

# DSpace

Installation and Development

- ▶ **DSpace** is an open source repository software package used for creating open access repositories for scholarly and/or published digital content. DSpace repository software serves as a digital archives system, focused on the long-term storage, access and preservation of digital content.
- ▶ Some most important features of DSpace are as follows
  - ▶ Free open source software
  - ▶ Completely customizable to fit user needs
  - ▶ Manage and preserve all format of digital content (PDF, Word, JPEG, MPEG, TIFF files)
  - ▶ Apache SOLR based search for metadata and full text contents
  - ▶ UTF-8 Support
  - ▶ Interface available in 22 languages
  - ▶ Granular group based access control, allowing setting permissions down to the level of individual files
  - ▶ Optimized for Google Scholar indexing

# DSpace Installation

Windows Platform

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# Setup JAVA

- ▶ Install JDK 8 if not available on the machine.
- ▶ Gets installed in C:\Program Files\Java\jdk1.8.\*
- ▶ Create environment variable `JAVA_HOME=C:\Program Files\Java\jdk1.8.*`
- ▶ Add JDK bin path to PATH: `C:\Program Files\Java\jdk1.8.*\bin`
- ▶ Go to command prompt, type `java -version`. See it works.

# Setup TOMCAT

- ▶ Run apache-tomcat-\*.exe to install.
- ▶ In configuration options, change HTTP/1.1 connector port to 80 (check if we should keep it to 8080).
- ▶ Provide an admin login/password, maybe admin/admin.
- ▶ Provide the path of JDK SE 8.0 (C:\Program Files\Java\jdk1.8.\*) for JVM path setup.
- ▶ Click Finish.

- ▶ Important: To improve tomcat's runtime performance, increase the runtime allowed memory size.
  - ▶ On Windows, browse to C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Apache Tomcat \* Tomcat\*, and launch "Configure Tomcat"
  - ▶ Under the Java tab, change:
    - ▶ Initial memory pool to 512 MB
    - ▶ Maximum memory pool to 1024 MB
  
- ▶ Launch TOMCAT Service
  - ▶ Run > services.msc
  - ▶ Select Apache Tomcat, change properties to start automatically.
  - ▶ Start the service.
  - ▶ To verify, launch a web browser, and go to <http://localhost>. See the apache tomcat content.

# Setup PostgreSQL

- ▶ Run postgresql-9.\*-windows-x64.exe
- ▶ Install to C:\Program Files\PostgreSQL\9.\*
- ▶ Supply password for database superuser (postgres), say postgres itself.
- ▶ Use default port 5432, and default locale.
- ▶ Installs a service for the database as well. Ensure it is set to launch automatically at system startup.

# Configure PostgreSQL for dSpace

- ▶ Run pgAdmin IV executable.
- ▶ Connect to server, supplying the superuser password (provided on installation).
- ▶ Add a new Login Role. Role name=dspace, Password=dspace.
- ▶ Provide Role privileges: Inherits rights from parent roles, Superuser, Can create databases, Can create roles.
- ▶ Add a new database. Name=dspace, Owner=dspace.
- ▶ In Definition, Tablespace=pg\_default
- ▶ Close pgAdmin IV.



# Setup maven and ant

- ▶ Unzip apache-maven-3.3.3-bin.zip to C:\Program Files\Apache Software Foundation\apache-maven-3.3.3
- ▶ Add Maven bin path to PATH: C:\Program Files\Apache Software Foundation\apache-maven-3.3.3\bin
- ▶ Add environment variables:
  - ▶ M2\_HOME=C:\Program Files\Apache Software Foundation\apache-maven-3.3.3
  - ▶ MAVEN\_OPTS=-Xms256m -Xmx512m
- ▶ Unzip apache-ant-1.9.6-bin.zip to C:\Program Files\Apache Software Foundation\apache-ant-3.3.3
- ▶ Add Ant bin path to PATH: C:\Program Files\Apache Software Foundation\apache-ant-1.9.6\bin
- ▶ Add environment variable:
  - ▶ ANT\_HOME=C:\Program Files\Apache Software Foundation\apache-ant-1.9.6
  - ▶ Verify maven and ant. Open command prompt and try mvn -v, and ant -version. See it works

# Building DSpace

- ▶ Download DSpace release archive from <https://wiki.duraspace.org> (e.g. dspace-5.x-release.zip )and unpack it to to C:\Dspace.
- ▶ Create a folder dspace-install in C:\DSpace (same level as dspace-5.x-release)
- ▶ Now edit build.properties file in C:\DSpace\dspace-5.x-release to add the dspace-install (build path).
- ▶ Change:
  - ▶ `dspace.install.dir=/dspace` to `dspace.install.dir=C:/DSpace/dspace-install`
  - ▶ `dspace.baseUrl = http://localhost:8080` to `dspace.baseUrl = http://localhost`
  - ▶ `solr.server=http://localhost:8080/solr` to `solr.server=http://localhost/solr`

- ▶ Open command prompt, cd to C:\DSpace\dspace-5.x-release\dspace
  - ▶ run mvn package.
- ▶ Once build succeeds, cd to target\dspace-installer
  - ▶ run ant fresh\_install
- ▶ If you get warning regarding GeoLiteCity, download GeoLiteCity.dat from internet and copy to C:\DSpace\dspace-install\config.

# Create DSpace admin user

- ▶ Open Command Prompt
- ▶ cd to C:\DSpace\dspace-install\bin
- ▶ Run: `dspace create-administrator`
- ▶ Supply required information - email address, first name, last name and password, say `xyz@yahoo.com`, `dspace` etc.

# Running DSpace

- ▶ Stop tomcat service if running.
- ▶ Copy webapps jspui, solr and xmlui from C:\DSpace\dspace-install\webapps to Tomcat webapps folder C:\Program Files\Apache Software Foundation\Tomcat\*\webapps
- ▶ Restart tomcat service.
- ▶ Open web browser, and go to <http://localhost/jspui>
- ▶ Login as administrator

# DSpace Installation

Ubuntu

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# Setting up JAVA

- ▶ Add the new PPA java repository and run apt-get update.
  - ▶ `sudo add-apt-repository ppa:webupd8team/java`
  - ▶ `sudo apt-get update`
- ▶ Install Java JRE and JDK from the PPA repository with apt:
  - ▶ `sudo apt-get install oracle-java8-installer -y`
- ▶ Check the java version with command below:
  - ▶ `java -version`

# Configure Java Home Environment

- ▶ Check the location of the Java directory with the command below:
  - ▶ `sudo update-alternatives --config java`
  - ▶ Java directory = `"/usr/lib/jvm/java-8-oracle/jre"`
- ▶ Then edit the environment file with gedit:
  - ▶ `gedit /etc/environment`
- ▶ Add JAVA\_HOME environment by adding the configuration line below:
  - ▶ `JAVA_HOME="/usr/lib/jvm/java-8-oracle/jre"`



- ▶ Edit the `.bashrc` file and add lines to export the `JAVA_HOME` environment variables:
  - ▶ `gedit ~/.bashrc`
- ▶ At the end of the file, paste the configuration below:
  - ▶ `export JAVA_HOME=/usr/lib/jvm/java-8-oracle/jre`  
`export PATH=$JAVA_HOME/bin:$PATH`
- ▶ Save and exit, then reload the `.bashrc` file.
  - ▶ `source ~/.bashrc`
- ▶ Make sure there is no error, and check the `JAVA_HOME` environment:
  - ▶ `echo $JAVA_HOME`

# Install Apache Tomcat 8.5

- ▶ Download and extract apache-tomcat-\*.tar.gz
- ▶ Create Folder named Dspace in root directory and copy extracted folder apache-tomcat-\* in this folder.
- ▶ Go to conf folder in tomcat installation directory
- ▶ Edit following tag in server.xml file
  - ▶ `<Connector connectionTimeout="20000" port="8080" protocol="HTTP/1.1" redirectPort="8443"/>`
- ▶ Change the port=8080 value to port=80 and Save file.

