

Steps for Developing Digital Repository using DSpace: An Experience of Kuvempu University, India

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ABSTRACT

The main purpose of this paper is to provide practical guidelines of setting up an institutional repository through DSpace open source software. In the electronic publishing age, the demand for information has been growing steadily in all spheres of work. At the same time the concept of access to information at the free of cost in electronic format is gaining momentum. In this direction present paper discussed step by step procedures in building an institutional repository using DSpace including collections. This paper helps in planning to build an IR. It also helps the beginners in understanding the steps to be followed for uploading different file formats to build digital repository to maintain collection with uniformity.

Keywords: Institutional repository, design, procedures and guidelines, DSpace

1. INTRODUCTION

In this digital age, everyone wants to have contents and be successful information service providers. Institutional repositories (IRs) have become a hot topic over the last few years, and many institutions around the world are actively considering or working towards implementing them. The IR is a very powerful tool that can serve as an engine of information transfer. It has been recognised as an essential infrastructure of scholarly information dissemination.

The IR provides a method for capturing and maintaining today's electronic detritus so that tomorrow's scholars can understand the thinking behind the published record. For the standard IRs, each and every institution should have to equip its library professionals so that they are able to cope up with the ever-growing changes in this part. In view of the above Kuvempu University has undertaken to create an IR and the project is under progress.

2. ABOUT INSTITUTIONAL REPOSITORY

The IRs are all part of the open access movement to make scholarly information more accessible via the web. Once an IR is operating efficiently, it can increase the visibility of an institution's scholarship while paving the way for greater collaboration among researchers outside the institution¹. The creation of IRs can be achieved by a number of available content management software, such as DSpace which is the focus of this article. Sharma², *et al.*

have discussed the IRs and the skill requirements in their paper.

A university-based IR is a set of services that a university offers to the faculty members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organisational commitment to the stewardship of these digital materials, including long-term preservation, where appropriate, as well as organisation and access or distribution. In other words, an IR is a mechanism for centrally storing, presenting and storing digital material created by an institution. By depositing content into an IR staff and their departments are able to manage and preserve the content in a cost efficient manner³.

The IRs can contain a variety of content types and formats, for example, research outputs such as scholarly articles and preprints, reports, theses, audio, video, images, and other material.

3. DSPACE

One of the main drivers for creating digital repositories has been the open access movement. Material kept in open access repositories is available online, free of charge. The author retains the rights to the material but gives its users the right to search, read, download, copy, distribute, print or link to full-text without requiring any economic compensation. The key philosophy being that any publicly funded research would be made publicly available⁴.

DSpace was jointly developed by Massachusetts Institute of Technology and Hewlett-Packard in 2002, is an open source software which can be freely downloaded. DSpace is the software of choice for academic, non-profit, and commercial organisations building open digital repositories. It is free and easy to install 'out of the box' and completely customisable to fit the needs of any organisation. DSpace preserves and enables easy and open access to all types of digital content. Including text, images, moving images, mpegs and datasets. With an ever-growing community of developers, committed to continuously expanding and improving the software, each DSpace installation benefits from the next⁵.

4. COPYRIGHT

While creating IR one should think of copyright because most of the authors have signed over copyright to the publisher. So one must check the list of publisher open access policies just to see whether the publisher allows their articles to be deposited and if yes what conditions must be met. If the publisher did not mention the copy right then one has to e-mail them for permission to deposit the article to DSpace. One should keep the responses on file for future reference.

5. HARDWARE AND SOFTWARE REQUIREMENT

The following hardwares and software have been used to set up a Kuvempu University digital repository.

