60K INR.

1.5 Statement of Problem

The traditional methods of managing libraries are no longer dynamic and efficient. For quick retrieval and dissemination of information and better service for the patrons, application of modern techniques has become essential. A fully computerized library will help its users with quick and prompt services. Automation process helps to restructure library functions and reinvents its services. The present study aims to cost-effective Implementation of Library Automation for the Ankur School Library, using open-source software Koha.

1.6 Plan of Action

1. Visited Ankur School Library.
2. Conducted Feasibility study
3. Bibliographic Data of the books and periodicals has been collected and filled in excel sheet.
4. Records of Patrons have been filled in excel sheets.
5. Installation of Hardware/Software.
6. Importing data into Koha Database.
7. Finally, testing and execution of software.

1.7 About Panjab University Ankur School

The idea of having a Nursery school on the Campus of Panjab University was a long-cherished dream of the residents, so all the members of the Student Aid Society met and discussed the possibility and finally decided to work on this direction. Mrs Suraj Bhan carried on the idea of free schools on the campus for the junior employee's children. The PU Student Aid Society then embarked upon establishing Nursery school on modern lines, to provide quality education to young ones from the very start. The purpose was to fulfil the long-felt need of the parents residing in the campus as well as in the adjacent sector, for a nursery school. It was thus, a welfare activity on the campus in the true sense of the term. Thus, Student Aid Society has remained a parent body. The school was named Ankur Nursery School, which was formally inaugurated on 25th February 1973.

Following are the objectives of Ankur School.

- To initiate or undertake any scheme for the welfare of the students.

- To collect funds through donations, subscriptions, film shows in the university campus, dramas and organizing fetes etc. for providing aid to needy students.

- To foster a spirit of social service amongst the members.
- A number of welfare schemes were introduced to ensure quality education in the school

1.8 Ankur school library

The library came into existence is 2010 - 2011. It gradually flourished and now has become a full-fledged library having 70 Reference books, 3200 purchased books, 3947 gifted and specimen's books, 33 magazines, and 9 newspapers.



Fig1(a): Ankur School library



Fig1(b): Ankur School library

2. LIBRARY AUTOMATION

Library automation is the process of using the computer to automate the typical operations of libraries such as cataloguing and circulation. Automation helps librarians in saving extra efforts, power and time. The main objective of library automation is to allow librarians and library staff to contribute more meaningfully to the spread of information and knowledge. Library Science automation is 'the technology concerned with the design and development of the process and system that minimizes the necessity of human intervention in their operation'.

2.1 Types of Library Software's

There are different types of library software packages available, each software has its unique features. The combination of features adds a lot of complexities in classifying the library software. However, for the purpose of our research, an effort is made to classify the library software into the following points:

- A. Based on Source Code Availability
 - a. Proprietary software (SLIM++)
 - b. Open-Source Software (Koha)
- B. Based on Functionalities
 - a. Database Creation Software (E.g. CDS/ISIS)
 - b. Library Management / House Keeping Software (Libsys, OASIS, Sanjay, SLIM,)
 - c. Institutional Repository Software Packages (Fedora, CDSWare, Dspace, Greenstone)
- C. Based on Cost Factor
 - a. Completely Commercial (DLib)
 - b. In-house Developed Shareware
 - c. Freeware (Gratis / Libre software)
 - d. Open-Source Software

2.2 Open source Software's for Library Automation

Open-source software is software whose source code is freely available so that anyone can implement, inspect, modify, and contribute improvements to the source code. Some of the Open-source software available for library automation are as follows:

- Koha
- Evergreen
- NewGenLib
- e-Granthalaya

2.3 About KOHA

Koha is a first open-source integrated library management system. It is adopted by libraries of all sizes worldwide. The development is being driven by the growing user base community of Koha. The features of Koha are evolving day by day to meet the requirements of present technology and its users. Koha is Power Packed with all the required features of an enterprise-class ILS with extensive functionality including advanced and basic options. The modules included in Koha are acquisitions, authorities, circulation, serials management, flexible reporting, cataloguing, label printing, offline circulation, multi-format notice, and much more.

2.4 Hardware requirements for Koha

Koha software can be installed on any normal 32bit/64bit computer/laptop or server with Perl compiler installed. It's better to have a dedicated computer or server to install Koha

exclusively. High-end machine specifications generally depend on the number of records stored and the number of concurrent users of Koha. Generally, minimum recommended specifications should be at least Intel-i3 processor with 4GB minimum RAM for around 5,00,000 Records and minimum 250GB Storage space required for all the necessary operating system and necessary software. It's better to have an SSD (Solid State Drive) than HDD (Hard Disk Drive) for installing an operating system, database and necessary software as internal storage for efficient and speedy computing experience on the server. SSD dramatically improves the performance of the server. A minimum 100Mbps Network Interface Card is required for accessing the server over the network. Overall, the specifications of the Koha server depend on the usage of Koha, which includes the number of Bibliographic records, number of concurrent users, and items and the number of patrons. On the client-side Laser or Inkjet Printer is required to print barcodes, circulation slips and call number labels. Minimum two computers are required, one for searching the catalogue at user end and one for library staff for circulation and administration. Each library has unique characteristics, the requirements and specification may vary accordingly. Barcode readers are required for circulation system. Instead of Barcode, RFID (Radio Frequency Identification) may also be used for uniquely identifying library resources. With the help of RFID Check-in or returning of books can be automated without the intervention of library staff.

