Institutional Repositories Using The D Space Software in Academic Libraries

Dr. N. Kalpalatha

In-charge librarian, Dept of Library and Information Science, Sri Padmavathi Degree& P.G. College,Tirupati

ABSTRACT *Information Retrieval Systems (IRs) provide a simple, web based mechanism to reachers to deposit and access their research publications. There are many world renewed open source IR software's available such as E-prints, DSpace, FEDORA,ARNO,I-TOR, CDSware etc., Information resources are being made available in a variety of digital formats. This paper describes the feature of popular DL software – Dspace. A step involved in building DL collection using this software is described.*

Introduction:

Repository can be defined as a managed storage system with content deposited on a personal, departmental, institutional, national and regional or consortia basis providing services to designated communities with content drawn from the range of digital resources that supports learning, teaching and research. It is central place where data are stored and mined. A repository can be a place where multiple databases or files are located for distribution over a network or a repository can be a location that is directly accessible to the user without having to travel across a network.

Libraries are undergoing tremendous changes due to digital revolution. Information resources such as books, reports, articles, theses etc., are being made available in digital formats in recent years.

D space enjoys international acceptance across the world and it provides a customizable web interface. The workflow process for content submission, the decentralized submission process, and the remote publishing facility are regarded as the unique features of D space. Most importantly it is open URL compliant also (D space wiki)

Importance of Institutional Repository for the contributor: Greater Citation: Studies have shown that articles freely available on the internet are cited more often than their paper conounterparts.

Speed: Faculty members can self – publish their preprints immediately, with the possibility of receiving immediate feedback.

Higher Education Institution: An institutional repository can contain the entire scholarly work by one faculty member, including material such as preprints, post-prints presentations, and classroom materials. Instead of being scattered about in different databases, servers or computer hard drives, this material cone is browsed easily in place by the user, and reused easily by the contributor.

Preservation : In Order to ensure continued access, digital files need to be refreshed and migrated.

Ease of use : Although self-submission is possible in our institutional repository, it's much more likely that all uploading will e done by the library. All that is needed are files to upload and permission to upload it.

Permanent place: Depositing an item into an institutional repository means that it stays in one place and maintains the same URL.

Software for IR:

There are various types of digital library software's are available

- Example:
- D space
- GSDL (Green Stone Digital Library)
- E-print Archive
- Fedora : An open Source Digital Repository Management
- ETD –db (Electronic Theses and Dissertations Data base) etc.,

D space:

D space is popular DL Software used worldwide for creating institutional repository particularly in academic Institutions. D space is open source software developed by MIT and HP. It allows to capature, store, index, preserve, and redistributes scholarly research material in digital formats. D space captures data in any format – in text, video, audio and data. D space provides a way to manage the research materials and publications in a professionally maintained repository to give them greater visibility and accessibility over time.

Technology used in D space:

D space is developed using JAVA. It is available on Linux and Windows platforms and built on Apache web server, D space uses postgreSQL, RDBMS to store data.

Features of D space are:

Many of D space's features such as document discovery and retrieval can be used anonymously, but users must be authenticated to perform functions such as submission,e-mail notification or administration. Users are also grouped for easier administration. D space calls users e-people, to reflect that some users may be machines rather than actual people.

D space holds the following information about each e-person:
- E-mail address
- First and last names
- A password (Encrypted) ,if appropriate
- A list of collections for which the e-person whishes to be notified of new items
- Whether the e-person self-registered with the system; that is, whether the system created the e-person record automatically as a result of the end-user independently registering with the system, as opposed to the e-person record being generated from the institution personal database.

It is available LINUX and WINDOWS environment

It is used for Digital object management system

It is used to create, store, retrieve digital objects

It allows to describes objects using metadata

It allows for building institutional repositories

It allows sharing research findings quickly with a worldwide audience

It distributes it over the web

It indexes the resources

What kinds of Content Does D space Accept?
- D space allows storing various types of documents. They are:
- Articles and preprints
- Technical reports
- Working papers
- Conference papers
- E-theses
- Datasets: Statistical,etc
- Images: Visual, scientific, etc.
- Audio files
- Video files
- Learning objects
- Reformatted digital library collections

File Formats Supported by D Space
- The Digital objects Documents in txt/rtf/pdf/html/xml,etc.,
- Audio/Video/Image files in wav,etc.,
- Picture/photographs in jpg/png/gif/tiff etc.,

Workflow Steps:
A Collection's workflow can have up to three steps. Each collection may have an associated e-person group for performing each step: if no group is associated with a certain step, that step is skipped. If a collection has no e-person groups associated with any step, submissions to that collection are installed straight into the main archive.

Work flow step	Possible actions
1 step	Can accept submission for inclusion or reject submission
2 step	Can edit metadata provided by the user with the submission for inclusion, or reject submission.
3 step	Can edit metadata provided by the user with the submission, but cannot change the submitted files. Must then commit to archive; may not reject submission.

Information Model:
- The basic information model in D Space are :
- Top Level – Communities (School/Dept/Labs/Centre)-(Sciece/Engineering)
- Sub Communities – (Biology/Physics/Chemistry)
- Collection – (articles/thesis/photographs)
- Items- Files (Bitsream)- a file in the collection such as an article in Pdf format etc.

Search Facilities:
- D Space supports the following search facilities:
- Field based
- Boolean (AND,OR,NOT)
- Exact Term
- Wild Card
- Fuzzy etc.,

Uses of D space:
The uses of D space are:
- Institutional Repositories (IRs)
- Learning object Repositories (LORs)
- E-theses
- Electronic Records Management(ERM)
- Digital Preservation
- Publishing

Benefits of using D space:
The benefits of D space are:
- Getting the research results and quickly, to a worldwide audience
- Reaching a worldwide audience through exposure to search engines such as Google
- Storing reusable teaching materials that we can use with course management systems
- Archiving and distributing material – put on your personal website
- Storing examples of students projects
- Keeping track of one's own publications/bibliography

Browsing and Searching the Collection:
D space allows end-users to discover content in a number of ways, including:

- Via external references, such as a Handle
- Searching for one or more keywords
- Browsing though title, date and author indices.

D Space provides facility to browse and search an item based on metadata element such as author, title, and date in a collection or in all the collections or in all the communities. Advanced search facility allows searching the collection using Boolean operators.

D space Lifeline:
D space mailing lists (e-lists) are very useful and powerful, and there are three active listservs maintained by D space which shares and clarifies user experiences and stories dealing with real life D space situations. The 'D space general' list reachable through 'D space –general@mit.edu'or subscribed to by visiting http://mailman.mit.edu/ from india , the e-list manged by DRTC is very active and useful. We can subscribe to the list via the web at http//drtc.isibang.ac.in/mailman/list-info/dlrg or by sending a message with subject or body help to dlrg-request@drtc.isibang.ac.in.

Conclusion:
This paper has touched only the tip of the iceberg on Open Access as well as that of Dspace. DSpace is used to build IR in academic Institutions. Many reputed institutions in India set-up Institutional repositories. This is the right time to set up such IR in all the Institutions to record and preserve the knowledge output. Users expect effective but simple software to access the digital resources. D space can be used to build DL collections and provide efficient services to the user communities.

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