DEVELOPING DIGITAL ARCHIVE OF DOCUMENTS, IMAGES AND VIDEOS USING DIGITAL ASSETS MANAGEMENT SYSTEM ResourceSpace

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Abstract: This research article explain about the open source software which helps Library Professional in managing their digital content. Till the time LIS people are used to with digital repository softwares like DSpace, e-Prints, GreenStones, Fedora etc. But ResourceSpace is basically a Digital Assets Management system which can be modified and can be used as a Digital Archive Management tool. This paper, briefly explain the requirements, implementation process, features and limitation of the ResourceSpace.

Keywords: Digital Assets Management; Open Source Software; Digital libraries; Digital Archive; Digital Repository; Data retrieval; ResourceSpace

Introduction

In the 20th Century, the academic institutions libraries were using automation software for their operations and services. This automation software facilitates them to search bibliographic information of the resources and then end-user need to search the physical material. Nowadays using the Information and communication technologies (ICT) is possible to think and build a digital environment where user can not only search the bibliographical information but also retrieve it real time without time and location barrier.

Many academic and special libraries started to deploy ICT driven operations and services. These services are stand-alone and others are integrated systems combined with Web technologies i.e, Web 1.0 and Web 2.0. As a result of these initiatives we can find many libraries are now empowered by digital platforms using the open source tools like DSpace, Greenstone, ePrints etc.

The Concept of Digital Archive on Document, Image and Video

The digital library represents many interest groups and disciplines including data & document management, information retrieval, library science cataloguing concept, information systems, image processing, video capturing and preservation, artificial

intelligence and human computer interaction. Here, we are discussing about managing the documents specially pdfs, word documents, ppts etc., images & videos in the digital environment by providing very user friendly interface.

In the most of libraries, the electronic documents, images & videos are becoming the part of library material. In this context there has to be special system which can provide end-user a facility to search, preview the resources & also it should give facility to retrieve the desired resources.

Attribute of Document, Image and Video Library

Digital platform based libraries are characterized explicitly or implicitly by content, users, functionality, quality, policy and architecture which constitute the components of Digital Libraries.

Content

This includes data and information processed and made available to the end-user. It could be in the form of Documents files ie. Pdfs, ppts, Photographs, Snapshots, Flowcharts, new type of material like computer generated graphics, maps, event videos, classroom lecture video, old copyright videos that are free of copyright, tutorials etc. In effect, the content of document, image and video library varies from in-house to virtual and from direct to licensed ownership.

Users

The users are an essential component of the library, they are the end-users of the information system, including information creators, users and librarians; the designers who use the knowledge to define, customize and maintain the image and video library for functionality to immediate and potential users.

Functionality

This part includes the services the image and video library offers to their users. It can be customized and vary from the set of group users. It also includes the management of the collection (Images and videos), storage, search and retrieval.

Quality

This is to evaluate the content and behavior of the document, image and video library. It identifies the technical platform of the system.

Policy

This attribute represents the conditions, rules, terms and phase searching, restriction governing the library and their different type of users. It covers areas such as who uses what, how, why, at what charges, and conditions of confidentiality and privacy.

Architecture

This attribute involves the implemented technology which ultimately maps the functionality and content offered by the library into hardware and software content. This is place where the technologies are brought together to produce the functionality with the content. This architecture is described as a technological stack.

Personnel

This attribute involves the physical manpower or the team which going to manage the digital archive of documents, images and videos. The people must be aware of the technology and system which have been implemented in the present system. The requirement could be different based on the user type and their roles. So, it is not necessary that this kind of library will require only technical library personal. Ideally, the non-library professionals (IT experts) should be integrated into the library functions. The inclusion of technical and non-technical library staff in the digital library environment is imperative.

The above given attributes have served as guide for many people in the development of digital libraries or digital archives, who classify the attributes of the digital library / archive as the content, users, functionality, policy, quality, architecture (technology) and personnel.

The Network

The network is managed by any router system which runs a network based operating system like Windows Server 2008 etc. Through this WAN mechanism the digital library can be accessible to the all the nodes connected with the server. In other term, it will be accessible with in intranet. If the same server is available on live internet protocol (IP) 24x7 then it will be accessible globally.