Item	Configuration
Server, two processor, AMD Opteron quad core	AMD Opteron-2376 quad core, 2.3GHz quad core 64bit processor or better, 2 GB 6667 MHz DDR 2 RAM
Dell desktop computer, DELL Optiplex 780	Configuration: Intel Core 2 Duo, Operating System: Microsoft Windows 7
Dell desktop computer, DELL Optiplex 980	Configuration: Intel Core 2 Duo, Operating System: Microsoft Windows 7
ADOBE	Adobe Acrobat Standard with Media
HP Laser Printer LJP 1007	Mono 600x600, speed 14 PPM, 1 USB port
HP SJ Scanner 5590	Resolution 600x600, speed 8PPM, ADF capacity 30, flat bed size A4
Dspace: 1.7.2	Supporting Software's
Operating system	Fedora 14

6. STEPS FOR CREATING DIGITAL REPOSITORY

(a) The following steps were taken to create the kuvempu University. Go to local DSpace homepage

and click on My DSpace icon. Then login screen will appear (Fig. 1).

(b) Log-in name–One has to create a dedicated e-mail account, e.g. Gmail, hotmail or yahoo, solely for uploading publications.

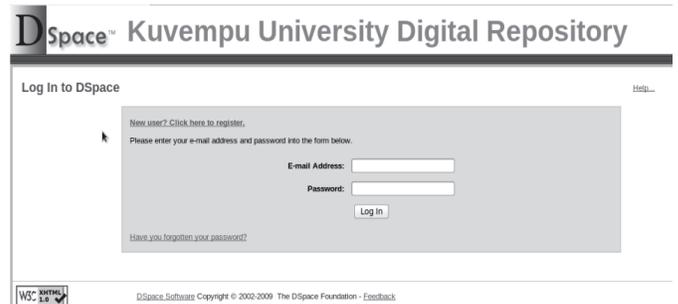


Figure 1. Login screen of digital repository.

(c) Creating a Top-level Community–After login as an administrator on the top of the right there is an option to 'Create Top-Level Community' by using the feature community/collection listing page (Fig. 2). This option helps to create new top level community and take one to the 'Edit Community' page. Enter the name of top level community then click on create. Figure 3 shows an example for creating the top-level community. Here, School of Social Science is created as a top level community.

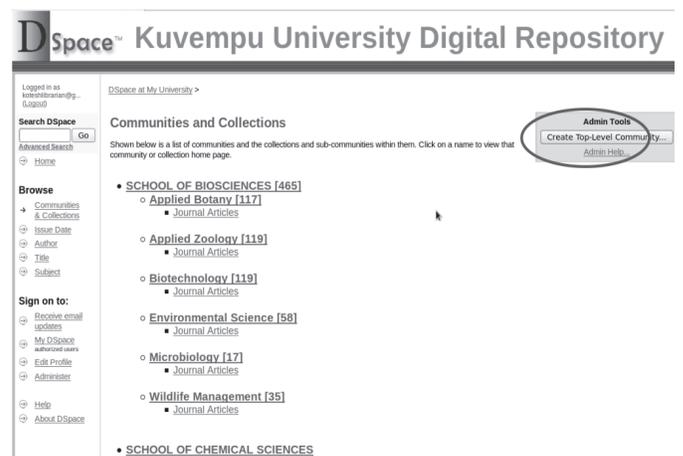


Figure 2. Building of communities.

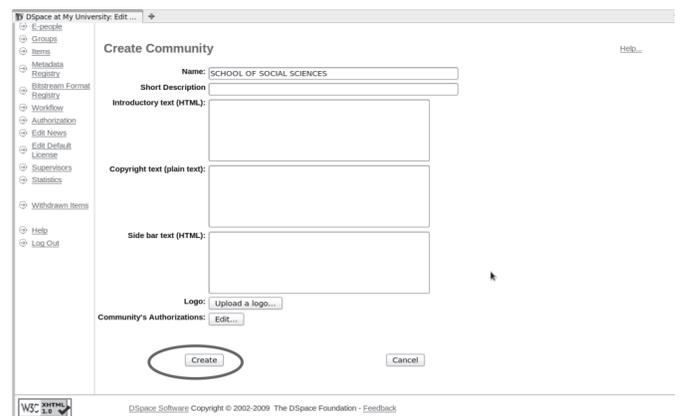


Figure 3. Example of creating a community.

