

DSpace How-To Guide

Tips and tricks for managing common DSpace chores

DSpace How-To Guide

Introduction

This short booklet is intended to introduce the commonest non-obvious customization-related tasks for newcomers to DSpace administration. It has been written against the current stable version 1.3.2 of DSpace.

We have tried to include instructions for different operating systems as required; most customizations, however, work identically cross-platform.

Before you start

Different parts of DSpace live in different areas on the DSpace server. Because each DSpace administrator decides where some parts of DSpace live, and operating systems have different ideas about where other parts live, we have employed *italics* to mark missing pieces of file paths. Some directories whose precise location varies among systems require special attention:

- *[dspace-source]* – The directory into which the DSpace administrator unpacks the downloaded DSpace code.
- *[dspace]* – The directory into which the Java `ant` command deposits compiled DSpace code. This location is set in DSpace’s configuration file, `dspace.cfg`, as `dspace.dir`
- *[tomcat]* – The directory where Apache Tomcat is installed. If you are not using Apache Tomcat, you may wish to customize some of these “how-to” documents to better match your servlet engine of choice (e.g. Jetty, Resin, etc).

Other DSpace resources

Although this “DSpace How-To Guide” introduces many common customizations currently available within DSpace, it should not be considered a stand-alone document.

You should be aware of many other valuable DSpace resources, including:

- DSpace Homepage – <http://www.dspace.org>
- DSpace Installation and Technical Documentation – <http://dspace.org/technology/system-docs/>

- DSpace Wiki - <http://wiki.dspace.org>
- DSpace Technical FAQ - <http://wiki.dspace.org/TechnicalFAQ>
- DSpace Community Mailing Lists - <http://dspace.org/feedback/mailling.html>

Other useful resources

This “DSpace How-To Guide” introduces many customizations which rely on some general knowledge of other technologies, including XHTML, CSS, and XML. If you need a refresher on any of these technologies, here are a few useful web resources (available as of June 2006):

- W3Schools Tutorials/Guides (<http://www.w3schools.com/>) – introductory tutorials, references, and examples for XHTML, CSS, XML, SQL, among many others.
- HTML Dog (<http://www.htmldog.com/>) – HTML and CSS References and tutorials for all levels of knowledge
- Holy CSS Zeldman! (<http://www.dezwozhere.com/links.html>) – all things CSS, with intermixed links to good HTML, Javascript, and web design sites.

Other useful skills

Many tasks that are cumbersome to manage through the DSpace web interface can be easily managed in the database with a little SQL. For example, withdrawing all the items in a particular collection takes quite some time in DSpace proper, but can be done in just one quick SQL query. However, you should always be sure to backup your database before running any SQL queries which will modify or remove a large number of items! Time spent learning SQL basics will reap rich returns in time saved.

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Rebuild DSpace

Directories:

- `[dspace-source]`
- `[dspace-source]/build/`
- `[Tomcat]/webapps/` (Mac OSX: `/library/jboss/3.2/deploy`)

Quick Build: *(Quick build after smaller changes)*

1. Logon to the server DSpace is running on (e.g. ssh). Make sure to login as the user who initially installed DSpace!
2. Open a command prompt (if you don't have one already), and `cd [dspace-source]`
3. `ant update` (recompiles all DSpace code and reinstalls third-party JAR files)
4. Alternatively, if you do not need to reinstall JAR files, you could instead run `ant build_wars` (which just recompiles DSpace code)
5. `cp build/*.war [Tomcat]/webapps/`
 - (Mac OSX) `cp build/*.war /library/jboss/3.2/deploy`
6. Test changes in DSpace

Full Refresh/Rebuild: *(Completely refresh all of DSpace)*

1. Logon to the server DSpace is running on (e.g. ssh). Make sure to login as the user who initially installed DSpace!
2. Open a command prompt (if you don't have one already), and `cd [dspace-source]`
3. `ant clean` (removes old compiled code)
4. `ant update` (recompiles all DSpace code and reinstalls third-party JAR files)
5. Stop Tomcat (*WARNING: this will bring down the website*)
 - (Linux) `[Tomcat]/bin/shutdown.sh`
 - (Mac OSX) Use Server Admin to stop Tomcat ("Application Server")
 - (Windows) Use Tomcat Service Monitor (in Notification Area) to stop Tomcat

