Bitstream order

As of version 1.8, this feature is now part of DSpace XMLUI and doesn't require you to make any modifications to the code. This feature was added in DS-749 - Data cannot be retrieved due to an unexpected error.

Background

At Leiden University, The Netherlands, we needed a way to change the order of the bitstreams as they are displayed in an easy way.

By default in version 1.3 of DSpace, when you upload more than 1 bitstream for a single item, the bitstreams are presented in the reversed order they were uploaded.

This implementation lets administrators change the display order of bitstreams independently from their upload order, in an easy way.

How it works

The order of bitstreams is defined by using the Basic RDF implementation. The bitstreams are semantically linked to each other by using in "precedes" predicate. The special class BitstreamArranger manages the ordering of bitstreams.

Which DSpace version

The modifications were made to Dspace 1.3.2. This is also the version of DSpace where this functionality was tested extensively.

It should be possible to use this with another version of DSpace, and on first glance it should not be hard at all.

How to install

This installation does not change any functionality, but it adds functionality potentially. If you want to use it, write code that makes use of the classes described below, or implement the order of bitstreams.

Step 1: Install the Basic+RDF+implementation

See Basic RDF implementation for details on how to do this.

Step 2: Add java class

- Download the file BitstreamArranger.java and place it in the directory src/nl/leidenuniv/dspace/rdf/

Step 3: Change java classes

org/dspace/app/webui/servlet/admin/EditItemServlet.java

- add some new import statements:

import java.util.ArrayList;
import nl.leidenuniv.dspace.rdf.BitstreamArranger;
import nl.leidenuniv.dspace.rdf.RDFpredicate;
import nl.leidenuniv.dspace.rdf.RDFtriple;

- add line of code just before "/// Sort the list" near line 372

    BitstreamArranger arranger = BitstreamArranger.getBitstreamArranger();

- add lines of code inside "if (button.equals("submit_delete_bitstream_"..." block near 463 as the first statements:
import org.dspace.core.Context;
import nl.leidenuniv.dspace.rdf.BitstreamArranger;

for (int i = 0; i < bundles.length; i++)
{
    Bitstream[] bitstreams = bundles[i].getBitstreams();
    for (int k = 0; k < bitstreams.length; k++)
    {
        // Skip internal types
        if (!bitstreams[k].getFormat().isInternal())
        {
...
with this:

```java
BitstreamArranger arranger = BitstreamArranger.getBitstreamArranger();
Context context = null;
Bitstream[] bitstreams = null;
try {
    context = UIUtil.obtainContext(request);
    bitstreams = arranger.getOrderedListOfOriginalBistreams(context, item);
} catch (SQLException e) {
    // something wrong...
    throw new IOException(e.toString());
} 
for (int k = 0; k < bitstreams.length; k++) {
```

and do not forget to balance the number of brackets (remove 2 brackets) near line 718

Step 4: edit jsp page

jsp/tools/edit-item-form.jsp

Make a local copy of this page if you did not do this already

- add some page imports:

```html
<%@ page import="nl.leidenuniv.dspace.rdf.BitstreamArranger" %>
<%@ page import="nl.leidenuniv.dspace.rdf.RDFtriple" %>
<%@ page import="nl.leidenuniv.dspace.rdf.RDFpredicate" %>
<%@ page import="java.sql.SQLException" %>
<%@ page import="org.dspace.app.webui.util.UIUtil" %>
<%@ page import="org.dspace.core.Context" %>
<%@ page import="org.dspace.content.DSpaceObject" %>
```

- near 320 add 2 columns

```html
<th id="t10" class="oddRowOddCol">&nbsp;</th>
<th id="t11" class="oddRowOddCol"><strong><fmt:message key="jsp.tools.edit-item-form.elem6"/></strong></th>
```

- replace "Bitstream[] bitstreams = bundles[i].getBitstreams();" near line 335 with the following code:
Bitstream[] bitstreams = new Bitstream[0];
boolean isOriginal = bundles[i].getName().equals("ORIGINAL");
int posKnownFrom = 0;
int posKnownTill = -1;
if (isOriginal) {
    BitstreamArranger arranger = BitstreamArranger.getBitstreamArranger();
    try {
        Context context = UIUtil.obtainContext(request);
        bitstreams = arranger.getOrderedListOfOriginalBistreams(context, item);
        RDFPredicate predicate = arranger.initialPredicate(context);
        if (bitstreams.length > 0) {
            RDFTriple triple = RDFTriple.find(context, item, predicate, Bitstream.class);
            if (triple != null) {
                DSpaceObject first = triple.getObject();
                for (int p=0; p<bitstreams.length; p++) {
                    if (bitstreams[p].equals(first)) {
                        posKnownFrom = p;
                        posKnownTill = p;
                    }
                }
                if (posKnownFrom >= 0) {
                    predicate = arranger.precedesPredicate(context);
                    for (int p=posKnownFrom; p<bitstreams.length-1; p++) {
                        triple = RDFTriple.find(context, bitstreams[p], predicate, bitstreams[p+1]);
                        if (triple == null) {
                            break;
                        }
                        posKnownTill++;
                    }
                }
            }
        }
    } catch (SQLException e) {
        // do nothing, maybe originals will be retrieved by getBitstreams below
    }
    if (bitstreams.length == 0) {
        bitstreams = bundles[i].getBitstreams();
    }
}

• replace "<% if (bundles[i].getName().equals("ORIGINAL")) {" near line 344 with the following code:

```html
<td headers="t10" class="<% row %>RowEvenCol">
    <a target="_blank" href="<%= request.getContextPath() %>/retrieve/<%= bitstreams[j].getID() %>"><fmt:message key="jsp.tools.general.view"/></a>
</td>
<% if (isOriginal) {
    <td headers="t11" class="<%= row %>RowOddCol" align="center">
        <SELECT name="position" onchange="reposition(this)">
            <OPTION value="position_<%= key %>_N">-</OPTION>
            <% for (int k = 0; k < bitstreams.length; k++) { %>
                <OPTION value="position_<%= key %>_<%= k %>"><%= k+1 %></OPTION>
            <% } %>
        </SELECT>
    </TD>
</% if (isOriginal)
```

• near line 353 replace "<td headers="t11"> </td>" with:

```html
<td headers="t11" class="<%= row %>RowOddCol"> </td>
<td headers="t11" class="<%= row %>RowEvenCol"> </td>
```

• near line 372 replace:
with this:

```html
<input type="submit" name="submit_delete_bitstream_<%= key %>" value="<fmt:message key="jsp.tools.general.remove"/>
```
function storePositions() {
    var allPosEl = document.getElementsByName('position');
    for (var i=0; i<allPosEl.length; i++) {
        storedPos[i] = allPosEl[i].selectedIndex;
    }
}
storePositions();
</SCRIPT>

Step 5: build / install / restart

Do the stuff you normally do when deploying a new version of DSpace.

Future work

Besides implementing new functionality using this basic RDF implementation, there are two obvious omissions:

- a way to use a subject or an object that is not a dspace object
- related to this: use a plain text object
- an implementation of RDF containers like Bag, Seq and Alt. This maybe addressed in the future.

Contact me

If you need help, or have any comments, or you just want to inform me that you (are going to) use this, please contact me at schaik (at) library.leidenuniv.nl