

#### Building Digital Library Using DSpace (A Windows Experience)

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#### Prologue

As an Open Source Software you can develop your digital library using DSpace in any Operating System you wish.

Here, I have tried to install DSpace in Windows 10 (64 bit) Operating System.

The installation of DSpace is documented in the DuraSpace Wiki, which is an official guide for installation. Hence, you can also visit the DuraSpace Wiki's DSpace installation document.

Also you can follow any guide from the internet (Blogs, YouTube videos, PPTs) for any reference. There are plenty of such guides in the internet.

#### Pre-requisites for installing DSpace software



### Place the zipped files in C: drive of the Windows

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👆 Downloads 🛛 🖈	PerfLogs	19-03-2017 02:33	File folder	
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Music	Users	30-05-2020 17:58	File folder	
Videos	Windows	30-05-2020 16:57	File folder	
VIGEOS	apache-maven-3.6.2-bin	19-05-2020 12:11	WinRAR ZIP archive	8,962 KB
OneDrive	dspace-6.3-release	30-05-2020 17:01	WinRAR ZIP archive	496 KB
This PC	🖀 apache-ant-1.10.7-bin	19-05-2020 12:09	WinRAR ZIP archive	9,948 KB

### Extract all the zipped files and rename in C: drive

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#### Java installation



#### Destination unchanged (click next)

🖹 Java	
Select optional features to install from the list I installation by using the Add/Remove Program Development Tools Source Code Public JRE	below. You can change your choice of features after sutility in the Control Panel Feature Description Java SE Development Kit 8 Update 231 (64-bit), including the JavaFX SDK, a private JRE, and the Java Mission Control tools suite. This will require 180MB on your hard drive.
Install to: C:\Program Files\Java\jdk1.8.0_231\	Change

#### Destination unchanged for JRE (click next)

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Click "Change" to install Java to a d	ifferent folder.			
Install to: C:\Program Files\Java\jre1.8.0_231		Chan	ige	

#### Java installation complete (close)



### Set user and system variables (right click on *This PC* icon



#### Click on Advanced system setting



#### Click on *Environment Variables*



#### Click New on the section User variables for library



# Put ANT\_HOME in variable name and ant path in value (C:\Ant).

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## Put MAVEN\_HOME in variable name and maven path in value (C:\Maven).

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Google 5 Chrome 5 Chrome 6 Edge	(E) vork OK	Delete Cancel

### Put JAVA\_HOME in variable name and java path in value (C:\Program Files\Java\jdk1.8.0\_231).

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## On the same screen click *Path* under the section *System variables* and click *New*

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#### Add C:\Ant\bin, C\:Maven\bin, C:\Program Files\Java\jdk1.8.0\_231\bin and C:\Program Files\Java\jre1.8.0\_231 as System variable and click *OK*



### Check whether Java, Ant and Maven are properly installed or not



#### Install Tomcat (click next)



#### Select all (click next)

Choose which features of Ap	bache Tomcat you want to install.	A A A
Check the components you v install. Click Next to continue	vant to install and uncheck the com	ponents you don't want to
Select the type of install:	Custom 🗸	
Or, select the optional components you wish to install:	Tomcat     Start Menu Items     Occumentation     Manager     Host Manager     Examples	Description Position your mouse over a component to see its description.
Space required: 13.6 MB		
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#### Destination unchanged (click next)

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#### Change the destination to $\ensuremath{\mathsf{C:}\\mathsf{Tomacat}}$

noose Install Location Choose the folder in which to install Apache Tomcat.		Choose Install Location Choose the folder in which to install Apache T	omcat.	
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#### Click on Run Apache Tomcat and Finish



#### Make sure weather your Tomcat is running or not in the Task Bar of the machine



#### Also check in any web browser by typing *localhost:8080* If you see the following screen, then your Tomcat is properly installed.

 $\leftarrow$ 



In the next boot of the machine you have to click on the *Monitor Tomcat* button by clicking on the *Start* button of your Windows



### Such a message may appear. Its an authentication problem. Don't worry. We have solutions.



## Go to the location C:\Tomcat\bin and right click on *Tomcat9w* icon

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DSpace for window	💿 makebase	07-10-2019 15:27	Windows Batch File	4 KB	
Music	Service	07-10-2019 15:27	Windows Batch File	9 KB	
Videos	setclasspath	07-10-2019 15:27	Windows Batch File	4 KB	
	shutdown	07-10-2019 15:27	Windows Batch File	2 KB	
len oneDrive	💿 startup	07-10-2019 15:27	Windows Batch File	2 KB	
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	🍗 Tomcat9w	07-10-2019 15:27	Application	119 KB	
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	💿 tool-wrapper	07-10-2019 15:27	Windows Batch File	5 KB	
	💿 version	07-10-2019 15:27	Windows Batch File	2 KB	

When this screen appears, go to **Compatibility** section and check the option Run this program as an administrator. Click Apply and OK.