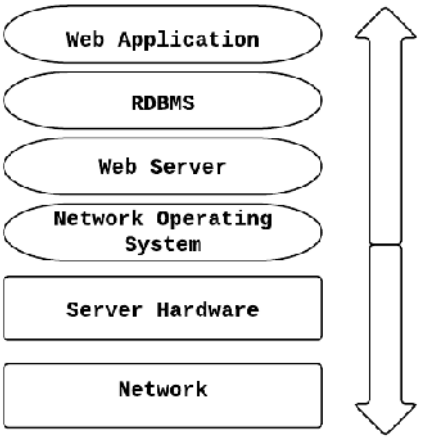
Hardware

The hardware component of Digital Library includes:

- **Server**: 2.69 Ghz CPU, 1 GB RAM, 300 GB HDD. This is expected to be the repository and access for all the functionalities of the digital library. If the digital archive has limited number of collection material then this kind of high

configured server is not required. Simply, desktop PC with Network based Operating system is more than enough.

- **Router**: To connect the server with all the PC router will be an essential.
- **Scanner**: If the collection material is not available in digital format then colour scanner will require.
- **Digital Video Recorder**: The video files are in some other format or if requirement is to capture the live television programme then Digital Video Recorder will be necessary for the digital library.



Technology stack of the digital library

Software

Basically, the Digital Library software includes network operating system, web server, relational database management system and web applications. Here, to establish a digital library, the digital library software will be run on Microsoft Server 2003. An open-source WAMP software package will be installed to enable the use of its principle components. WAMP software package contains Apache, MySQL and PHP. For this paper, ResourceSpace (digital asset management) is used as digital library solution software.

Apache

Apache will be the main web server that enables web browsers to connect to a computer and view information as web pages.

Relational Database Management System

MySQL is a database management system that stores the information in organized manner. Database will contain tables, store procedures, database diagrams etc. For MySQL, phpMyAdmin will be the graphical interface to create and update the database.

PHP

PHP is a powerful server-side scripting programming language for creating dynamic and interactive web pages. It is free and widely-used by the web developers.

ResourceSpace: Open Source Software

ResourceSpace is a web-based, open source digital asset management system which has been designed to give easy content development facility, fast searching, and real time preview to the users. ResourceSpace was originally developed by Neale Hall and Dan Huby Montala Limited for Oxfram GB. In the early stage it was daily used by their internal resource tem to manage and distribute the materials like Photos, Text and videos. In 2006, Oxfam released this in-house product under a BSD-style license and since then further development has been done.

ResourceSpace Features

Main features of ResourceSpace as a digital repository system.

- **Enhancing interface:** User-friendly interface with customization facility
- **Web based Application:** It is a purely a web based application to manage and share the resources.
- **Simple and Advance Search:** ResourceSpace gives simple and comprehensive search, even user can add/remove the simple and advance search facility as per their requirement.
- **Search ordering:** ResourceSpace automatically calculate the keyword against the resources and based on that algorithm the system display the searched resources.
- **Resource Preview:** ResourceSpace automatically generates the thumbnails of the resources, moreover, it gives facility to view the streaming preview of audio and video resources. Even user can view the resources page by page.
- **Easy distribution system:** ResourceSpace provides easy resources dissemination system via e-mail and links.
- **User Collection:** It gives end-user a facility to create their collection.
- **User Level Security:** It provides customized user level privileges for its users.
- **Feedback and Rating:** It provides user to give the rating for the resources even user can also give their feedback on individual resource.
- **Customizing:** ResourceSpace is fully open source and having customizable software, user can customize the look and search of the digital repository system.
- **Reporting:** ResourceSpace gives extensive facility to generate the utilization report and collection reports.

- **Tagging:** It gives facility to save & retrieve the earlier tagged resources.

Requirements

ResourceSpace can be run on Linux, Windows and Mac OS. PHP, MySQL, GD graphics library, ImageMagick, Ghostscript, EXIFTOOL, FFMpeg, Java and Flash Player are the supporting software for the ResourceSpace. [5,6]

