**Chapter 3**

**Software Selection and Installation**

The aim of the project was to develop a new Institutional Repository and Online Public Access Catalogue for the Institute using open-source framework. This chapter details the selection and installation of suitable software applications and supporting tools for developing IR and OPAC.

**Selection and Installation of Institutional Repository Software**

**Repository Software Selection**

The specific repository software was selected from the Directory Of Open Access Repositories (Open DOAR), a global directory of open access repositories started in 2005. It is a collaborative project of the University of Nottingham and Lund University, funded by Open Society Institute (OSI), Joint Information Systems Committee (JISC), SPARC Europe and Scholarly Publishing and Academic Resources Coalition and CURL. As of June 2021, the directory listed 5608 repositories worldwide, including subject repositories and institutional repositories. Of these, 2234 repositories were built on the open-source software called D-Space, followed by E-Prints (616 nos.). The complete list of software-wise list of repositories as per the Open DOAR is given in Table 1.

**Table 1**

*Repository Software-wise list of OpenDOAR*

|  |  |  |
| --- | --- | --- |
| **Sl. No.** | **Repository Software** | **Number of Installation** |
| 1 | DSpace | 2234 |
| 2 | EPrints | 616 |
| 3 | WEKO | 532 |
| 4 | Digital Commons | 296 |
| 5 | Islandora | 145 |
| 6 | CONTENTdm | 100 |
| 7 | OPUS | 87 |
| 8 | HAL | 75 |
| 9 | dLibra | 64 |
| 10 | Fedora | 63 |
| 11 | PURE | 57 |
| 12 | Greenstone | 51 |
| 13 | Drupal | 36 |
| 14 | Invenio | 28 |
| 15 | Earmas | 24 |
| 16 | Digibib | 23 |
| 17 | Wildfire | 22 |
| 18 | SciELO | 19 |
| 19 | Diva-Portal | 19 |
| 20 | VITAL | 15 |
| 21 | DigiTool | 15 |
| 22 | MyCoRe | 13 |
| 23 | Omeka | 12 |
| 24 | Fez | 9 |
| 25 | XooNIps | 7 |
| 26 | Cybertesis | 6 |
| 27 | Equella | 6 |
| 28 | Open Repository | 6 |
| 29 | Others | 1072 |
| **Total** | **5652** |

The DSpace, the most heavily used application, was selected for developing the open-source based IR of AIISH. It was decided to use the latest available version of the DSpace for Windows.

**Supporting Tools**

The supporting applications and tools were also finalized as given below.

1. Java jdk -version 8
2. Tomcat-version 9
3. Apache maven- version 3.6.3
4. Apache Ant - version 1.9.15
5. Postgresql - version 9.6 and pgAdmin

**Hardware Infrastructure**

The selected applications were deployed on the server of the Library and Information Centre, AIISH having the following hardware infrastructure.

1. Processor: Intel(R) Xeon(R) Gold 6152 CPU @2.10GHz
2. RAM: 64 GB
3. System type: 64 bit, x64-based processor
4. Storage: 8 TB
5. Operating system: Linux/Ubuntu 18.04 LTS; Windows Server 2016

**Installation Procedure**

1. Downloaded Apache Ant and Maven copied to the folders created in the server computer as ‘Apache Ant’ and ‘Apache Maven’
2. Environmental variables were set up for JAVA, Ant and Maven and checked its functioning.
3. PostreSQL was installed by creating a path, providing a service name account name password, port no., eabling procedural language and contrib modules
4. pgAdmin was started and database was connected by right clicking PostgreSQL .
5. A login role was added for the DSpace and created a database by name ‘dspace’
6. Following the installation of PostgreSQL, Apache Tomcat was installed by choosing the installer location, connector port, admin user name and password, and selecting the path of the Java virtual machine on the system.
7. The DSpace software for Windows was downloaded from the official website of the software at [www.duraspace.org/dspace/download](http://www.duraspace.org/dspace/download)
8. The downloaded software was extracted to a directory created as ‘dspace’
9. Started PostgreSQL server and in the command line entered ‘dspace’ directory and ran maven by entering ‘maven package’

By following the above procedures the DSpace software was successfully installed.

**Installation of Koha Software**

The Koha software was installed on Debian Linux operating system as explained below.

1. The latest version of Koha was installed by entering the following commands

“sudo apt install -y koha-common”

1. Next, the domain name and port numbers were edited. The port number of Koha was given as 8080 using the command “INTRAPORT=”8080”
2. This is followed by the installation of MariaDB Server by entering the command” sudo apt install -y mariadb-server”
3. A root password was assigned for the MariaDB by following the command “
sudo mysqladmin -u root password “
4. A Koha instance was created by applying the following commands “
“sudo a2enmod rewrite” “sudo a2enmod cgi” and “sudo service apache2 restart” followed by “sudo koha-create --create-db library“
5. The port 808 was assigned to Koha staff client and 80 for the OPAC. The new port was added to the Apache by following “sudo mousepad /etc/apache2/ports.conf”
6. The initial parameters such as branch, item, super user etc. are created and restarted Memcached service and opened Koha web installer.
7. The Koha staff client was opened and set up the library.