### Now go the Tomcat icon on the Task Bar of your machine and right click, then *Start the service*.



#### Install Postgresql (click next)



#### Destination unchanged (click next)

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Please specify the dire	ectory where PostgreSQL will be inst	alled.	
Installation Directory	C:\Program Files\PostgreSQL\12	<b>F</b> 9	
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istallBuilder		and the second se	

#### Type *postgres* as password

Setup				1	
Password					
Please provide a p	assword for the da	tabase superuser (	(postgres).		
Password	*******				
Retype password	*******				
					ł

#### Uncheck the Stack Builder and click on Finish



#### Now create a database and login role. Chose *pgAdmin 4* from the start button.



## The screen will appear in a web browser. Type the password. We gave *postgres* as password.



### Again password is *postgres*.

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#### First create the login role for our database

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√ <sup>(1):40</sup> ↓ 30-05-2020 ↓

#### Login name as *dspace*. You can give any.

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#### Password as *dspace*. You can give your own.

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#### Check all privileges and *Save*

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#### Now we have to create our database

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#### Database name *dspace*. You can give your own. Owner as *dspace*.

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#### Choose UTF8 encoding and Save

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### Now, we have to create the Extension.

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#### In this step we will configure our DSpace application. Navigate to C:\Build\dspace\config\dspace.cfg file

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Open the *dspace.cfg* file and set the installation directory as C:/dspace

#### Also, we have changed our DSpace site name as *DSpace at KKHSOU*. You ca give your own.

#### ##### Basic information ######

# DSpace installation directory
# Windows note: Please remember to use forward slashes for all
paths (e.g. C:/dspace)
dspace.dir = C:/dspace

# DSpace host name - should match base URL. Do not include port number. dspace.hostname = localhost

# DSpace base host URL. Include port number etc.
dspace.baseUrl = http://localhost:8080

# The user interface you will be using for DSpace. Common usage is either xmlui or jspui dspace.ui = xmlui

# Full link your end users will use to access DSpace. In most cases, this will be the baseurl followed by # the context path to the UI you are using.

# Alternatively, you can use a url redirect or deploy the web application under the servlet container root. # In this case, make sure to remove the /\${dspace.ui} from the dspace.url property. dspace.url = \${dspace.baseUrl}/\${dspace.ui}

```
# Optional: DSpace URL for mobile access
# This
#dspace.mobileUrl = http://mobile.example.com
```

# Name of the site
dspace.name = DSpace at KKHSOU

We have given database user name and password as *dspace*. If you have given your own change the value here.

### You can set your mail server here.

# Database username and password db.username = dspace db.password = dspace

##### Email settings ######
# SMTP mail server (allows DSpace to send email notifications)
mail.server = smtp.example.com
# SMTP mail server authentication username and password (if
required)
mail.server.username =
mail.server.password =

Its time to execute Maven. In this step we need internet connectivity. Go to the location *C:|Build|dspace* and type *mvn package* in command prompt.

C:\Windows\System32\cmd.exe

Microsoft Windows [Version 10.0.15063] (c) 2017 Microsoft Corporation. All rights reserved.

C:\windows\system32>cd C:\Build\dspace

C:\Build\dspace>mvn package

#### Maven will continue building process and should end with *BUILD SUCCESS* as shown. It will take several minutes.



#### If your internet connection is running in a proxy, you have to configure Maven's *settings.xm*/file in the location C:\Maven\conf\ Change the value according to your setting.

```
<proxies>
   <!-- proxy
     | Specification for one proxy, to be used in connecting to
the network.
   <proxy>
     <id>optional</id>
     <active>true</active>
     <protocol>http</protocol>
     <username>proxyuser</username>
     <password>proxypass</password>
     <host>proxy.host.net</host>
     <port>80</port>
     <nonProxyHosts>local.net|some.host.com</nonProxyHosts>
   </proxy>
   -->
 </proxies>
```

#### Now its time to execute Ant. Go to the destination- *C:\Build\dspace\target\dspace-installer* Type *ant fresh\_install* and press enter.

[WARNING] The following patterns were never triggered in this artifact exclusion fi	lter:	
o 'org.glassfish.hk2.external:bean-validator:jar:*'		
[lime] Copying files to c:\Build\dspace\target\dspace-installer		
[1160]		
[ Reactor Summary for DSpace Assembly and Configuration 6.3:		
DSpace Addon Modules		
DSpace Kernel :: Additions and Local Customizations SUCCESS [06:24 min]		
[ DSpace XML-UI (Manakin) :: Local Customizations SUCCESS [02:55 min]		
[ DSpace JSP-UI :: Local CustomIzations SUCCESS [ 40.0// 5]		
[ DSpace RDF :: Local Customizations SUCCESS [61:45 min]		
[ ] DSpace KEST Local Customizations SUCCESS [ 90.04 min]		
[ ] DSpace SWORD Local Customizations		
SUCCESS [92:17 min]		
DSpace OAT-PMH :: Local Customizations SUCCESS [ 35 973 s]		
DSpace Assembly and Configuration SUCCESS [A1:10 min]		
BUILD SUCCESS		
Total time: 24:18 min		
Finished at: 2020-05-31T12:03:19+05:30		
[INFO]		