2.5 Software requirements for Koha

Software requirements for Koha implementation require some prerequisites:

Ubuntu/Debian Linux Server with root access, Apache, Perl, MySQL/Maria DB. An average level of skill with the Apache, command line, and MySQL Database.

2.6 Hardware specifications of server used

CPU - Intel(R) Xeon(R) CPU E3-1220 v5 @ 3.00GHz
 Memory - 8 GB
 Storage - 1TB

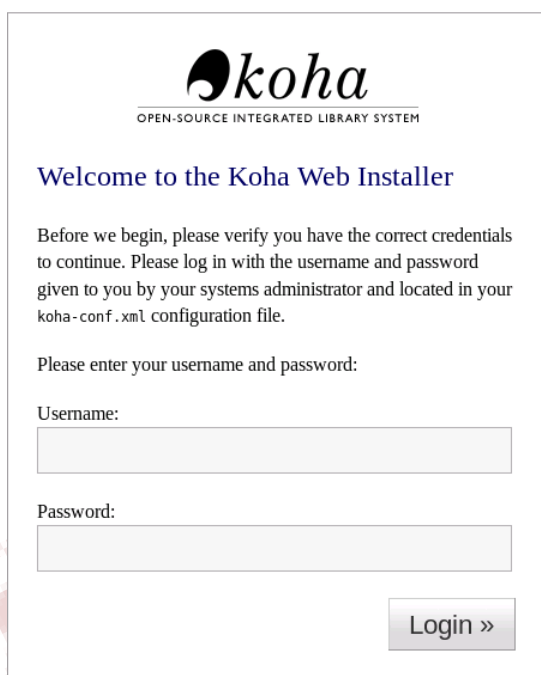
2.7 Setting up the server

On a Bare metal server, we installed VMWare ESXi Hypervisor (Free Licence) after that from a remote console created a virtual machine and installed Ubuntu Server operating system 18.04.3 LTS. Now the server is ready for the installation of Koha.

2.8 Implementation procedures for Koha

This section of this paper exhibits the implementation procedure of Koha on Ubuntu Server in Ankur School

library. Ubuntu Server 18 is used as a server operating system. Once the installation of Ubuntu server complete, Koha can be installed. For the installation of Koha, step by step instructions can be followed from https://wiki.koha-community.org/wiki/Koha_on_Debian. After the basic setup of command-line installation, the web-based installer of Koha needs to be executed. For completing the web-based installation of Koha. Log on to <http://localhost:8080> or [http://\[serverip\]:8080](http://[serverip]:8080) as shown in below Figure.



The image shows the Koha Web Installer login screen. At the top is the Koha logo with the text "OPEN-SOURCE INTEGRATED LIBRARY SYSTEM". Below it is the heading "Welcome to the Koha Web Installer". A paragraph of text instructs the user to verify credentials before proceeding. Below this is a form with labels "Username:" and "Password:" followed by input fields. A "Login »" button is at the bottom right.

Fig2: Koha Web Installer Login Screen.

Before proceeding you need to log in by using the Koha database username and password used during Koha installation. After a successful login, the language selection page will appear. Select your desired language and proceed. The web installer checks all dependencies of Koha. Continue the web installation according to your choice. After completing the web installation, you need to configure Koha using the administration module. In this case, a library called Ankur Library was created. Thereafter, item types need to be created for Ankur School Library. Item types include Books, CD/DVD's, computer files, movies, resources, e-books, etc. Item type creation is important in Koha, as every item added must have an associated item type. Patrons of Ankur School library has library staff, teacher, students, management etc. Patron categories were added through Home> Administration> Patron> Categories> New Category. In Home> Administration> Circulation> Fine Rules can be set according to library policies. Next step is to set up system

preferences, required mandatory fields such as username, first name, email, address, mobile etc. The next step is to import all Bibliographic data in MARC 21 Format. MarcEdit software can be used to convert a text/CSV file into an MRK file format. These records can be uploaded through the "Stage MARC records for import" module of Koha. The researcher imported the MARC data through Koha web interface. Alternatively, the command line can be used, but non-technical staff can use the web interface for ease. The Ankur School Library staff printed barcode number labels on books. The Library staff used an excel sheet of library patrons, to import patron data into the database. Koha supports CSV (comma separated value) file for importing patron data in Koha. After that Patron images were then uploaded by editing every patron record. After entering the Patron data and bibliographic records, a test case of check-out was successfully passed. A DNS record for Koha Server was generated and assigned to server for accessing OPAC and staff interface over a network. Finally, all the records were imported and the system was successfully tested by issuing and returning books using the circulation module.