# Launch Tomcat as Service

- ▶ Open a file called tomcat.service in the /etc/systemd/system directory by typing:
  - ▶ `sudo nano /etc/systemd/system/tomcat.service`
- ▶ Paste the contents of the following slide into your service file.
- ▶ When you are finished, save and close the file.
- ▶ Reload the systemd daemon so that it knows about our service file:
  - ▶ `sudo systemctl daemon-reload`
- ▶ Start the Tomcat service by typing:
  - ▶ `sudo systemctl start tomcat`
- ▶ Check that it started without errors by typing:
  - ▶ `sudo systemctl status tomcat`

[Unit]

Description=Apache Tomcat Web Application Container

After=network.target

[Service]

Type=forking

Environment=JAVA\_HOME=/usr/lib/jvm/java-1.8.0-openjdk-amd64/jre

Environment=CATALINA\_PID=/opt/tomcat/temp/tomcat.pid

Environment=CATALINA\_HOME=/opt/tomcat

Environment=CATALINA\_BASE=/opt/tomcat

Environment='CATALINA\_OPTS=-Xms512M -Xmx1024M -server -XX:+UseParallelGC'

Environment='JAVA\_OPTS=-Djava.awt.headless=true -Djava.security.egd=file:/dev/./urandom'

ExecStart=/opt/tomcat/bin/startup.sh

ExecStop=/opt/tomcat/bin/shutdown.sh

User=<user>

Group=<group>

UMask=0007

RestartSec=10

Restart=always

[Install]

WantedBy=multi-user.target

# Setup PostgreSQL

- ▶ Install Postgresql-9.\*.deb and pgAdmin 4 using ubuntu Package Management System.
- ▶ Run pgAdmin 4 and connect to server, supplying the superuser password (provided on installation).
- ▶ Add a new Login Role. Role name=dspace, Password=dspace.
- ▶ Provide Role privileges: Inherits rights from parent roles, Superuser, Can create databases, Can create roles.
- ▶ Add a new database. Name=dspace, Owner=dspace.
- ▶ In Definition, Tablespace=pg\_default
- ▶ Close pgAdmin 4

# Setup Maven

- ▶ 1 Run command `sudo apt-get install maven`, to install the latest Apache Maven.
  - ▶ `sudo apt-get install maven`
- ▶ 2. Open the `/etc/profile` file in your favorite editor.
  - ▶ `sudo gedit /etc/profile`
- ▶ 3. Add following lines in end

```
M2_HOME=/data/dev/tools/apache-maven-  
PATH=$PATH:$M2_HOME/bin  
export M2_HOME  
export PATH
```
- ▶ 4. Verify the `M2_HOME`
  - ▶ `echo $M2_HOME`
- ▶ 5. Check the maven version
  - ▶ `mvn -v`

# Setup Ant

- ▶ Run command `sudo apt-get install Ant`, to install the latest Apache Ant.
  - ▶ `sudo apt-get install ant`
- ▶ 2 Edit the `.bashrc` file and add lines to export the `ANT_HOME` environment variables:  

```
gedit ~/.bashrc
```

At the end of the file, paste the configuration below:

```
export ANT_HOME=/apache-install-dir/apache-ant-version  
export PATH=$PATH:${ANT_HOME}/bin
```
- ▶ Check the ant version
  - ▶ `ant -version`

# Building DSpace

- ▶ Unpack dspace (dspace-5.\*-release.zip) in /root/Dspace.
- ▶ Create a folder dspace-install in /root/Dspace.
- ▶ Now edit build.properties file in /root/dspace-5.\*-release to add the dspace-install (build path).
  - ▶ Change:
    - dspace.install.dir=/dspace to dspace.install.dir=/root/Dspace/dspace-install
    - dspace.baseUrl = http://localhost:80 to dspace.baseUrl = <http://localhost>
    - solr.server=http://localhost:80/solr to solr.server=http://localhost/solr
- ▶ Open Terminal , cd to /root/Dspace/dspace-5.\*-release/dspace
  - ▶ run mvn package.
- ▶ Once build succeeds, cd to target/dspace-installer
  - ▶ run ant fresh\_install



# Create DSpace Admin user

- ▶ 1.cd to /root/DSpace/dspace-install/bin
- ▶ 2.run dspace create-administrator
- ▶ 3.Supply required information - email address, first name, last name and password, say xyz@yahoo.com, dspace etc.

# Running DSpace

- ▶ Stop tomcat service if running.
  - ▶ `service tomcat stop`
- ▶ Copy webapps jspui, solr and xmlui from `/root/Dspace/dspace-install/webapps` to Tomcat webapps folder `/root/Dspace/apache-tomcat-*/webapps`
- ▶ Restart tomcat service.
  - ▶ `service tomcat start`
- ▶ Open web browser, and go to `http://localhost/jspui`
- ▶ Login as administrator.

# Configure DSpace

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# Setting up community and collections

- ▶ Browse Community and Collections. Create Top-Level community, providing its name, description, introductory text etc.
- ▶ Configure the top level metadata schema.
  - ▶ Either add the fields in the existing Dublin core schema.
  - ▶ Or create a new schema, with namespace e.g. "http://xyz.com/mymeta", and Name as "mymeta" for example.
- ▶ Get into the schema and add metadata fields to the mymeta metadata schema.

# Metadata customization

- ▶ Select “Metadata Registry” in Admin’s administer section.
- ▶ Selecting your defined schema under Namespace Column will open following form:

ID	Element	Qualifier	Scope Note	
163	accused-name	Qualifier		<a href="#">Update</a> <a href="#">Delete...</a>
139	act	Qualifier	Act	<a href="#">Update</a> <a href="#">Delete...</a>
168	appeal-case-numt	Qualifier		<a href="#">Update</a> <a href="#">Delete...</a>
167	appeal-case-type	Qualifier		<a href="#">Update</a> <a href="#">Delete...</a>
169	appeal-case-year	Qualifier		<a href="#">Update</a> <a href="#">Delete...</a>

- ▶ To add metadata scroll down to “Add Metadata Field”.

### Add Metadata Field

To create a new field you must provide a unique element and qualifier pair. The qualifier may be left blank if desired and the element and qualifier cannot contain spaces, underscores or periods.

Element:

Qualifier:

Scope Note:

### Move Field

To move one or more field, select the desired fields (use control-key to select multiple) and the target schema. If the target schema already has fields with identical names the fields will not be moved.