### Ant will continue its work and should end as *BUILD SUCCESSFUL* as shown below.

he DSpace code has been installed.		
o complete installation, you should do the following:		
Setup your web serviet container (e.g. Tomcat) to look for your		
Uspace web applications in: c:/uspace/webapps/		
OR conv any web applications from C:/dspace/webapps/ to		
the appropriate place for your servlet container.		
(e.g. '\$CATALINA HOME/webapps' for Tomcat)		
Start up your servlet container (e.g. Tomcat). DSpace now will		
initialize the database on the first startup.		
Make an initial administrator account (an e-person) in DSpace:		
C:/dsnaco/bin/dsnaco.snato.administraton		
C./dspace/Din/dspace create-administrator		
You should then be able to access your DSpace's 'home page':		
http://localhost:8080/xmlui		
	<pre>The DSpace code has been installed. To complete installation, you should do the following: * Setup your Web servlet container (e.g. Tomcat) to look for your DSpace web applications in: C:/dspace/webapps/ OR, copy any web applications from C:/dspace/webapps/ to the appropriate place for your servlet container.   (e.g. '\$CATALINA_HOME/webapps' for Tomcat) * Start up your servlet container (e.g. Tomcat). DSpace now will initialize the database on the first startup. * Make an initial administrator account (an e-person) in DSpace:   C:/dspace/bin/dspace create-administrator You should then be able to access your DSpace's 'home page':   http://localhost:8080/xmlui</pre>	To complete installation, you should do the following: * Setup your Web servlet container (e.g. Tomcat) to look for your DSpace web applications in: C:/dspace/webapps/ OR, copy any web applications from C:/dspace/webapps/ to the appropriate place for your servlet container. (e.g. '\$CATALINA_HOME/webapps' for Tomcat) * Start up your servlet container (e.g. Tomcat). DSpace now will initialize the database on the first startup. * Make an initial administrator account (an e-person) in DSpace: C:/dspace/bin/dspace create-administrator You should then be able to access your DSpace's 'home page': http://localhost:8080/xmlui

#### Copy desired interface folders from C:\dsapce\webapps to C:\Tomcat\webapps

Date modified	Туре	Size
31-05-2020 12:14	File folder	
31-05-2020 12:13	File folder	
31-05-2020 12:14	File folder	
	Date modified 31-05-2020 12:14 31-05-2020 12:13 31-05-2020 12:13 31-05-2020 12:13 31-05-2020 12:13 31-05-2020 12:13 31-05-2020 12:14	Date modified         Type           31-05-2020 12:14         File folder           31-05-2020 12:13         File folder           31-05-2020 12:14         File folder

#### Now, we have to create the DSpace administrator. Go to C:\dspace\bin and type *dspace createadministrator*. Press enter. Give the necessary information.

C:\Windows\System32\cmd.exe

c:\Build\dspace\target\dspace-installer>cd c:\dspace\bin

c:\dspace\bin>dspace create-administrator Using DSpace installation in: c:\dspace Creating an initial administrator account E-mail address: dipendeka@gmail.com First name: Dipen Last name: Deka Password will not display on screen. Password: Again to confirm: Is the above data correct? (y or n): y Administrator account created

c:\dspace\bin>

### Open any web browser and type *localhost:8080/jspui* in the address bar.

#### This is the result of our "KARMA". You can type *localhost:8080/xmlui* to get the other interface (xml interface)



#### Customization of different files (jspui)

File	Source	Effect
dspace.cfg	C:\dspace\config	Restart Tomcat
news-top.html	C:\dspace\config	Refresh web browser
news-side.html	C:\dspace\config	Refresh web browser
input-forms.xml	C:\dspace\config	Refresh web browser
Insert image, logo	C:\Tomcat\webapps\jspui\image	Refresh web browser
header-default.jsp	C:\Tomcat\webapps\jspui\layout	Refresh web browser
footer-default.jsp	C:\Tomcat\webapps\jspui\layout	Refresh web browser
navbar-default.jsp	C:\Tomcat\webapps\jspui\layout	Refresh web browser
favicon.ico change	C:\Tomcat\webapps\jspui\	Refresh web browser

### Enable OAI-PMH (Open Archives Initiative- Protocol for Metadata Harvesting) in our DSpace site

To enable DSpace's OAI-PMH server, just make sure the C:\**Tomcat\webapps\oai** web application is available from your Servlet Container (Tomcat).

You can test that it is working by sending a request to:

http://localhost:8080/oai/request?verb=Identify

Update the OAI-PMH index with the newest content (and re-optimize that index) at every day with this command in Command Prompt-*C:\dspace\bin\dspace oai import –o* 

#### Command Prompt

Microsoft Windows [Version 10.0.18362.836] (c) 2019 Microsoft Corporation. All rights reserved. C:\Users\library1>cd C:\dspace\bin\ C:\dspace\bin>dspace oai import -o Using DSpace installation in: C:\dspace OAI 2.0 manager action started There are no indexed documents, using full import. Full import Total: 0 items Total: 0 items Optimizing Index Index optimized OAI 2.0 manager action ended. It took 4 seconds.

C:\dspace\bin>\_

