Online Access to DRDO Periodicals using Open Source Software

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Abstract

Defence Scientific Information and Documentation Centre (DESIDOC) is a nodal centre for information communication and dissemination in the Defence Research & Development Organization (DRDO). As the publication wing of DRDO, DESIDOC brings out regular publications including Defence Science Journal, DESIDOC Bulletin of Information Technology, DRDO Newsletter, DRDO Samachar *and* Technology Focus. *These periodicals cover a wide variety of topics in various subject areas targeting different user communities situated all over India. A pilot project was undertaken with an aim to provide online desktop access to the full text of these periodicals to the users including R&D scientists of more than 50 laboratories and establishments. The project also aimed at facilitating the Publications Division to directly upload the contents to the system. The open source software EPrints is used and customized according to the user requirements particularly on Intranet. Upon successful testing and evaluation, these periodicals will be hosted on Internet allowing subscription, access and downloading by users across the globe. This paper discusses the experience in using EPrints and customization at various levels for DRDO publications and explains various features of the model.*

Keyword: EPrints, e-journals, Metadata, Repository, Defence Science Journal, DESIDOC Bulletin of Information Technology.

1. INTRODUCTION

The exponential growth in the volume of published information, the difficulty in retrieving information from libraries due to the literature seepage and scattering, the need to control and provide access to ever increasing volume of information, the faster rate of increase in the costs of raw materials used in publishing leading to the escalation of manufacturing costs of books and journals, the need to reduce the time required for conventional publishing, and the realization of the potential and unique features of electronic media are the reasons for the explosive growth of electronic publishing in the recent times. Although many types of publications are in vogue, e-journals gained a lot of acceptability and gradually these gave way to online journals.

The most important advantage of online journals is the savings in the run-around time and up to 24-36 per cent savings for publishers (Woolfrey, 1993) as printing and postage charges are eliminated. While some online journals are published in parallel with their print versions 3-5 weeks early, the instantaneous Internet journals are made available about 8-11 weeks in advance to their printed versions; this suits the R&D scientists who wish to keep abreast of current developments in their fields. Many online journals are available free of charge with print journals (for example Academic, Elsevier Science, Taylor-Francis, etc), some charge extra charges over print subscription charges (8 to 10 per cent, for example, Wiley, AIAA, IEE, etc) while some charge more than 100 per cent extra (for example, Jane's) for providing online access. The number of online journals is increasing year after year (for some statistics, see Parekh, 1999, Lakshmana Moorthy and Karisiddappa, 2000) and in a couple of years almost all

journals including popular scientific magazines will be available online. Many Indian journals are available online. Taking this in to consideration, the DESIDOC has taken a pilot project to assess the viability and to evaluate the technology for making regular periodicals available online over Internet.

2. DRDO PUBLICATIONS

On behalf of the Defence Research & Development Organization (DRDO), DESIDOC is bringing out the following regular periodicals:

Defence Science Journal (DSJ): The journal is a quarterly research periodical of DRDO. The journal publishes research papers in various disciplines of basic and applied sciences, engineering and technology having direct defence applications. Review papers, short communications, research notes and scientific correspondence having a bearing on defence are accepted for publication in the journal. The articles published in the Journal are indexed/reviewed in over a dozen abstracting and indexing periodicals.

DESIDOC Bulletin of Information Technology (DBIT): It is a bi-monthly publication bringing out the current developments in library and information technology to its readers. It publishes original research papers and review articles and current developments in library and information science (LIS) and technology. It also covers professional developments including literature and book reviews, conferences, etc. for the benefit of the LIS professionals.

DRDO Newsletter and DRDO Samachar: These two monthlies cover the manifold activities of the DRDO laboratories and establishments. Being house bulletins of DRDO, besides reporting technological developments, they cover socio-cultural activities, human resource development activities, etc. The main objectives of these publications are to disseminate information about the DRDO technological developments to the outside world besides bridging the communication gap among various levels of management and other staff of DRDO. While *DRDO Newsletter* is published in English, *DRDO Samachar* is published in Hindi.

Technology Focus: This is bi-monthly periodical focusing on the technologies developed by DRDO. It covers the products, processes, technologies, systems, components, etc developed by the laboratories of the organization.

DRDO Science Spectrum: This is an annual research periodical bringing out the articles which are delivered during the National Science Day by eminent scientist and researchers. The topic covers various disciplines of basic and applied sciences, engineering and technology.

The first two publications are available on Internet website (www.drdo.org) up to the abstract level. It is proposed to provide online access to the full text of these two journals with effect from January 2007 enabling individuals and institutional (library) subscribers access and download required papers. Also the other journals will be made available online free to these users. It is also envisaged that at a later date free online access to the back volumes of these journals are made available to the subscribers.

3. OPEN ACCESS THROUGH NETWORK

DRDO Rapid Online Network Access (DRONA) is a wide area Intranet covering over 60 laboratories/establishments and units of DRDO spread all over India with the researchers mainly focused in science and technology fields. A pilot project was conceived and an electronic publication model has been developed to provide online access to and delivering the full text articles on the desktops of the DRDO R&D community. The coverage of the articles for the pilot study starts from 2005 onwards and the file format includes HTML, PDF and image files.