Element:  
  
act  
appeal-case-number  
appeal-case-type  
appeal-case-year  
conviction-district

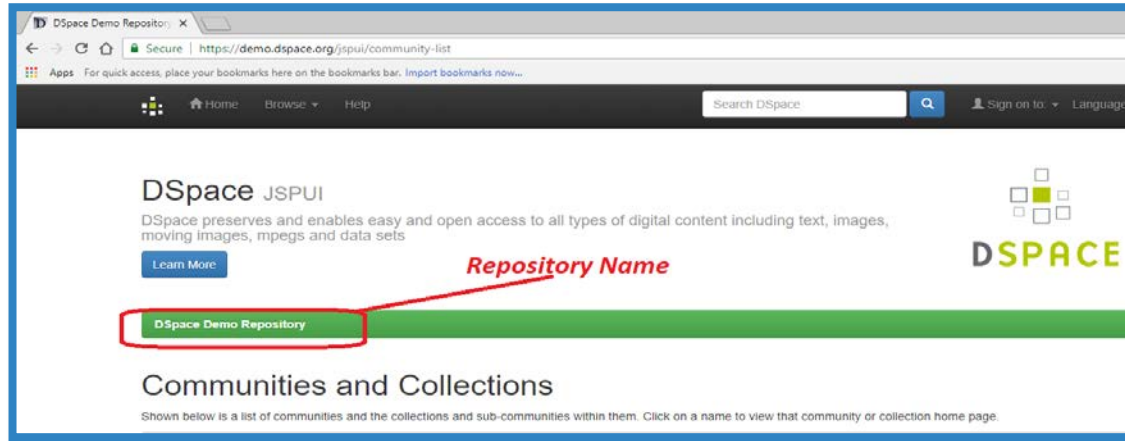
Schema:

- ▶ Open input-form.xml in dspace-install/config on text-pad.
- ▶ Add new mappings for added Metadata in the following manner:

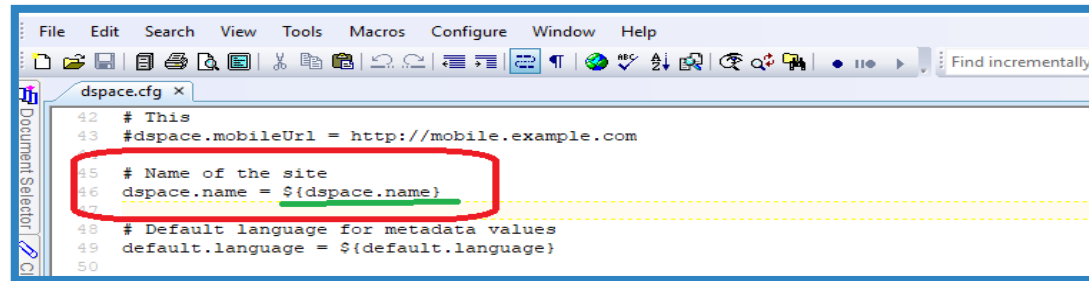
```
<field>  
<dc-schema>dc</dc-schema>  
<dc-element>title</dc-element>  
<repeatable>>false</repeatable>  
<label>Title</label>  
<input-type>onebox</input-type>  
<hint>Enter hint here.</hint>  
</field>
```

- ▶ Save and close the file.

# Changing Repository Name



- ▶ Repository name can be changed by changing following lines in dspace.cfg:



- ▶ Location of dspace.cfg:

Dspace\ \* \dspace-install\config



# Configuring search facets and submit form

- ▶ For configuring search facets and search filters, open `Dspace\dspace-install\config\spring\api\discovery.xml` in a text editor.
- ▶ Add/remove filters. For new filters added, define the metadata list it should search in.
- ▶ For example, for adding a search filter/facet using metadata field PA-From,
  - ▶ add `<ref bean="searchFilterPAFrom" />` to the facets and filters in home and other configs.

- ▶ Now define searchFilterPAFrom as:

```
<bean id="searchFilterPAFrom"  
class="org.dspace.discovery.configuration.DiscoverySearchFilterFacet">  
  <property name="indexFieldName" value="PA-From"/>  
  <property name="metadataFields">  
    <list>  
      <value>pameta.PA-From</value>  
    </list>  
  </property>  
  <property name="facetLimit" value="10"/>  
  <property name="sortOrder" value="COUNT"/>  
</bean>
```

- ▶ For the new search filters/facets and browse items, we now need to define strings for the UI labels (For example, value=PA-From above).
- ▶ These strings are defined in the messages\_xxYY.properties files for the required locale (just messages.properties for en\_US).
- ▶ The properties files is a part of dspace-api-x.y.jar, and we would need to change the properties files and build the dspace-api.
- ▶ cd to dspace-api folder, and run the command:  

```
mvn package
```
- ▶ After configuring, in dspace-install/bin run:  

```
dspace index-discovery -b
```

# User creation

- ▶ To Add user to DSpace select E-People in Admin's administer section.
- ▶ Click on Add EPerson and provide the required details.

### Edit EPerson newuser34: ?

Email:

First Name

Last Name

Phone:

Language:

Password

Verify Password

Can Log In:

- ▶ To Add user to Dspace groups select Groups in Admin's administer section.
- ▶ User inherits all the authorities provided to group members.

### Edit Group : Upload (id: 26) ?

Name:

After making changes to this group you must click the "Update Group" button below.

EPerson Members	Group Members
<input type="text" value="Upload Dspace (upload@dspace.com)"/> <input type="text" value="newuser34 (newuser34)"/>	
<input type="button" value="Remove Selected"/>	<input type="button" value="Remove Selected"/>
<input type="button" value="Select E-people..."/>	<input type="button" value="Select Groups..."/>
<input type="button" value="Update Group"/>	

# Data upload in DSpace

# Generating the DSpace Simple Archive Format packages for import.

- ▶ Create an archive a directory containing one subdirectory per item.
- ▶ Each item directory contains a file for the item's descriptive metadata, and the files that make up the item.
- ▶ Basic structure of the archive directory is shown in the following slide.

archive\_directory/

item\_000/

dublin\_core.xml -- containing metadata fields belonging to the dc schema

metadata\_[prefix].xml -- metadata in another schema, prefix is the name of the schema

contents -- text file containing one line per filename

file\_1.doc -- file 1 to be added as bitstreams to the item

file\_2.pdf -- file 2 to be added as bitstreams to the item

item\_001/

dublin\_core.xml

contents

file\_1.png

...



# Metadata XML format.

- ▶ The dublin\_core.xml or metadata\_[prefix].xml file has the following format.

```
<dublin_core>
```

```
  <dcvalue element="title" qualifier="none">A Tale of Two Cities</dcvalue>
```

```
  <dcvalue element="date" qualifier="issued">1990</dcvalue>
```

```
  <dcvalue element="title" qualifier="alternative" language="fr">J'aime les  
  Printemps</dcvalue>
```

```
</dublin_core>
```

- ▶ The contents file contains, one file name per line as follows:

```
file_1.doc
```

```
file_2.pdf
```

# Importing the package into a DSpace collection from command line.

- ▶ Open the collection in DSpace, and get its handle, by clicking Edit. The collection handle is of the form 123456789/2.
- ▶ cd to the dspace-install bin folder and run the following command:

```
dspace import --add --eperson=<admin id> --collection=<collection_handle> --source=<dspace import package dir> --mapfile=<mapfile path>
```
- ▶ Your records should get imported in the specified DSpace collection.
- ▶ Note: There is an option --test to just test the import rather than actually importing.

# UI Batch Import

- ▶ Simple archive package created above can also be imported through Administrator's UI. Steps are as follows:
  - ▶ Compress the archive directory into a zip file. Note: The zip file must directly contain the item directories.
  - ▶ Place the zip file in a public domain URL, like Dropbox or Google Drive.
  - ▶ Go to "Administer" option and select "Batch Import" under Content tab.
  - ▶ Fill in the form that appears as follows:
    - ▶ Field #1: Select "Simple Archive Format" in this drop down menu.
    - ▶ Field #2: Copy/Paste the public URL of the zip file.
    - ▶ Field #3: Select the collection in which the items will be imported.
    - ▶ Field #4: This field is optional and ignore it.