(d) Creating a Sub-community—After creation of top-level community to create a sub-community, go to the community home page of the community that is to be the parent of the new sub-community. Then, click on the ‘Create sub-community’ in the ‘Admin Tools’ box at the top right-hand corner of the page (Fig. 4). Insert the sub-community name then click on ‘create’. e.g., Top-level Community ‘School of Social Science’ under this sub-community ‘History’ (Fig. 5).

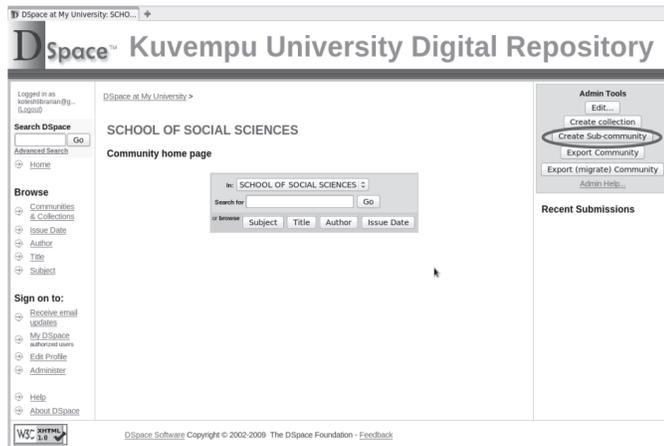


Figure 4. Example of creating a sub-community.

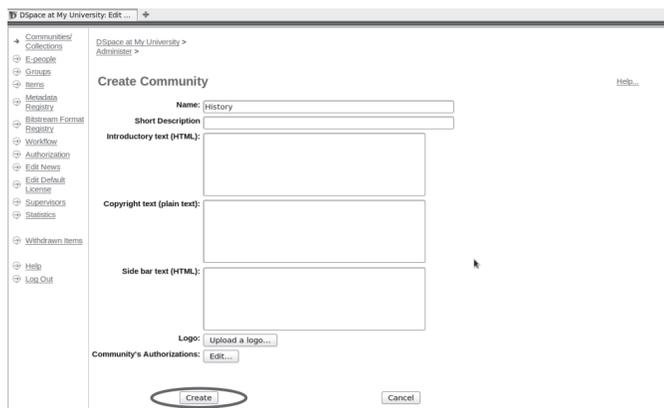


Figure 5. Example of creating a sub-community.

(e) Creating a Collection—After creating sub-community, one has to start to create collection under the sub community, various main headings whichever relevant. For example, Journal articles, Conference articles, Book chapters, etc. Here as an example in sub-community of History, journal articles are given (Fig. 6).

(f) Describe the Collection (Checkboxes)—Choose the relevant options as shown in Fig. 7 to describe the collection then click on ‘next’.

Write collection name, example Journal articles, conference articles, Book chapters, etc. After entering the collection name then click on ‘update’ (Fig. 8). By clicking update Fig. 9 page will appear.

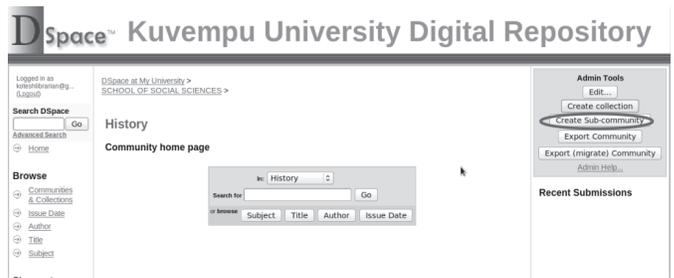


Figure 6. Creating a collection.