3.1 Open Source Software

Open Source Software describe as, it is a software created by programmers who want to share their source code, which is part of a program that is readable by anyone who might find the program, or a variation of the program, useful. In the other words the term open source refers to software in which the source code is freely available for others to view, amend and adapt.

There are many open source software are available for making digital library and Institutional Repositories. The widely popular and used software are Greenstone, EPrints and DSpace. In this pilot project EPrints software has been preferred to use due to the repository model is more similar to the online publication, easy to use and install and more over its used by many institutions and organizations compared to other software.

The EPrints version 2.3.11 has been installed on a Linux server with all the supporting modules like mod_perl, DBI, Data-ShowTable, Unicode, Latex etc. Since the publication model is more similar to the repository model so the open source software EPrints has been used for DRDO online publications with minor changes in some of the fields. This module is in operation under the domain name http://publication.desidoc.deldom/ on DRONA, the common platform for information exchange across the DRDO laboratories and establishments.

EPrints open source software is used to publish these periodicals and provided full text access to the entire DRDO user community on Intranet. This paper mainly discusses the experience gained using EPrints in designing the structure, database format and the way the customization has been done for the electronic publication model (Fig. 1).
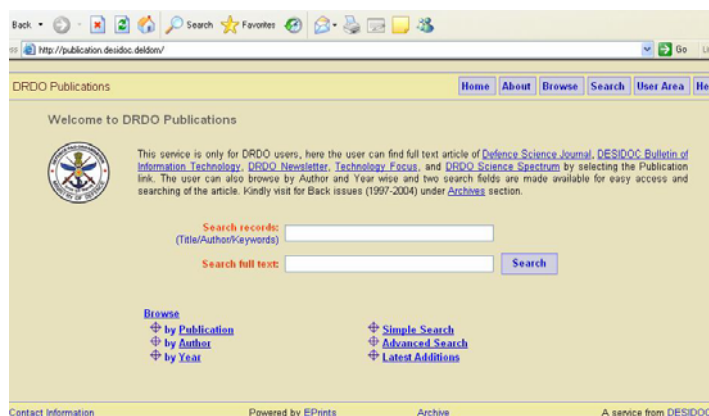

Figure 1.

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Testing and evaluation of the model, at present the users are allowed searching, browsing, retrieving and downloading freely without any login or password. From the homepage the users can directly navigate to a particular publication by selecting the title. In addition, the Author- and Year-wise navigation facilities have been provided to access the full text articles. Simple and Advance search facilities are also provided to search the entire contents. Registration by the Publication Group has been restricted and the system won't allow the users to register by themselves. Only limited accounts are used against the publication name to upload the content depending on the frequency.

3.2 Data and Structure

Different sections of Publication Division of DESIDOC are bringing out the periodicals according to the frequency of the respective publication. To incorporate the publications in a common window, EPrints open source software (Jeyakanth, 2002) has been used. Figure 2 shows interlinking of content uploading and access to various users situated in different zones on Intranet. It provides all the features of EPrints in addition to Author view and total number of records in the archive.
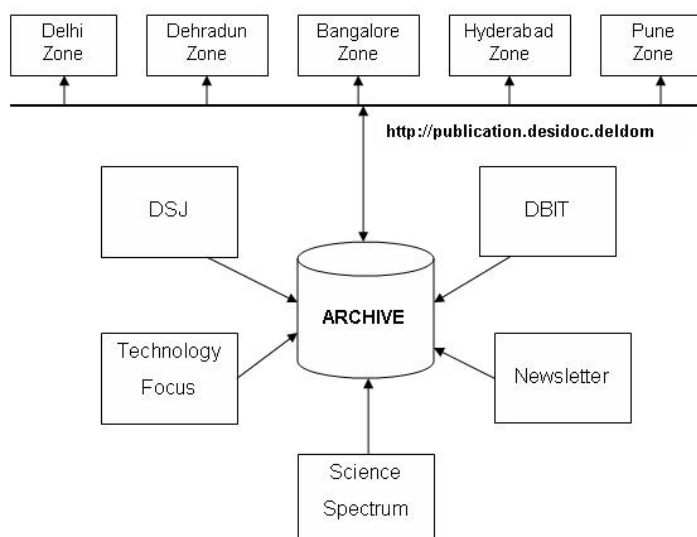

Figure 2. Content uploading and access to publications archive.