# UI Batch Import

DSpace at My University / Administer

## Batch import

Select the type of the input data

Simple Archive Format

Provide the URL of the zip file

Select the owning collection of the items (Optional)

*This field is optional meaning that if you leave it empty, you are supposed to include per item collection information in the Simple Archive Format*

Select collection

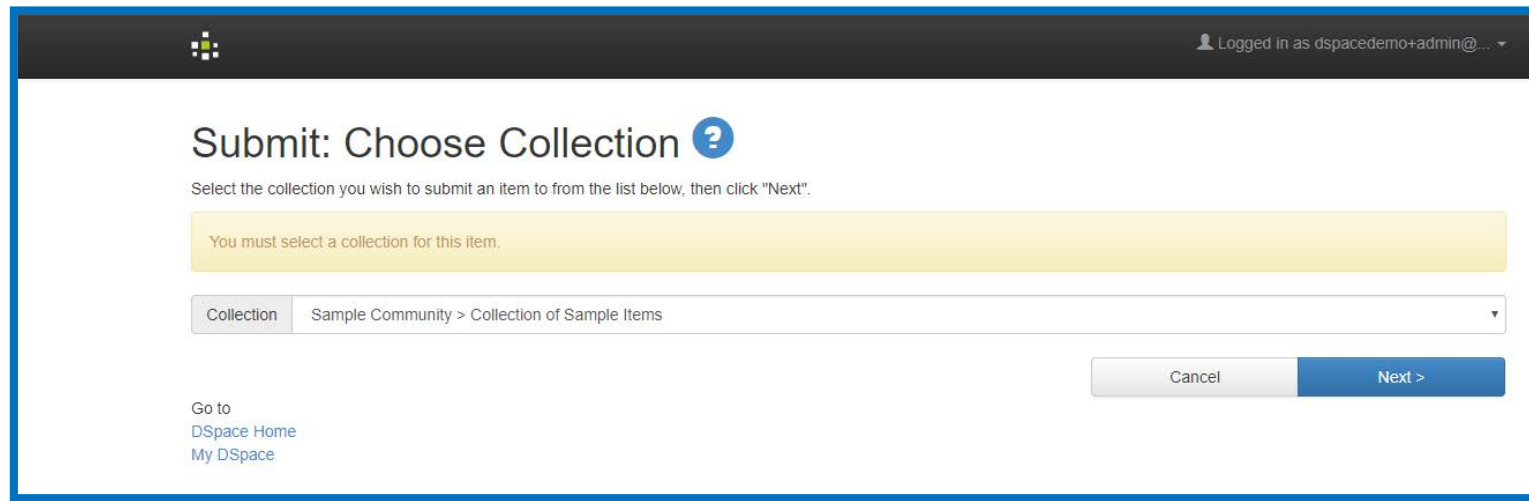
Select other collections that the items will belong to (Optional)

Collection1  
Collection2

Upload

# Single Item Upload

- ▶ To start Single Item Upload go to “Start a New Submission” under My Dspace.
- ▶ Select Collection under which new item needs to be added, then click Next.



The screenshot shows a web interface for submitting a new item. At the top right, it indicates the user is logged in as 'dspaceadmin@...'. The main heading is 'Submit: Choose Collection' with a help icon. Below the heading, there is a message: 'Select the collection you wish to submit an item to from the list below, then click "Next".' A yellow error message box states: 'You must select a collection for this item.' Below this, there is a dropdown menu for 'Collection' with the selected value 'Sample Community > Collection of Sample Items'. At the bottom right, there are two buttons: 'Cancel' and 'Next >'. In the bottom left corner, there are links: 'Go to DSpace Home' and 'My DSpace'.

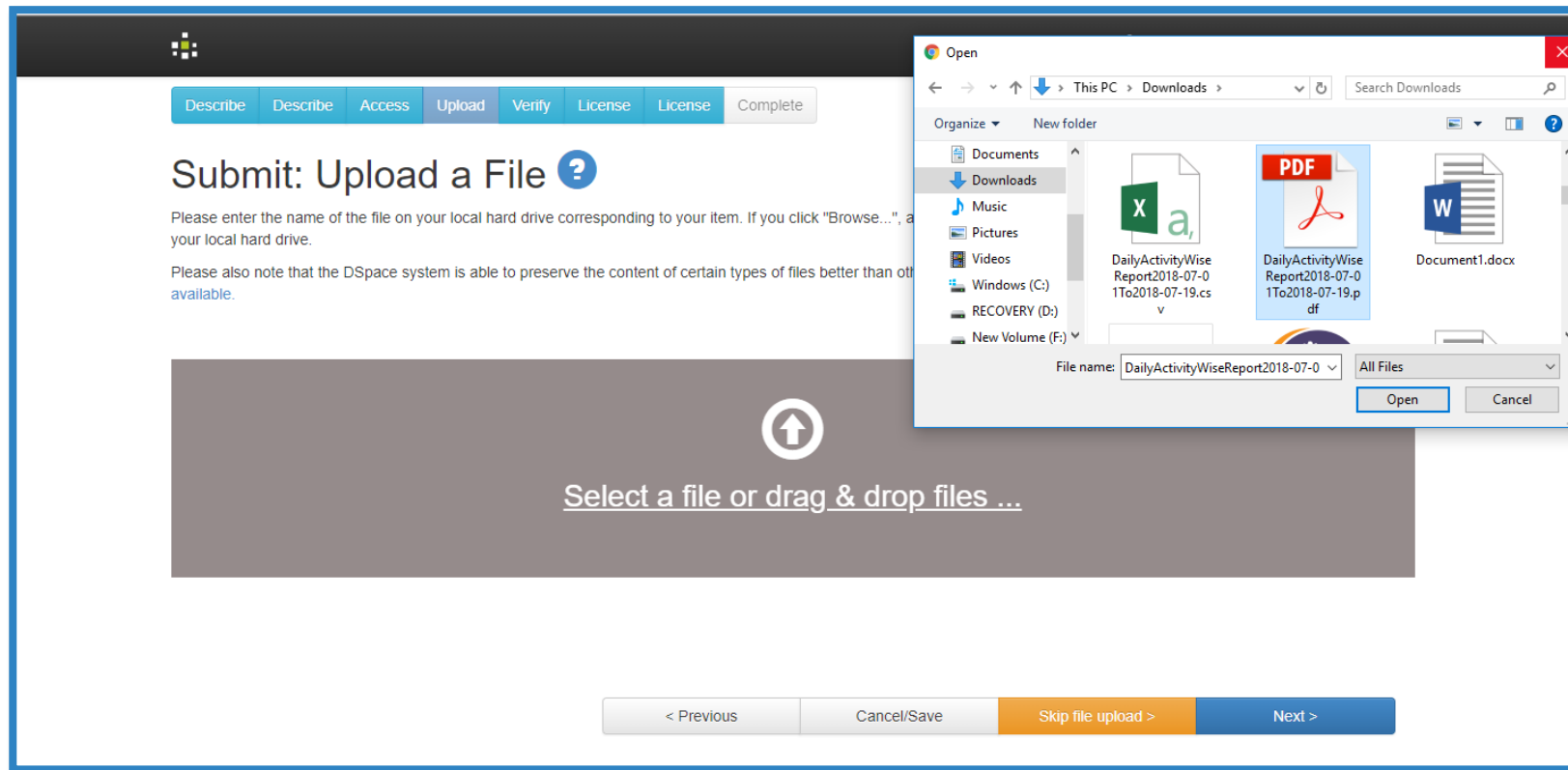
- ▶ Provide item description (metadata), which also facilitates search operation.
- ▶ Fields marked with \* are compulsory.