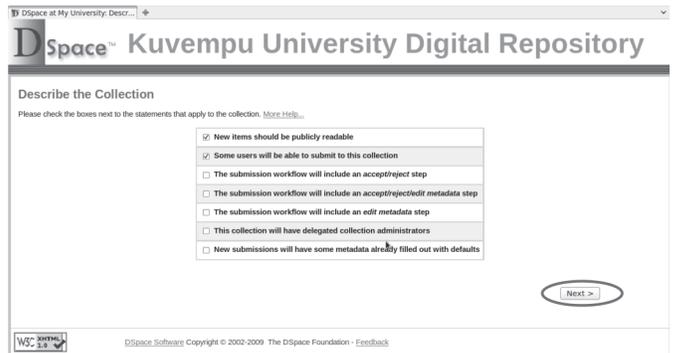


Figure 7. Collection description.

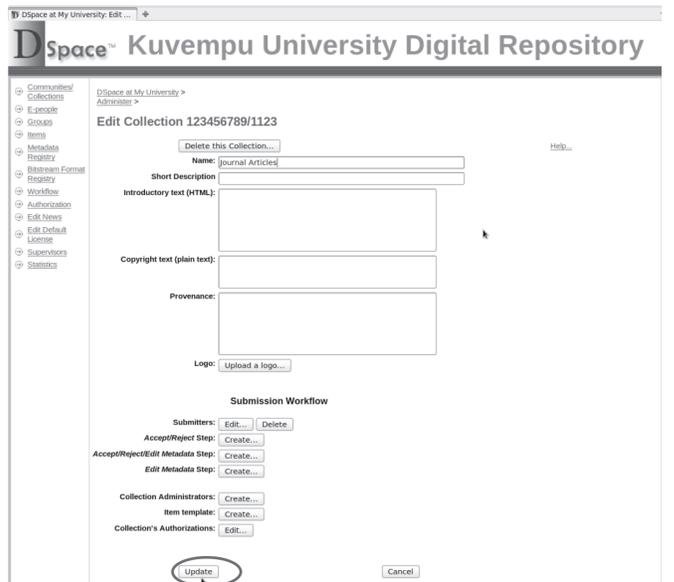


Figure 8. Edit collection window.

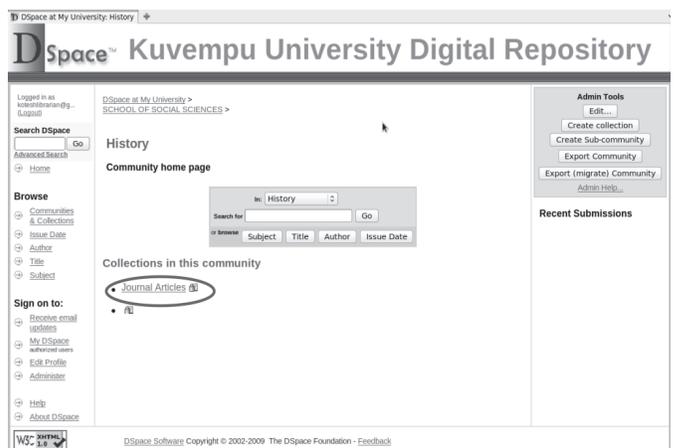


Figure 9. Uploading of articles.

- (g) Start uploading documents to DSpace collection—On clicking the name of collection it will take to uploading a document in to DSpace collection. Here, Collection in Journal articles has been created (Fig 9).
- (h) Click on submit to this collection—Once logged in DSpace for submitting the documents, the submission steps will cover seven steps to upload documents into DSpace. Such as (1) Describe, (2) Describe, (3) Describe, (4) Upload, (5) Verify, (6) License, and (7) Complete (Fig 10).

