

INSTALL DSPACE 4.1 IN UBUNTU 12.04 Server

(This document [primarily edited and prepared](#) by Dr. G. Santhosh Kumar, CUSAT, was corrected and re-issued by Nikos Tsatsakis for the needs of the subject “Repositories and Open Educational Resources” which was part of the course [“Open Source Center of Excellence in Tourism and Educational Software”](#) that was held from May 21 to June 25 2014 at the University of Crete)

The document describes installation of DSpace 4.1 in Ubuntu 12.04 server. As of March 2014, the DSpace 4.1 is the latest version and Ubuntu 12.04 is a stable LTS version. However the installation procedure will be same for other flavors of Linux based OS.

Requirements:

Ubuntu 12.04 Server (ISO image CD/DVD)

OpenJDK 7 (Available with Ubuntu package)

PostgreSQL 9.1 (Available with Ubuntu package)

Apache Tomcat 7 (Available with Ubuntu package)

Apache Maven 3.2.1

(<http://www.dsgnworld.com/am/maven/maven-3/3.2.1/binaries/apache-maven-3.2.1-bin.tar.gz>)

Apache Ant 1.9.3 (<http://apache.mesi.com.ar//ant/binaries/apache-ant-1.9.3-bin.tar.gz>)

DSpace 4.1

(<http://sourceforge.net/projects/dspace/files/DSpace%20Stable/4.1/dspace-4.1-src-release.tar.gz>)

Installation Procedure

Preparing the server:

Ubuntu 12.04 LTS is a long-term support release, with support guaranteed until April 2017. Go to <http://www.ubuntu.com/download/server> link and download the ISO image; there are two versions available (32bit and 64 bit). For production servers 64 bit is recommended.

Use a CD/DVD made out of the above ISO image to install the base system.

Make the system bootable from CD (this can be done through changing boot order in BIOS) and install Ubuntu. Another option is to install DSpace on an Ubuntu virtual machine using for example VMware Player (instructions in Greek can be found in http://ma.ellak.gr/edu/pluginfile.php/335/mod_resource/content/0/A.FirstLectureVMs.pdf)

It is preferable to make separate partitions to define file systems. During the install process, you can select postgres as database for installation.

Updating the server

After the installation, run the following commands.

Note: to run a command in Ubuntu, you must be logged in as root. To do so always append sudo as prefix. For example;

To become root user do the following steps:

```
$sudo passwd
```

 Enter password for root user

```
$su root
```

Now you will become root user identified as # symbol at the terminal

To update the server run

```
#apt-get update
```

```
#apt-get upgrade
```

The above commands will make the system up-to-date.

What is **apt**?

apt is advanced packaging tool used to install and remove software on debian and its variant distributions.

```
apt-cache search <package name>
```

```
apt-get install <package name>
```

aptitude is menu driven version of apt

Installing OpenJDK 7

OpenJDK is available with Ubuntu, to install (as root user , ie; # prompt)

```
#apt-get install openjdk-7-jdk
```

Set **JAVA_HOME** environment variable

```
#apt-get install vim
```

```
#vim /etc/environment
```

add following at the top for 32-bit architecture

```
export
```

```
JAVA_HOME=/usr/lib/jvm/java-7-openjdk-i386
```

or

add following at the top for 64-bit architecture

```
export
```

```
JAVA_HOME=/usr/lib/jvm/java-7-openjdk-amd64
```

Add to **PATH** variable

at the end of the string `PATH=/usr/local/sbin:/usr ...` append

```
:$JAVA_HOME/jre/bin
```

It should look something like

```
export JAVA_HOME=/usr/lib/jvm/java-7-openjdk-i386
```

```
PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:$JAVA_HOME/jre/bin"
```

Save and quit **Please refer the box Setting environment variables**

Run the following command (please note the command starts with a "DOT " and a space)

```
#. /etc/environment
```

Verify you have installed java

```
#echo $JAVA_HOME (should tell the path to java)
```

```
#java -version (should tell the version of the java)
```

Setting environment variables

When you run a command from terminal, the executable command should run from its `/bin` directory. This is specified in `/etc/environment` file. All the home directories can be set at here.