Installation Process

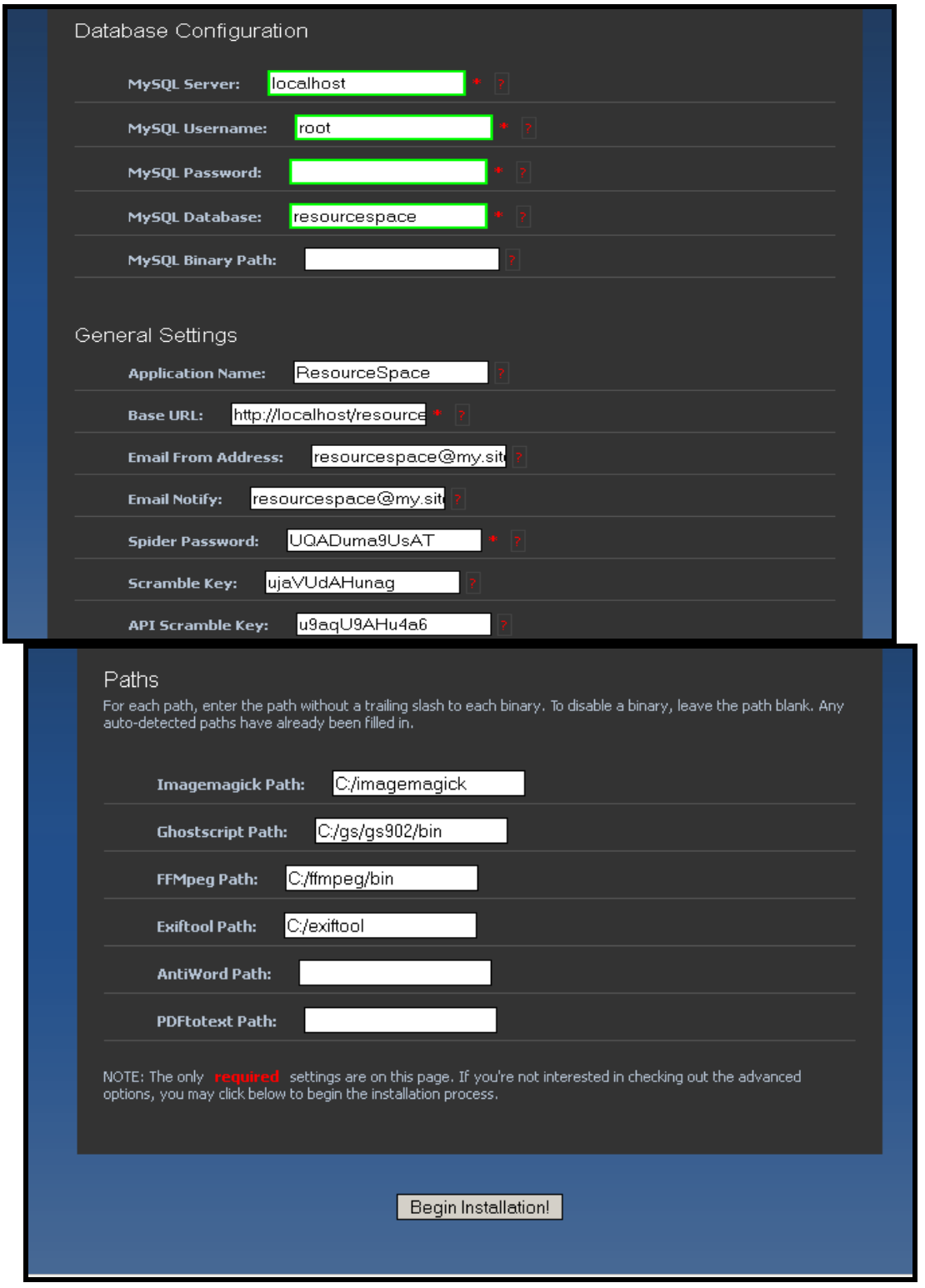
For this paper, the ResourceSpace is implemented on Microsoft Windows XP for the entire window based version the process will remain same.