The screenshot shows a web interface for submitting item metadata. At the top, there is a navigation bar with tabs: Describe (selected), Describe, Access, Upload, Verify, License, License, and Complete. The user is logged in as 'dspacedemo+admin@...'. The main heading is 'Submit: Describe this Item' with a help icon. Below the heading, there is a paragraph of instructions: 'Please fill in the requested information about this submission below. In most browsers, you can use the tab key to move the cursor to the next input box or button, to save you having to use the mouse each time.' The form contains several sections: 1. 'Authors': A label 'Enter the names of the authors of this item.' followed by 'Authors' and two input fields: 'Last name, e.g. Smith' and 'First name(s) + "JR", e.g. Donald Jr', with an '+ Add More' button. 2. 'Title': A label 'Enter the main title of the item.' followed by 'Title \*' and an input field. 3. 'Other Titles': A label 'If the item has any alternative titles, please enter them here.' followed by 'Other Titles' (highlighted with a red box) and an input field, with an '+ Add More' button. 4. 'Date of Issue': A label 'Please give the date of previous publication or public distribution. You can leave out the day and/or month if they aren't applicable.' followed by 'Date of Issue \*' and three input fields: 'Month: (No Month)' (dropdown), 'Day:', and 'Year:'. 5. 'Publisher': A label 'Enter the name of the publisher of the previously issued instance of this item.' followed by 'Publisher' (highlighted with a red box) and an input field. 6. 'Citation': A label 'Enter the standard citation for the previously issued instance of this item.' followed by 'Citation' and an input field.

- ▶ Access specification is an optional step which can be used to declare an item Embargo.
- ▶ Embargo allows uploader to restrict access of group/groups to an item till a specified date.
- ▶ Item can be made non-searchable by making it Private(marked in red).

The screenshot shows a web interface for setting item access. At the top, there's a navigation bar with tabs: Describe, Describe, Access (selected), Upload, Verify, License, License, Complete. The user is logged in as 'dspaceadmin@...'. The main section is titled 'Access' and contains an 'Access Setting' panel. Inside this panel, there's a 'Private Item' section with a checkbox labeled 'Private:' and the text 'If selected, the item won't be searchable.' This checkbox is highlighted with a red border. Below this is an 'Embargo' section with a date input field for 'Embargo Date' (with a note: 'The first day from which access is allowed. Accepted format: yyyy, yyyy-mm, yyyy-mm-dd') and a text area for 'Reason' (with a note: 'The reason for the embargo, typically for internal use only. Optional.'). At the bottom of the panel are three buttons: '< Previous', 'Cancel/Save', and 'Next >'.

- ▶ Item pdf can be uploaded through drag and drop or by selecting the file in the directory.





- ▶ Item can be verified before final submission and any necessary changes can be made by clicking “Correct one of these” .

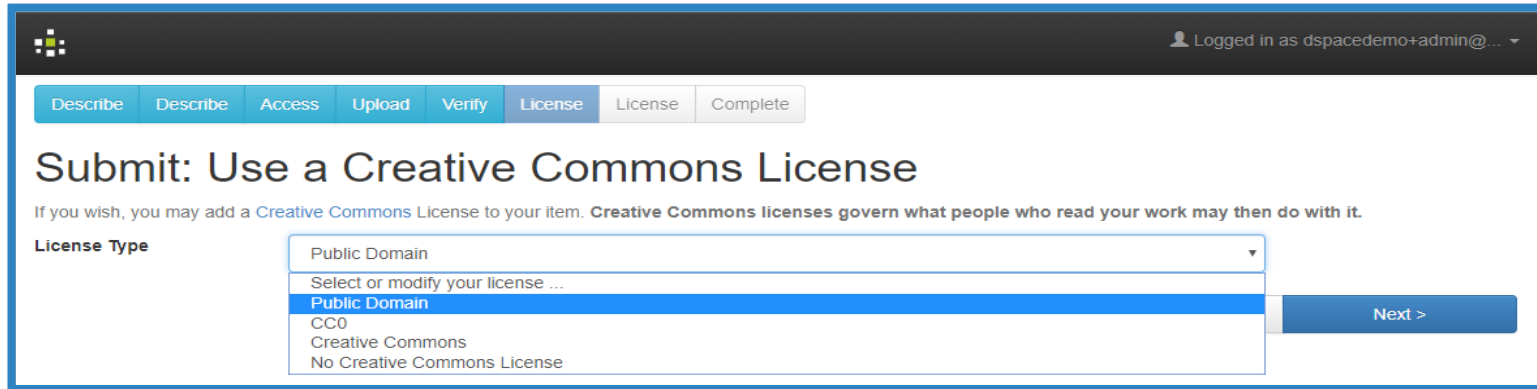
The screenshot shows a web interface for 'Submit: Verify Submission'. At the top, there is a progress bar with buttons for 'Describe', 'Access', 'Upload', 'Verify', 'License', and 'Complete'. The 'Verify' button is currently selected. Below the progress bar, the title 'Submit: Verify Submission' is displayed with a help icon. A message states: 'Not quite there yet, but nearly! Please spend a few minutes to examine what you've just submitted below. If anything is wrong, please go back and correct it by using the buttons next to the error, or by clicking on the progress bar at the top of the page.' Below this, instructions state: 'If everything is OK, please click the "Next" button at the bottom of the page. You can safely check the files which have been uploaded - a new window will be opened to display them.'

Authors	None	<a href="#">Correct one of these</a>
Title	23123111	
Other Titles	None	
Date of Issue	2-Feb-1980	
Publisher	None	
Citation	None	
Series/Report No.	None	
Identifiers	None	
Type	None	
Language	None	

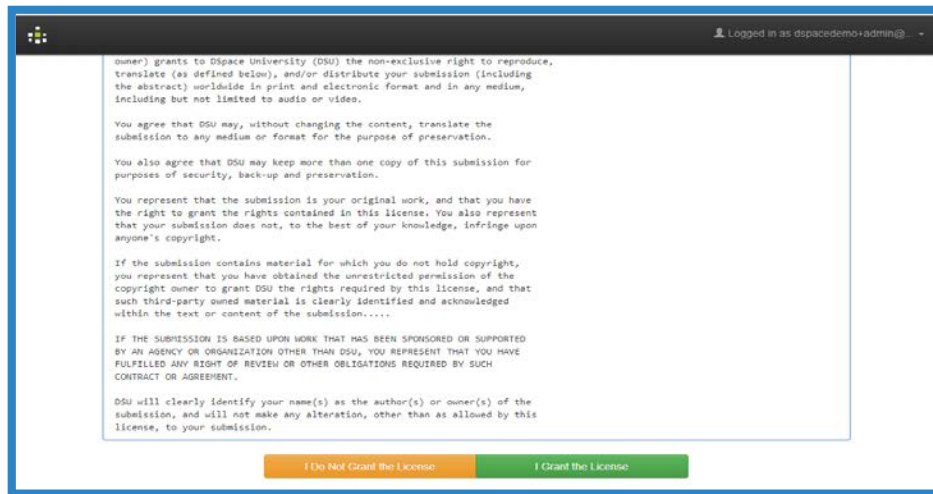
Subject Keywords	None	<a href="#">Correct one of these</a>
Abstract	None	
Sponsors	None	
Description	None	

- ▶ License required for item can be selected from the list of available Licenses.