Rebuild DSpace

(continued)

6. `cp build/*.war [Tomcat]/webapps/`
 - (Mac OSX) `cp build/*.war /library/jboss/3.2/deploy`
7. Start Tomcat
 - (Linux) `[Tomcat]/bin/startup.sh`
 - (Mac OSX) Use Server Admin to start Tomcat (“Application Server”)
 - (Windows) Use Tomcat Service Monitor (in Notification Area) to start Tomcat
8. Test your changes in DSpace

Notes:

- If the “Full Refresh” instructions above still don’t completely refresh DSpace, you may need to actually do the following to *force* Tomcat to refresh itself:
 - Stop Tomcat
 - Completely remove any `dspace` or `dspace-oai` directories created in `[Tomcat]/webapps` (`/library/jboss/3.2/deploy` for Mac)
 - BE CAREFUL...you don’t want to remove the wrong thing!
 - Copy over the new WAR files (`cp build/*.war [Tomcat]/webapps`)
 - Start Tomcat

Change page text

Files:

- `[dspace-source]/jsp/` (JSP containing the text you want to change)
- `[dspace-source]/config/language-packs/Messages.properties`

Instructions:

1. Open Messages.properties and search for the text you wish to change.
 - Note: Messages.properties contains pairs of “keys” and “values”. For example:

```
| jsp.home.search1 = Search
```

Generally speaking, the “key” usually refers to the location of the JSP on which this text resides (e.g. `jsp.home.search1` is “search-related” text displayed in `[dspace-source]/jsp/home.jsp`)
2. If Messages.properties contains that text in more than one place, open the relevant JSP and find the `key` attribute of the appropriate `<fmt:message>` element. For example:

```
| <fmt:message key="jsp.home.search1" />
```
3. Change the text (that corresponds to the key) in Messages.properties.
4. Perform the steps in **Rebuild DSpace**.

Notes:

- When adding or modifying text in Messages.properties, be very careful that you have automatic *word-wrap* turned off in your text editor! The “key” and its corresponding “value” must always be on the same line within Messages.properties
 - (e.g.) This is **not** a valid entry in Messages.properties:

```
| jsp.community-home.heading1 = This is a really long heading  
| which actually gets wrapped automatically by my text editor  
| so that it ends up on three separate lines.
```

Add new text to a JSP

Files:

- `[dspace-source]/jsp/` (JSP containing the text you want to change)
- `[dspace-source]/config/language-packs/Messages.properties`

Instructions:

1. Open the relevant JSP and add a new `<fmt:message>` element where you want the new text to appear, making sure that the value of the `key` attribute is unique. For example:

```
| <fmt:message key="jsp.home.mynewkey" />
```

2. Open `Messages.properties` and (for neatness) find the list of key values for the JSP you just changed. Add a new line corresponding to your new key.

```
| jsp.home.mynewkey = Text of my new key
```

- Note: `Messages.properties` contains pairs of “keys” and “values”. For example:

```
| jsp.home.search1 = Search
```

Generally speaking, the “key” usually refers to the location of the JSP on which this text resides (e.g. `jsp.home.search1` is “search-related” text displayed in `[dspace-source]/jsp/home.jsp`)

3. Perform the steps in **Rebuild DSpace**.

Notes:

- You can, of course, simply add the text directly to the JSP, but you will find it easier to maintain text in your DSpace installation if it is all kept in `Messages.properties`.
- Remember, when adding or modifying text in `Messages.properties`, be very careful that you have *word-wrap turned off* in your text editor!

Fix ???some.key.name???

File:

- *[dspace-source]/config/language-packs/Messages.properties*
- *[dspace-source]/jsp/local/(JSP producing ???some.key.name??? text)*

Instructions:

1. Search for the string inside the question marks in the Messages.properties file.
2. Search for the same string inside the JSP; it should be the value of a **key** attribute to a `<fmt:message>` element. If both the JSP and Messages.properties appear to contain the string, be sure the strings match exactly.
3. If Messages.properties does not contain the string, add it:
| `some.key.name=Text that should appear`
4. Perform the steps in **Rebuild DSpace**.