2.9 Benefits realised after implementing Koha

After the implementation of Koha, Ankur school library staff and users can now have more advanced functionalities. Once the library started using the acquisition module of Koha, it became possible to maintain a library budget with the ILS. This installation of Koha uses MARC 21 for creation of bibliographic records. The circulation module of Koha can send circulation confirmation messages, overdue messages to its patrons. Koha can be customized to send these notifications as text/SMS/email messages to patrons. Users of OPAC can send suggestions messages to library staff regarding purchases and other feedback. This helped library staff to give more services in limited time to its users.

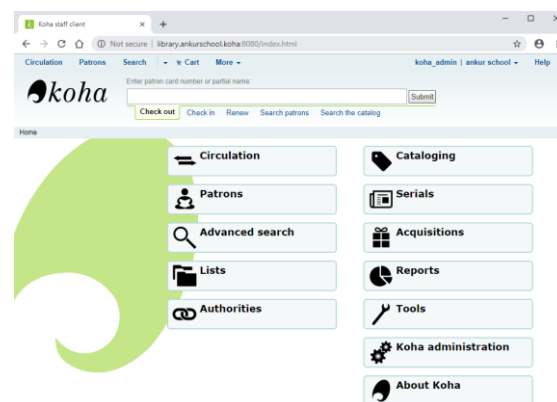


Fig3: Library Staff Administration Koha Interface

The AnkurLibrary staff started printing barcodes labels through Koha. This eased library staff by saving time so they can now provide other services in limited time. Additionally, with the help of report module Library staff are able to get a variety of library statistics. The report module provides both onscreen and in a CSV format. After implementation, the library users have OPAC functionalities.

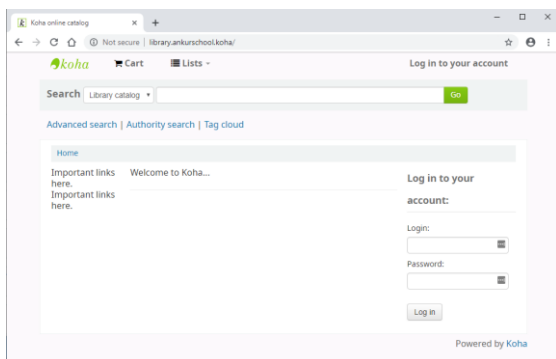


Fig4: OPAC interface for Koha Users

Through OPAC interface users can now search in the library catalogue and get the current status of a book. Koha provides two types of search facilities, a) simple search and b) advanced search. Boolean logic can be used in Advanced Search to narrow down the search. The search result can be sorted in ascending and descending order according to the title, author, publication date, call number. Additionally, through OPAC users can add books to carts. Users can make a list of books. Through OPAC login Users can place holds on library materials. User can make comments on library materials. Library users can now send purchase suggestions and they will be informed through automated SMS/e-mails. Users can customize their user preferences like messaging. Also, after logging in to the OPAC Users can now able to renew their borrowed books. KOHA help library staff to analyse users search and reading statistics. Users can get notified of expiring subscriptions and overdue fines through OPAC account. KOHA helped Ankur School Library staff in giving quality services to its users.

3. THE OUTCOME OF THE STUDY BASED ON THIS PROJECT AT ANKUR SCHOOL LIBRARY

The following are the outcome of the study.

- Successfully implemented Koha ILS
- Fully automated library process.
- Students and faculty can search the books through the OPAC module.
- Faster Check-in and Checkout process.
- Faculty staff and students can check the status of their borrowed books

- Data entry of the books can be done through the downloading of bibliographic details from the Library of Congress and other catalogues.

4. CHALLENGES FACED IN IMPLEMENTATION OF KOHA

The following barriers were faced in the implementation of Koha-ILS in the Ankur School.

- Lack of Technical Team.
- Lack of Financial Resources
- Lack of Power Backup
- Lack of ICT infrastructure

5. SUMMARY AND CONCLUSION

A sincere effort has been performed towards finding out ways and means for automation of library activities in the Ankur School. This project had the basic objective of automation of circulation routines by designing a bibliographic database for the Ankur School library. A user/borrowers database for all the students and teachers has been created. With the test sample, each function of the circulation section is tested from the network computer. The check-out and check-in of circulations have been successfully tested with the database created from the Bibliographic record. In the end, it is recommended that Koha is suitable for small to very large libraries. Any Library that wants to automate their library operations can make use of this open-source software.

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