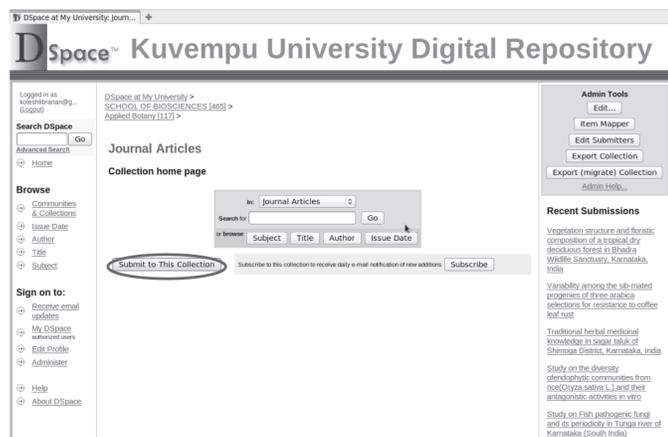


Figure 10. Submission of article.

Step I. Describe this Item

Check the relevant boxes next to the statements that apply to this submission

- In the first deposit page three options will be given. Sometimes an item has more than one title, perhaps an abbreviation, acronym, or a title in another language. If this is the case, and you want this information captured, click in the 'yes' box.
- For depositing an item previously published elsewhere, click in the 'yes' box. Later in the process the option to include citation information will be received for the original publishing. New items that have not been previously published or distributed will be assigned an issue date by the system.
- An item can consist of more than one file in DSpace, for example an HTML file, may contain references to image files (such as jpg or gif files). Another example is an article that is supplemented with a video and a data file. If you are submitting more than one file for this item, click in the 'yes' box. If none of these questions apply, click the 'Next' button.

Step II. Describe this Item

This descriptive information enables users to retrieve item using search engines. By filling out these fields in the form, a metadata record for item is created. The more thorough one is, the

more 'findable' the submission will be fill your metadata in second step and follow the instructions (Fig. 11(a&b)).

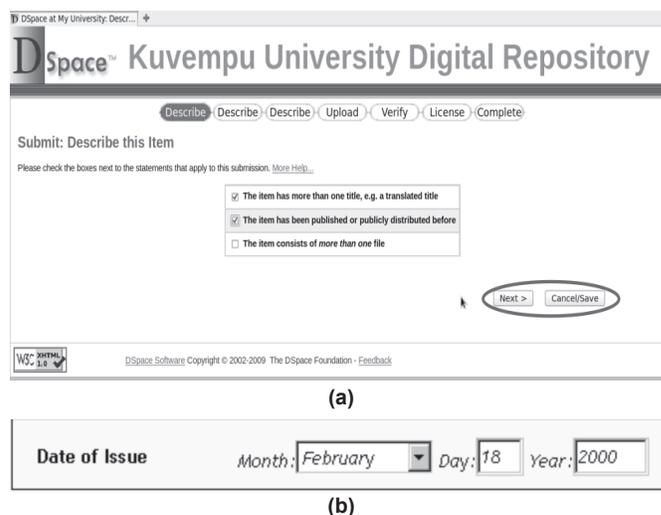


Figure 11(a&b). Item description.

In this step, one has to describe output. The second field is the equivalent of an abstract. It gives browser an outline of the paper's contents and findings, and is usually 100–400 words long. Also, if it is a conference paper, which was presented in more than one conference, please add the comment: "another version of this paper was presented in", and mention the name of the other conference(s).

ISSN—for journal articles

ISBN—for books, book chapters and other published reports. Also enter the ISBN no., a 10-digit and newer 13-digit codes at the end of description.

Authors' names—Just the names and one initial only, otherwise the authors are listed several times within DSpace. e.g., Koteppa B with DSpace formatting changes this to Koteppa B.

Title—Enter the full and proper name by which this item should be known. All DSpace items must have a title!

Date of Issue—(note-this input box appears only if one indicate on the first page that the item has been previously published or distributed. If DSpace is the first means of distribution of this item, a date will be assigned by the system when the item becomes a part of the repository). If the item was previously published or made public, enter the date of that event here. If month is not known, leave the default 'no month'; otherwise select a month from the drop-down box. If the exact day is not known, leave that box empty.