Change overall layout



Files:

- [\[dspace-source\]/jsp/local/layout/*.jsp](#)
- [\[dspace-source\]/jsp/local/styles.css.jsp](#)

Instructions:

1. Change the HTML in header-default.jsp (Default Header) , footer-default.jsp (Default Footer), location-bar.jsp (Location Bar), navbar.jsp (Default Navigation Bar), and navbar-admin.jsp (Admin Navigation Bar).
2. Change the CSS in styles.css.jsp.
3. Perform the steps in **Rebuild DSpace**.

Change overall layout

(continued)

Notes:

- Be careful of moving the search form (in the navigation bar) earlier in the page (e.g. to page-top). This can break the e-person selector in the Administration user interface. Check the DSpace Technical FAQ (<http://wiki.dspace.org/TechnicalFAQ>) for possible fixes.

Change single page layout

Files:

- Any JSP in *[dspace-source]/jsp/local/*

Instructions:

1. Find the following JSP Tag near the top of the JSP:

```
<dspace:layout ... >
```

2. Pass this tag any of the following “attributes”, to customize the layout of this JSP:
 - **style** – specifies the “style” of header/footer to display for this JSP
 - (e.g.) **style="myStyle"** means the header-*myStyle.jsp* and footer-*myStyle.jsp* will be used for this JSP.
 - If **style** is unspecified, header-default.jsp and footer-default.jsp are used.
 - **navbar** – specifies the navigation bar to use for this JSP
 - (e.g.) **navbar="myNavigation"** means the navbar-*myNavigation.jsp* will be used for this JSP
 - **navbar="off"** turns off the navigation bar on a page.
 - If **navbar** is unspecified, navbar-default.jsp is used.
 - **locbar** – specifies type of location bar to use. There are only a few values of real importance:
 - **locbar="off"** – turns off the location bar on this JSP.
 - **locbar="noLink"** – do not provide links in location bar.
 - **locbar="commLink"** – attempt to provide all parent communities within the location bar.
 - If **locbar** is unspecified, all parent communities/collections are displayed as links in the location bar.
3. Perform the steps in **Rebuild DSpace**.

Add a new metadata field



Files:

- <http://web-address-to-my-dspace/dspace-admin> (Requires Administrator Login)

Instructions:

1. Login as a DSpace Administrator and visit the DSpace Administration user interface (<http://web-address-to-my-dspace/dspace-admin>)
2. Click on the "Dublin Core Type Registry" in order to see all current metadata fields within DSpace.
3. At the bottom of the page, click "Add New" to create a new metadata field. Enter the "element" and "qualifier" of the new field. Describe this field in the Scope Note (this is for you to document how or why you are using this field). Click "Update" button next to your new field, to save your changes.
4. The new Dublin Core metadata field is now added to the underlying database. If you wish, you can now make this field searchable (see [Modify search options](#)), add this field to the submission forms (see [Alter submission forms](#)), and/or display this field in the item display (see [Change displayed item metadata](#)).

Modify search options

Files:

- `[dspace]/config/dspace.cfg`
- `[dspace-source]/jsp/local/search/advanced.jsp`
- `[dspace-source]/config/language-packs/Messages.properties`

Instructions:

1. Look for this line in `dspace.cfg`:

```
##### Fields to Index for Search #####
```

2. Beneath it you will see several lines like this:

```
search.index.1 = author:contributor.*
search.index.2 = author:creator.*
search.index.3 = title:title.*
search.index.4 = keyword:subject.*
search.index.5 = abstract:description.abstract
```

3. Add another `search.index.#` line to the bottom. If you just want to add a different Dublin Core field to one of the existing “named indices”, use the models above as a guide.

- The “name” to the left of the colon (e.g. `author`, `title`, `keyword`, etc) is *important*. In the above example, a search on “author” is specified to search all Dublin Core `contributor` and `creator` fields. Whereas, a search on “abstract” only searches the `description.abstract` field.