The researchers are placed in different zones and using the common Intranet platform for information sharing and accessing. This particular electronic publications archive is hosted by DESIDOC at Delhi. The Groups bringing out the individual publications has been assigned with user name and password at Group level for uploading the contents directly to the archive. Once the articles are submitted the Editor (Administrator) will check the authenticity of the information and move them to the main archive. Figure 3 shows the information flow into the main archive. The structure of the archive is defined as Publication Name, Year of Publication, Volume No and Issue No. One can directly access the full text of articles directly by selecting the above order.
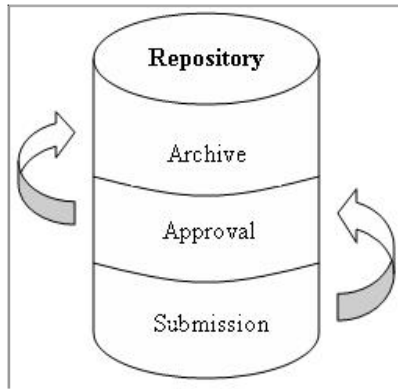
Figure 3. Information flow.

3.3 Configuration of the Subject Tree

The EPrints subject tree has been customized (Rajashekar, 2003) with the publication name (see Fig. 4) by deleting the existing subject category using Administrator. The total number of articles is displayed within the bracket of each heading and sub-heading of the publication. The publications are displayed in the following sequence:

   a) *Defence Science Journal* → Year → Vol. No → Issue No.
   b) *DESIDOC Bulletin of Information Technology* → Year → Vol. No → Issue No.
   c) *DRDO Newsletter* → Year → Vol. No → Issue No.
   d) *DRDO Samachar* → Year → Vol. No → Issue No
   e) *Technology Focus* → Year → Vol. No → Issue No.
   f) *DRDO Science Spectrum* → Year → Subject.
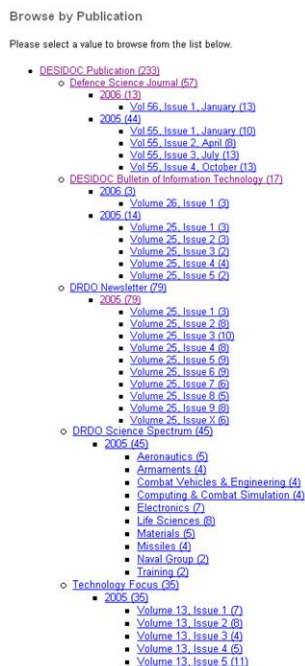

Figure 4. The subject tree.

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The subject tree can be directly edited through using Administrator account in the tree structure as follows,

```
Subjects:Publication Name: ROOT: 0
        DSJ: Defence Science Journal:subjects: 0
                DSJ2005: 2005: subjects: 0
                        DSJ200555:Volume 55: subjects: 0
                                DSJ2005551:Issue 1:DSJ: 1
                                DSJ2005552:Issue 2:DSJ: 1
                                DSJ2005553:Issue 3:DSJ: 1
                                DSJ2005554:Issue 4:DSJ: 1
        DBIT:DESIDOC Bulletin of Information Technology:subjects: 0
                DBIT2005:2005:subjects: 0
                        DBIT200525:Volume 25:subjects: 0
                                DBIT2005251:Issue 1:DBIT: 1
                                DBIT2005252:Issue 2:DBIT: 1
                                DBIT2005253:Issue 3:DBIT: 1
                                DBIT2005254:Issue 4:DBIT: 1
        Etc. etc.
```

Since the journal volume and issue numbers are predefined, static and continuously grow, the numbers depend on their periodicity. So, it was found to be better to configure in graphic mode using Administrator account instead of edit or writing subject.txt file and importing subject trees into the existing subject category.

The user can directly access the full text articles by selecting the periodical name and follow the sequence. To keep flexibility, accessing and downloading preferences, three different file formats viz. PDF, HTML and Image are used for the articles in the archive.

3.4 Configuration of the Browse View for Author

EPrints basically allows generating views for any metadata field in the repository. By default it provides subject and year browse views. Normally subject, year and author fields are sufficient for electronic publication model. To configure the browse view for author, the file name ArchiveConfig.pm in the archives folder has been edited and included the following array to the $c->{browse_views} hash reference {…},

{ id=>"people", fields=>"creators/editors", order=>"-date_effective" },

4. FUTURE PLANS

The present Intranet based electronic publication model is under process of moving into Internet domain which is mainly focused on the journals *DSJ* and *DBIT*. The back volumes of *DSJ* (from volume 1, 1950), *DBIT* (from volume 1), *DRDO Newsletter* (from volume 1), *DRDO Samachar* and *Technology Focus*, will also be added to the archives to enable the subscribers to search and download articles from them free of charge. The e-journal website contains journal title and payment option. The subscriber can pay through conventional (by cheque or demand draft) means and fill in the payment particulars. The Login ID and Password will be provided to the subscriber through which the subscribers can access the full text articles. The Login ID and Passwords will be provided and maintained by DESIDOC. Incase of Institutional

subscribers, IP will be enabled at the server level and to enable full text access to the users of the institution.

5. CONCLUSION

The electronic/online publication model in India is still evolving. It is fascinating to bring the researchers close to their areas of interest over the Net. The users can access the information at any time, any where and any kind of material. To disseminate the right information to the right user at right time, the open source software E-Print was used and customized according to the requirements which are more flexible and simple to use.

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