Volume, Issue and Page numbers—Use the format, 2(13):24-37 with no spaces between characters. DSpace formats this to: 2(13), pp. 24-37. If there is no issue number, i.e., just volume and page nos. enter: 2:24-37 formats to 2 pp. 24-37.

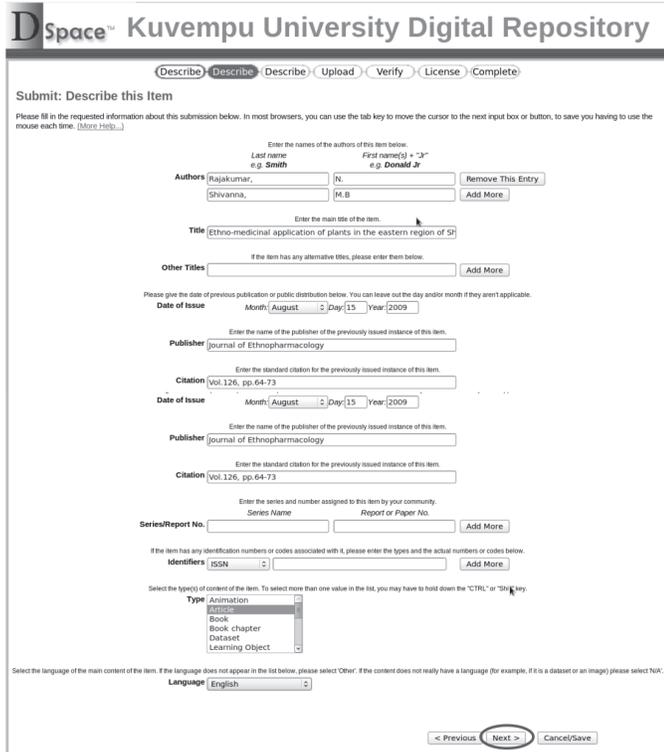
Step III. Describe this Item

After completing second step, then click on 'next', it takes to the third step keywords and abstract. Use one input box for each subject word or phrase. For more input boxes, click on the 'Add More' button. Choose at least 10 keywords, and more if it is a particularly significant publication

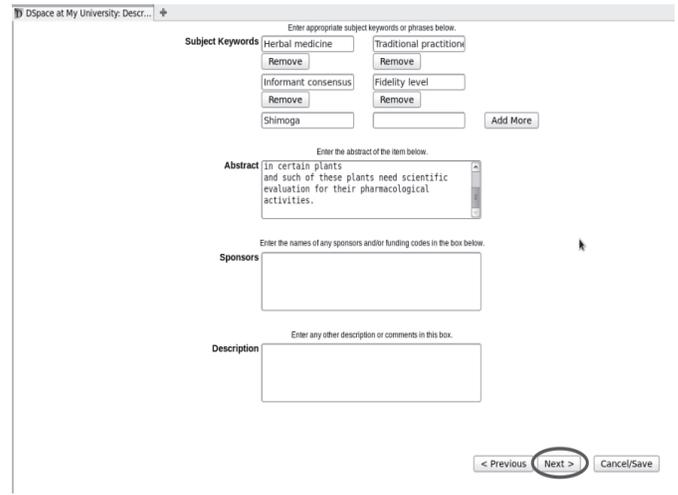
such as a refereed journal or book. The keywords are critical for the dissemination of research. Some of the aspects that might help browsers to find the publications, apart from the theme, are the contextual level, the research approach (where the methodological issues are described), the educational sector and subjects, and the educational issues, among others. Abstract can either, cut and pasted or can be typed. There is no limit to the length of the abstract (Fig.12(a&b)).