4. If you want to add an entirely new search field, you will also have to modify `Messages.properties` (see [Change page text](#)) to add a user-friendly label for it, and the advanced-search JSP to add an appropriate `<option>` element, as below:

```
<option value="author" <%= field1.equals("author") ?
"selected=\"selected\" : "" %>><fmt:message
key="jsp.search.advanced.type.author"/></option>
```

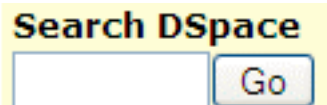
- The “value” attribute of your `<option>` element should correspond to the name of one of your search indices (e.g. `author`, `title`, `keyword`, etc.)
5. Perform the steps in [Re-index DSpace](#).
 6. Perform the steps in [Rebuild DSpace](#).

Modify search options

(continued)

Notes:

- In DSpace, the most confusing concept regarding search options is the keyword search.
 - In the basic search boxes (as seen below), any terms entered are searched for *anywhere* within any of the search indices (i.e. any of the `search.index.#` fields in `dspace.cfg`), or the full text of the document (if it is full-text indexable). These search boxes perform what most refer to as a *keyword* or *keyterm* search.



The image shows a search interface with a yellow header that says "Search DSpace". Below the header is a white rectangular input field followed by a blue button with the word "Go" in white text.

- However, to make things a little confusing, you'll notice a keyword search index listed in `dspace.cfg`:

```
| search.index.4 = keyword:subject.*
```

This (rather inappropriately named) index is actually used during *subject* specific searches (hence the `subject.*`). It does **not** have any control over a normal *keyword* search that is run from the basic search box in DSpace.

Re-index DSpace

Instructions:

1. Log on to the machine running DSpace.
2. CD to `[dspace]/bin`.
3. `sudo ./index-all`
4. Stop and restart Tomcat (see steps 5 and 7 of [Rebuild DSpace](#)).

Notes:

- This process re-creates DSpace's search indices. Run it after anything you do to the install that could change the content of these indices (e.g. manually changing metadata, withdrawing items). In addition, run it if you decide to change your search indices (see [Modify search options](#)).
- You may wish to have a scheduled process (e.g. cron) to re-index DSpace daily. Lots of little changes that add up over time without a re-indexing can cause DSpace's search function to become erratic.

Alter submission forms

DSpace™ [About DSpace Software](#)

Describe Describe Describe Upload Verify License Complete

Submit: Describe Your Item

Please fill in the requested information about your 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. ([More Help...](#))

(Submission Form)

Enter the names of the authors of this item below.

	Last name e.g. <i>Smith</i>	First name(s) + "Jr" e.g. <i>Donald Jr</i>	
Authors	<input type="text"/>	<input type="text"/>	<input type="button" value="Add More"/>

Enter the main title of the item.

Title

If the item has any alternative titles, please enter them below.

Other Titles

Files:

- [\[dspace\]/config/input-forms.xml](#)

Instructions:

1. This XML file contains form definitions, each contained within its own `<form>` element. Each `<form>` element contains `<page>` elements that represent single pages of input. Each `<page>` element contains `<field>` elements with instructions for creating the fields on that page. This structure is mocked up below, for a single form with a single page.

```
<form-definitions>
  <form name="traditional">
    <page number="1">
      <field>
        ...
      </field>
    </page>
  </form>
</form-definitions>
```

Alter submission forms

(continued)

- The default form has a `name` attribute whose value is “`traditional`”. To change all submission forms throughout DSpace, edit the XML inside this form.
- To change a submission form *for a specific collection*, add a new `<form>` element with a new and unique collection-related value for the `name` attribute. (You can copy the XML from the default and edit as desired, as long as you change the `name` attribute value.)

- Once you’ve created your new `<form>` element, you will have to map it to your specific collection using the `<form-map>` section at the top of the XML:

```
<form-map>
  <name-map collection-handle="default" form-
name="traditional" />
</form-map>
```

- You’ll need to create a new `<name-map>` element to “map” your collection’s handle to the new `<form>` you just created.
- Create all appropriate `<page>` elements, numbering them sequentially starting from 1 in the `number` attribute. Within them, add individual `<field>` elements according to this template:

```
<field>
  <dc-element>identifier</dc-element>
  <dc-qualifier>citation</dc-qualifier>
  <repeatable>>false</repeatable>
  <label>Citation</label>
  <input-type>onebox</input-type>
  <hint>Enter the standard citation for the previously
issued instance of this item.</hint>
  <required></required>
</field>
```

- Perform the steps in **Rebuild DSpace**.