Supporting softwares

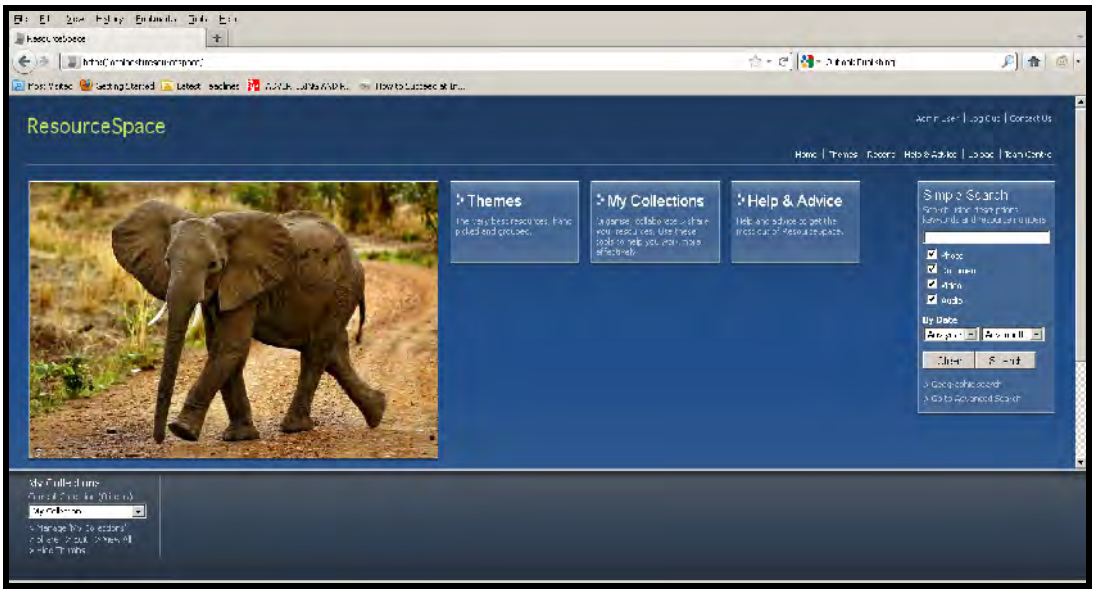
- WAMP
- ImageMagick Ghostscript
- FFmpeg
- EXIFTOOL

Main softwares i.e. Resource Space

- Download the latest version from http://www.resourcespace.org/.
- Unzip the zip file ResourceSpace_4_3_2912.zip and copy the unzipped folder in C:\wamp\www directory. User can rename the folder name. Here, the folder name is resourcespace.
- Start the WAMP server and in the browser run the URL: http://localhost/resourcespace.
- Installation First Screen: User need to give basic information about MySQL database & supporting software paths then need to click on Begin Installation Button.



- After finishing the installation process logged in using the credentials
  Username:admin
  Password:admin



Basic Field Configuration

To develop a digital library we need to add, remove and change some pre-defined fields and their types. To do the necessary field configuration user needs to follow the below specified process. Here, the single example has given, user can configure their own configuration based on their digital archive's requirement and collection type.

For the Document, Image and Audio library, below given fields need to be configured.

Field Name	Field Type	Mandatory	Indexing	Simple Search	Advance Search
Title	Text Box	Yes	Yes	No	Yes
Author	Text Box	No	Yes	No	Yes
Publisher	Text Box	No	Yes	No	Yes
Year	Date/Time	No	Yes	Yes	No
Keyword	Text Box	Yes	Yes	Yes	Yes
Subject	Text Box	No	Yes	Yes	Yes
Event Name	Text Box	No	Yes	No	Yes
Other Information	Text Box	No	Yes	No	No

- **Title:** Title of the Document, Image or Video
- **Author / Contributor:** Name of the person who are associated with the specified resource.
- **Publisher:** Resource publishing authority.
- **Year:** Year of Publications
- **Keyword:** Keyword for the specified resource.

- **Subject:** Subject identification for the resource.
- **Event Name:** Even name for the photos and videos
- **Other Information:** Other any relevant information which might help end-users in retrieving the resource.

An administrator can setup the field as per their requirements, for example few fields are might important for additional information but it is not necessary that they are searchable. So, it is basically a requirement which Librarian needs to understand about the digital resources and their potential way of retrievals.

Uploading the resources using the admin panel

Using the necessary credentials user can upload the files into the digital library. Resource Space is having facility where user can upload the documents in one shot and then individual resource can be edited. It is also giving facility to step by step cataloguing and uploading for individual resources.

Limitation of ResourceSpace

ResourceSpace is open source software basically meant to manage internal resources then it got exposure as Digital Asset Management system. In academic libraries, very few libraries are using this system. The main limitation of the ResourceSpace is given below:

- Awareness: The implementation of this application will require adequate knowledge about the basic supporting software and repository.
- Data Exchange Standard: ResourceSpace is not following any international data exchange standard i.e.: MARC, UNIMARC, Dublin Core etc.
- Community: It doesn't give community browsing as per the group of specified subject, department etc.

Conclusion

The innovation of digital libraries and archives are excellent. The way, digital repository planned to organize and disseminate the resources using technology is quite robust and the service is valuable, to the education and research community. Although the installation of digital library has brought some major benefits, still much more needs to be done to provide the state-of-the-art services. ResourceSpace is again a new initiative towards the digital assets management to manage any kind of digital resources but again it has some limitation. While planning for such kind of an ambitious project likes this Library Professionals need to be ready to face some of the obvious challenges.

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