Step IV. Upload a File

To upload file(s), just click on browse button to select file(s) for submission. choose the format (for example pdf or Word document), and verify the uploading (Fig. 13(a-d)).

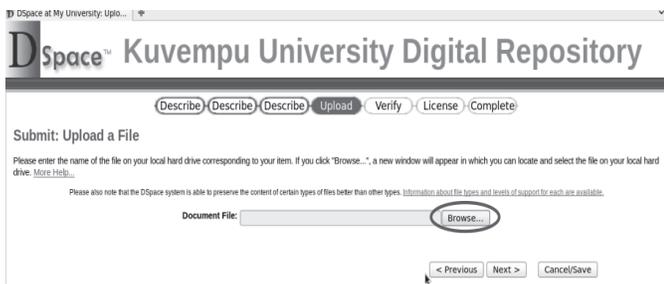


(a)

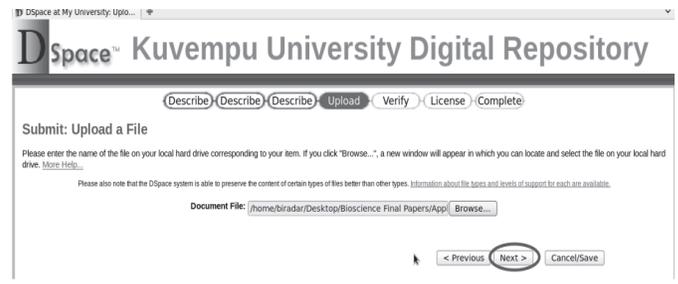


(b)

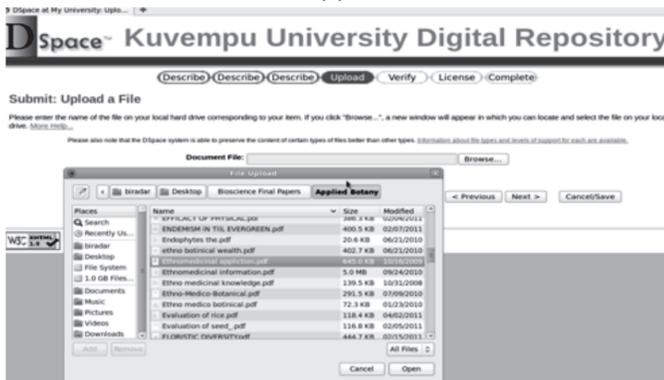
Figure 12 (a&b). Information about the submission.



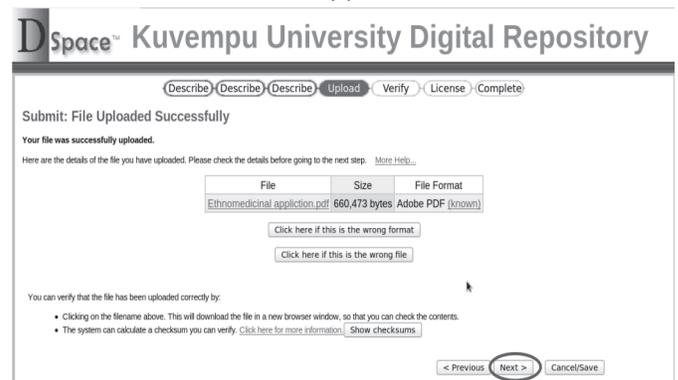
(a)



(c)



(b)



(d)

Figure 13 (a-d). (a) Browsing, (b) selection, (c) uploading, and (d) verification of uploaded file.

Step V. Verify Item

In the fifth step check metadata for verifying the submissions. This page navigate to review the information entered to describe the item. To correct or edit information, click on the corresponding button on the right, or use the oval buttons in the progress bar at the top of the page to move around the submission pages. Click on the “Next” button to continue.

Click on the “Cancel/Save” button to stop and save data. This is a final check where one can go back and amend as required, before submitting (Fig. 14).