You can open this file with following command

```
#vim /etc/environment
```

To insert a line; press `<i>` (letter i from keyboard)

To save; press `:wq>` and enter key

To quit; press `:q!>` and enter key

Install tomcat7

```
#apt-get install tomcat7
```

Download & Install apache maven 3 & ant

Change the directory to /usr/share

```
#cd /usr/share
```

```
#wget
```

```
http://www.dsgnwrl.com/am/maven/maven-3/3.2.1/binaries/apache-maven-3.2.1-bin.tar.gz (one single command!!!)
```

```
#wget http://apache.mesi.com.ar/ant/binaries/apache-ant-1.9.3-bin.tar.gz
```

```
#tar -zxf apache-maven-3.2.1-bin.tar.gz (mind spaces after .gz !!!)
```

```
#tar -zxf apache-ant-1.9.3-bin.tar.gz
```

```
#vim /etc/environment
```

Add following

```
export M3_HOME=/usr/share/apache-maven-3.2.1
```

```
export ANT_HOME=/usr/share/apache-ant-1.9.3
```

```
PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games :$JAVA_HOME/jre/bin:$M3_HOME/bin:$ANT_HOME/bin"
```

Save, exit vim (:wq) and run the following commands

```
#ln -s /usr/share/apache-maven-3.2.1/bin/mvn /usr/bin/mvn
```

```
#ln -s /usr/share/apache-ant-1.9.4/bin/ant /usr/bin/ant
```

```
#. /etc/environment
```

Verify you have installed maven and ant

```
#echo $M3_HOME should tell the path to maven
```

What is **tar** command?

It is a primary archiving utility of linux. Also used to zip and unzip directories

#tar -zxf <archivename.tar.gz> command unzips and extracts the given file in the format tar.gz or tgz

What is **wget** command?

It is download utility of linux.

```
#mvn -version
```

 should tell the version of the maven

```
#echo $ANT_HOME
```

 should tell the path to ant

```
#ant -version
```

 should tell the version of the ant

Download & Install DSpace 4.1

Change the directory to /usr/share

```
#cd /usr/share
```

```
#wget
```

```
http://sourceforge.net/projects/dspace/files/DSpace%20Stable/4.1/dspace-4.1-src-release.tar.gz
```

 (one single command!!!)

```
#tar -zxf dspace-4.1-src-release.tar.gz
```

Create the DSpace user (system user)

```
#useradd -m dspace
```

Install PostgreSQL

```
#apt-get install postgresql
```

Database set-up

Create the database user (dspace)

Login as postgres user and create a dspace database user

```
#su - postgres
```

```
$createuser -U postgres -d -A -P dspace
```

```
$exit
```

You will be prompted for password for the new user (give **dspace** as password), and for creating new roles by the new user (answer **no**)

Allow the database user (dspace) to connect to the database

```
#vim /etc/postgresql/9.1/main/pg_hba.conf
```

Add this line to the configuration **on top of the “local session” after the postgres use line!**

```
local all dspace md5
```

Save, exit vim (:wq) and restart Postgres

```
#service postgresql restart
```

Create a dspace database

```
#createdb -U dspace -E UNICODE dspace
```

You will be prompted for password for the new user (give **dspace** as password)

Install Tomcat

```
#apt-get install tomcat7
```

Configure Tomcat

```
sudo vim /etc/tomcat7/server.xml
```

Insert the following chunk of text just **above** the closing `</Host>`

```
<!-- Define a new context path for all DSpace web apps -->
<Context path="/xmlui" docBase="/dspace/webapps/xmlui" allowLinking="true"/>
<Context path="/sword" docBase="/dspace/webapps/sword" allowLinking="true"/>
<Context path="/oai" docBase="/dspace/webapps/oai" allowLinking="true"/>
<Context path="/jspui" docBase="/dspace/webapps/jspui" allowLinking="true"/>
<Context path="/lni" docBase="/dspace/webapps/lni" allowLinking="true"/>
<Context path="/solr" docBase="/dspace/webapps/solr" allowLinking="true"/>
```

Save, exit vim (:wq)

Create the [dspace] directory

This is the place where the running dspace code will reside

```
#mkdir /dspace
```

```
#chown dspace /dspace
```

NOTE: **[dspace]** is the directory where the installation goes, we have created /dspace so this is [dspace] directory. **[dspace-source]** is the source code reside. We have downloaded the code /usr/share/dspace-4.1-src-release, so this is [dspace-source] directory

```
#cd /usr/share/dspace-4.1-src-release
```

```
#mvn -U package (Takes a long time!!!!)
```

After compilation, do the following

```
#cd dspace/target/dspace-4.1-build
```

```
#ant fresh_install
```

Fix tomcat permissions and restart Tomcat Server

```
#chown tomcat7:tomcat7 /dspace -R
```

```
#service tomcat7 restart
```

Create an Administrator account (For use in the web interface as well)

```
#/dspace/bin/dspace create-administrator
```

Test the DSpace instance in a web browser

<http://localhost:8080/jspui>

<http://localhost:8080/xmlui>