Alter submission forms

(continued)

Notes:

- The `<required>` element contains the textual hint displayed to the submitter about why the field is required. Leave it empty for optional fields.
- Valid input types (for `<input-type>`) are:
 - “date”
 - “name” (two text boxes, labeled last and first name)
 - “onebox” (a one-line textbox)
 - “twobox” (two textboxes on a single line)
 - “dropdown” (for which you must specify a `value-pairs-name` attribute referring to the `<value-pairs>` list of allowed values, see [Change a form value](#))
 - “qualdrop_value” (a textbox, which is preceded by a “qualifying” dropdown of values. Requires a `value-pairs-name` attribute, similar to “dropdown”. Also requires `<repeatable>` is set to “true”)
 - “textarea”
- Setting the `<repeatable>` element to “true” creates an “Add more” button, which allows you to add multiple values into that particular field. Examples of this include the authors and keywords fields in the standard DSpace submission process.

Change a form value

Files:

- `[dspace]/config/input-forms.xml`

Instructions:

1. Look for the `<form-value-pairs>` element in `input-forms.xml`.
2. Look for the `<value-pairs>` element for the Dublin Core element whose values you wish to change.
3. Add or change a `<pair>` element, where the `<displayed-value>` element contains what the submitter sees in the dropdown box, and the `<stored-value>` element contains what DSpace should archive as the information's label:

```
<pair>
  <displayed-value>Gov't Doc #</displayed-value>
  <stored-value>govdoc</stored-value>
</pair>
```

4. Perform the steps in [Rebuild DSpace](#).

Notes:

- This set of instructions changes the existing choices when DSpace displays an option-box or dropdown menu, as for the Dublin Core "type" and "language" elements. It does not add an actual submission widget to the user interface; to do this, see [Alter submission forms](#).

Change displayed item metadata



Files:

- `[dspace]/config/dspace.cfg`
- `[dspace-source]/config/language-packs/Messages.properties`

Instructions:

1. To change the metadata display, change the ordering of Dublin Core elements after `webui.itemdisplay.default` (in `dspace.cfg`), or add new elements:

```
webui.itemdisplay.default = dc.title, dc.title.alternative,
dc.contributor.*, dc.subject, dc.date.issued(date),
dc.publisher
```

2. To change the display name of a metadata field, search for its Dublin Core key name (which will begin with `metadata.`) in `Messages.properties`:

```
metadata.dc.title.alternative = Title (French)
```

3. Perform the steps in **Rebuild DSpace**.

Troubleshoot an error

Directories/files:

- DSpace log file: `[dspace]/log/dspace.log` (*usually*)
- Tomcat log directory: `[Tomcat]/logs` (*usually*)
- `[dspace-source]/jsp/local/`
- Servlet directory: `[dspace-source]/src/org/dspace/app/webui/servlet`

Websites:

- DSpace technical FAQ: <http://wiki.dspace.org/TechnicalFAQ>
- DSpace Sourceforge page: <http://sourceforge.net/projects/dspace/>
- Search dspace-tech mailing list:
<http://sourceforge.net/mailarchive/forum.php?forum=dspace-tech>

Instructions:

1. If the expected information simply never appears, leaving a blank browser screen, the problem is almost certainly with a servlet. The error message should be in either `[dspace]/log/dspace.log` or `[Tomcat]/logs/`
2. If you get an Internal Server Error, a JSP or some source code could be the problem. If your email address is set up in `dspace.cfg` as the DSpace administrator, check your email for the error listing. If not, `ssh` to the DSpace machine, `cd` to the log directory and `tail -100 dspace.log`.
 - (Windows) Go to the DSpace log directory, and open `dspace.log` in your favorite text editor. Look near the bottom for the error message.
3. Usually, the culprit file is in the first five to ten lines of the error stack listing. The error stack starts with a line similar to:


```

      | yyyy-mm-dd time WARN ...           (OR)
      | yyyy-mm-dd time ERROR ...
      
```
4. Search the DSpace technical FAQ and the `dspace-tech` mailing list for information on the error. Key words in the error often are useful search terms.
5. If all else fails, email a description of the error along with the error stack listing to dspace-tech@lists.sourceforge.net.