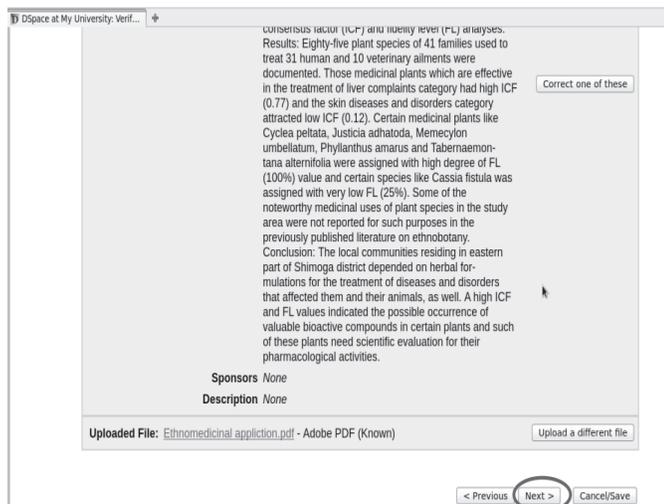


Figure 14. Item verification.

Step VI. Grant License

Once verification is finished, click on next to go to sixth step. In this step click on I grant the permission to complete submission. DSpace requires agreement to this non-exclusive distribution license before an item can appear on DSpace (Fig. 15).

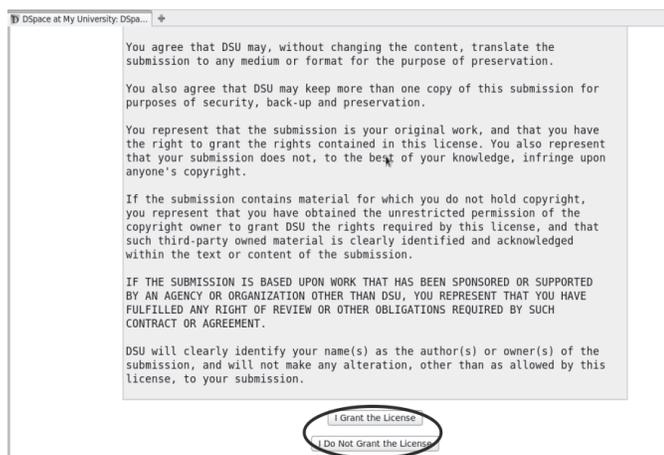


Figure 15. Grant of licence.

Step VII. Submission Complete

Seventh step shows that submission is complete and also give three options such as Go to my

DSpace, Communities and Collection, and Submit to this Collection”, this options helps to direct selecting and also the status of submission can be checked by going to the My DSpace page (Fig. 16).

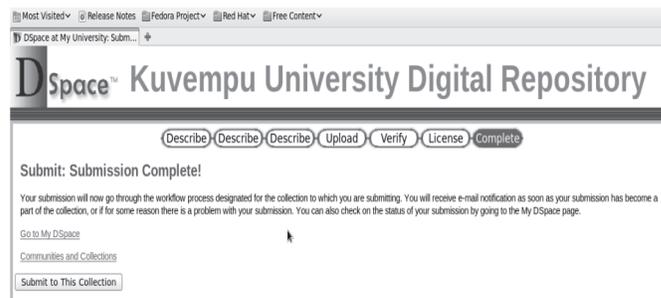


Figure 16. Submission completion.

8. CONCLUSIONS

Benefits of building IR for the traditional libraries are limited by storage space; but digital libraries/repositories have the potential to store much more scholarly information and require very little space to contain it. As such, the cost of maintaining an institutional digital library is much lower than that of a traditional library.

Considering the advantages like no physical boundaries, round-the-clock availability of information, multiple accesses to information resources, faster information search and retrieval, preservation and conservation of exact copy of the original document and cost, the Kuvempu University have plan set up an IR using the open-source software DSpace.

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