The screenshot shows a web interface for submitting an item. At the top, there is a navigation bar with tabs: Describe, Describe, Access, Upload, Verify, License, License, and Complete. The 'License' tab is currently selected. Below the navigation bar, the heading reads 'Submit: Use a Creative Commons License'. A sub-heading states: 'If you wish, you may add a Creative Commons License to your item. Creative Commons licenses govern what people who read your work may then do with it.' Underneath, there is a 'License Type' dropdown menu. The dropdown is open, showing options: Public Domain, Select or modify your license ..., Public Domain (highlighted), CC0, Creative Commons, and No Creative Commons License. To the right of the dropdown is a blue 'Next >' button. The user is logged in as 'dspace demo+admin@...'.

- ▶ In the following step uploader can review and grant the license to complete item submission process.



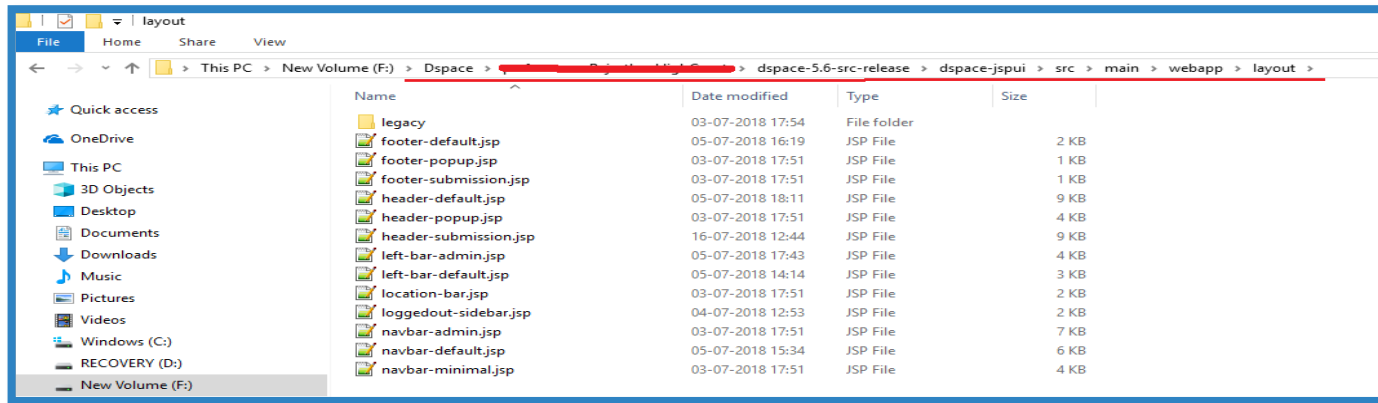
The screenshot shows a web interface for reviewing and granting a license. The user is logged in as 'dspace demo+admin@...'. The main content area contains the following text:  
owner) grants to DSpace University (DSU) the non-exclusive right to reproduce, translate (as defined below), and/or distribute your submission (including the abstract) worldwide in print and electronic format and in any medium, including but not limited to audio or video.  
You agree that DSU may, without changing the content, translate the submission to any medium or format for the purpose of preservation.  
You also agree that DSU may keep more than one copy of this submission for purposes of security, back-up and preservation.  
You represent that the submission is your original work, and that you have the right to grant the rights contained in this license. You also represent that your submission does not, to the best of your knowledge, infringe upon anyone's copyright.  
If the submission contains material for which you do not hold copyright, you represent that you have obtained the unrestricted permission of the copyright owner to grant DSU the rights required by this license, and that such third-party owned material is clearly identified and acknowledged within the text or content of the submission.....  
IF THE SUBMISSION IS BASED UPON WORK THAT HAS BEEN SPONSORED OR SUPPORTED BY AN AGENCY OR ORGANIZATION OTHER THAN DSU, YOU REPRESENT THAT YOU HAVE FULFILLED ANY RIGHT OF REVIEW OR OTHER OBLIGATIONS REQUIRED BY SUCH CONTRACT OR AGREEMENT.  
DSU will clearly identify your name(s) as the author(s) or owner(s) of the submission, and will not make any alteration, other than as allowed by this license, to your submission.  
At the bottom of the page, there are two buttons: 'I Do Not Grant the License' (orange) and 'I Grant the License' (green).

# DSpace basic UI customization (JSP UI)

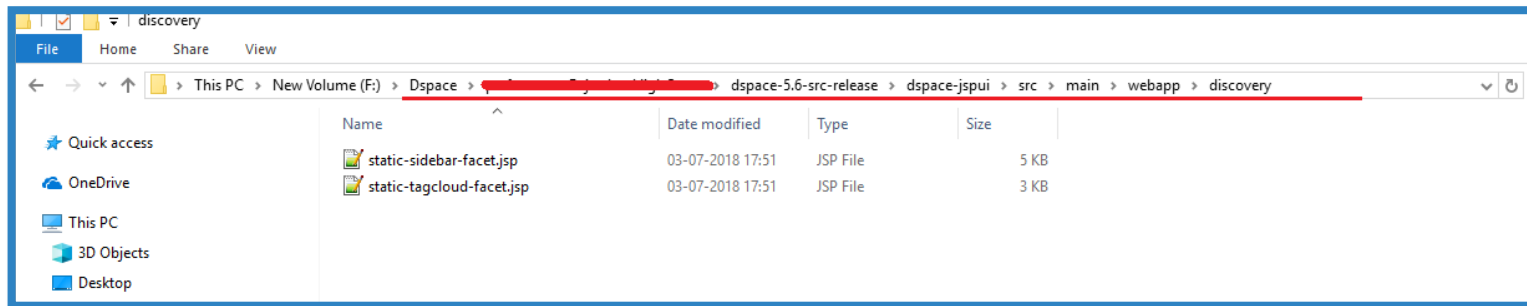
JSPUI Layout structures

- ▶ In DSpace JSPUI, jsp files defining the layout of the webapp are present at following location:

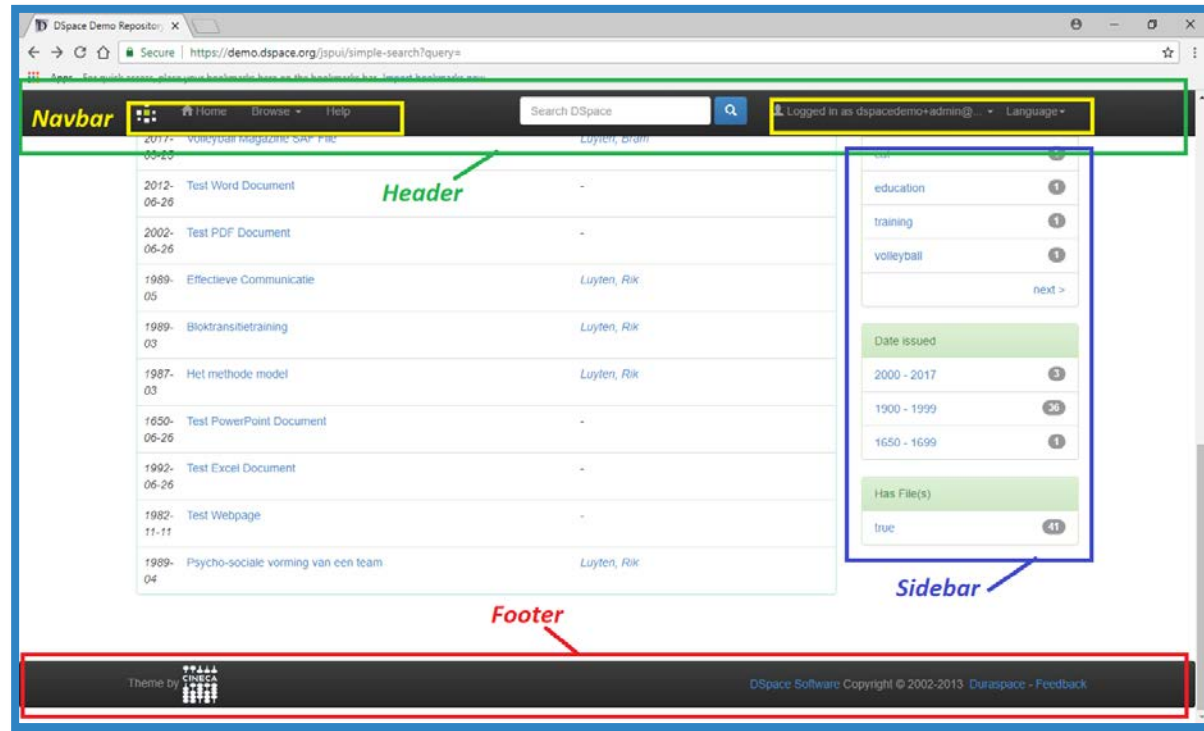
Dspace\\*\dspace-\*\-src-release\dspace-jspui\src\main\webapp\layout



Dspace\\*\dspace-\*\-src-release\dspace-jspui\src\main\webapp\discovery



- ▶ Changes made here must also be reflected in jspui folder in tomcat webapps.



- ▶ header-default.jsp : Defines the Header and includes required navbar.
- ▶ navbar-default.jsp : Defines the default navbar shown in the image.
- ▶ navbar-admin.jsp : Defines admin navbar, which contains extra tabs and options.
- ▶ footer-default.jsp : Defines footer shown in the image.
- ▶ static-sidebar-facet.jsp : Defines alignment and contents of sidebar.

# Feature Development (JSP UI)

# Setting up Eclipse IDE

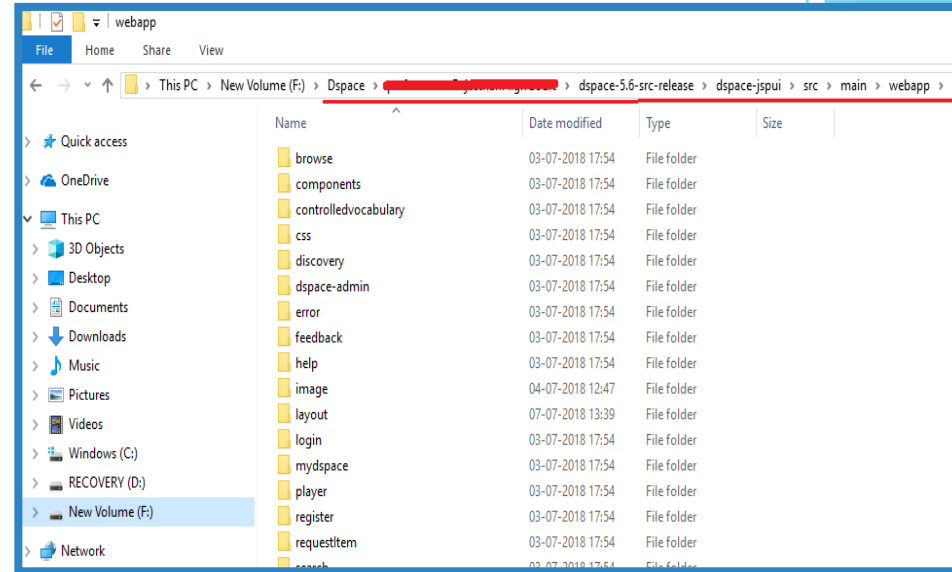
- ▶ Maven projects can be imported in Eclipse in the following ways:
- ▶ Using Maven 2 plugin for Eclipse
  - ▶ Install Maven 2 plugin from Eclipse Marketplace.
  - ▶ Import the project as “Existing Maven Project”.
- ▶ Or by generating Eclipse project using the following commands:
  - ▶ Go to location in dspace-api where pom.xml is present and open command prompt.
  - ▶ *mvn eclipse:eclipse*, To generate a Eclipse project.
  - ▶ Import the project as a new Java Project.

▶ Adding a feature in DSpace consists of two parts:

▶ Adding an user interface:

To access the feature from user's side, this is achieved by adding or modifying the .jsp files present at:

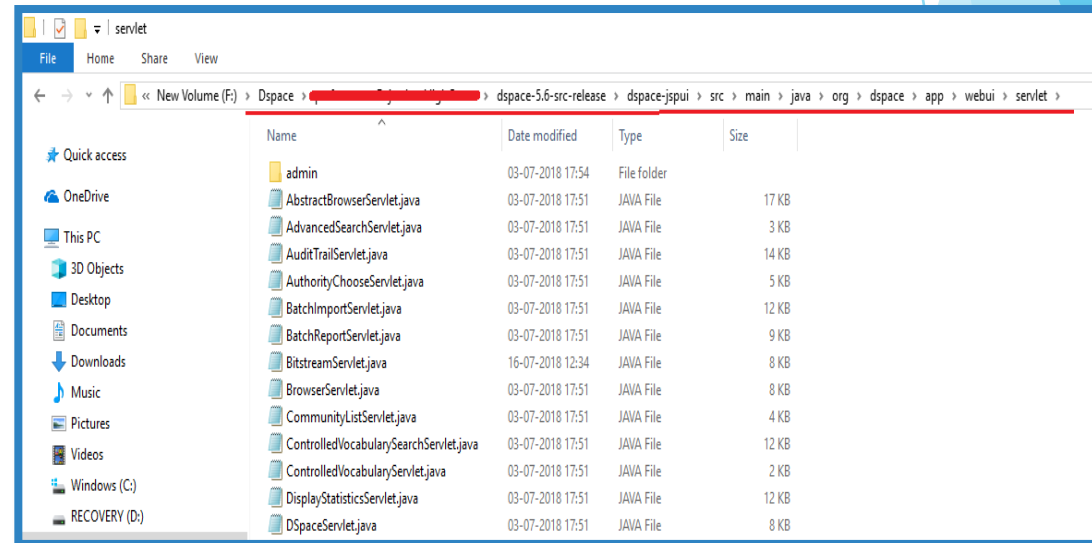
Dspace\\*\dspace-\*-src-release\dspace-jspui\src\main\webapp



▶ Adding functionality:

To implement logical functionality of the feature at back-end, this is achieved by adding or modifying the servlets present at:

Dspace\\*\dspace-\*-src-release\dspace-jspui\src\main\java\org\dspace\app\webui\servlet





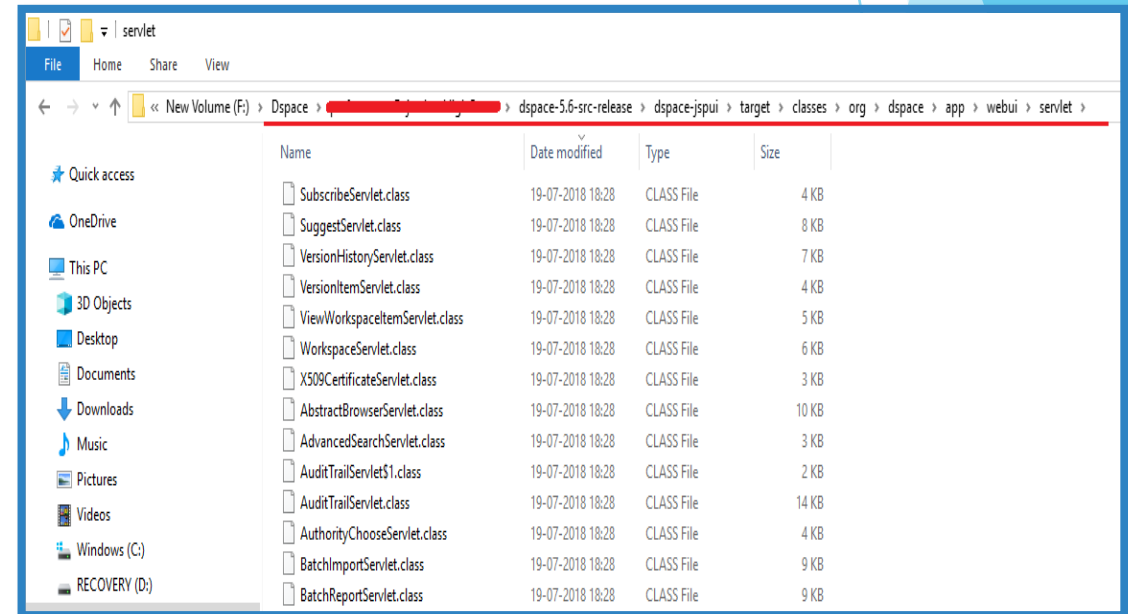
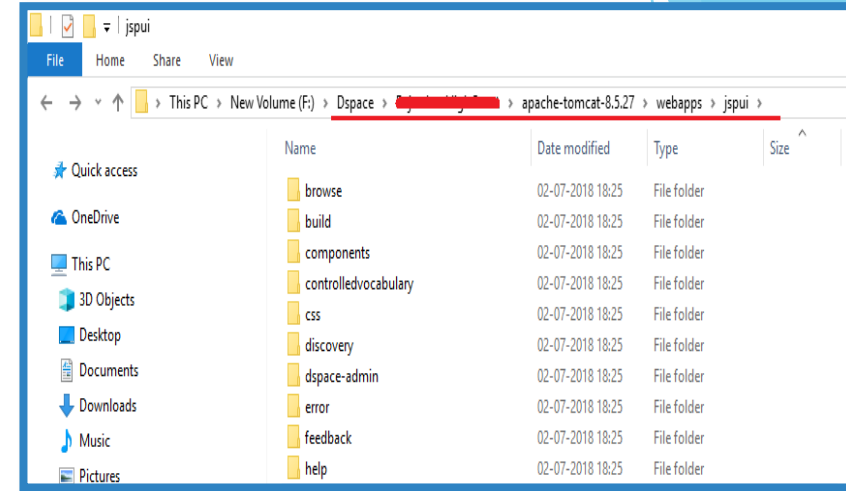
▶ To implement these feature in DSpace, changes made must be reflected in tomcat in the following manner:

▶ Changes made to .jsp files in webapp has to be reflected in tomcat webapp folder.

Dspace\\* \apache-tomcat-\*\webapps\jspui

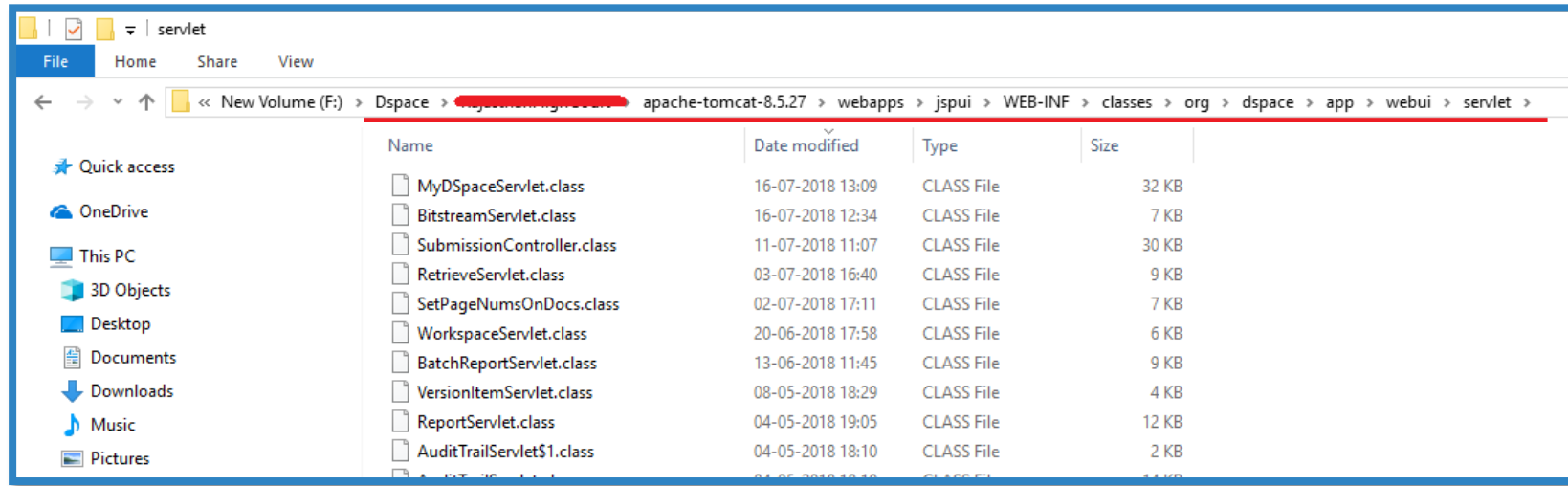
▶ For changes made to .java files in servlet folder .class files will be generated at following location:

Dspace\\* \dspace-5.6-src-release\dspace-jspui\target\classes\org\dspace\app\webui\servlet



- ▶ Then these class files must be placed in tomcat servlet folder.

Dspace\\* \apache-tomcat-\*\webapps\jspui\WEB-INF\classes\org\dspace\app\webui\servlet



- ▶ If a new servlet is created it must be mapped in web.xml present at following location:

Dspace\\* \apache-tomcat-\*\webapps\jspui\WEB-INF

- ▶ Changes required in Dspace core layer needs to be implemented in dspace-api so that both xmlui and jspui can use it.
- ▶ After making the required changes in dspace-api, execute the following steps to use the new jar file.
  - ▶ Go to dspace-api directory where pom.xml is present.
  - ▶ Open a command prompt here and enter command *mvn install*.
  - ▶ Maven creates the build result in the *target* folder.
  - ▶ Created .jar file has to be pasted in *lib* folder present at the following locations:
    - Dspace\\*\apache-tomcat-\*\webapps\jspui\WEB-INF\lib
    - Dspace\\*\dspace-install\lib
  - ▶ After pasting .jar file, restart tomcat to implement the changes made.

# Thank You