


MultiRemoteDSpaceRepositoryHandlePlugin

Work in progress!

 Just started with documentation, please wait until it's finished.

The Handle Server

First a few facts to clear up some common misconceptions:

- You don't **have** to use CNRI's Handle system. At the moment, you need to change the code a little to use something else (e.g PURLs) but that should change soon.
- You'll notice that while you've been playing around with a test server, DSpace has apparently been creating handles for you looking like *hdl:123456789/24* and so forth. These aren't really Handles, since the global Handle system doesn't actually know about them, and lots of other DSpace test installs will have created the same IDs. They're only really Handles once you've registered a prefix with CNRI (see below) and have correctly set up the Handle server included in the DSpace distribution. This Handle server communicates with the rest of the global Handle infrastructure so that anyone that understands Handles can find the Handles your DSpace has created. If you want to use the Handle system, you'll need to set up a Handle server. This is included with DSpace. Note that this is not required in order to evaluate DSpace; you only need one if you are running a production service. You'll need to obtain a Handle prefix from [the central CNRI Handle site](#).

A Handle server runs as a separate process that receives TCP requests from other Handle servers, and issues resolution requests to a global server or servers if a Handle entered locally does not correspond to some local content. The Handle protocol is based on TCP, so it will need to be installed on a server that can broadcast and receive TCP on port 2641. You can either use a handle server on the same machine as DSpace runs or you can install it on a separate machine. Installing it on the same machine is a little bit easier, installing it on a separate machine you can use one handle server for more than one DSpace installation.

Installing a Handle server on the same machine DSpace runs

1. To configure your DSpace installation to run the handle server, run the following command:

```
[dspace]/bin/dspace make-handle-config [dspace]/handle-server
```

Ensure that *[dspace]/handle-server* matches whatever you have in *dspace.cfg* for the *handle.dir* property.

2. Edit the resulting *[dspace]/handle-server/config.dct* file to include the following lines in the "server_config" clause:

```
"storage_type" = "CUSTOM"
"storage_class" = "org.dspace.handle.HandlePlugin"
```

This tells the Handle server to get information about individual Handles from the DSpace code.

3. Once the configuration file has been generated, you will need to go to <http://hdl.handle.net/4263537/5014> to upload the generated sitebndl.zip file. The upload page will ask you for your contact information. An administrator will then create the naming authority/prefix on the root service (known as the Global Handle Registry), and notify you when this has been completed. You will not be able to continue the handle server installation until you receive further information concerning your naming authority.
4. When CNRI has sent you your naming authority prefix, you will need to edit the *config.dct* file. The file will be found in *[dspace]/handle-server*. Look for "300:0.NA/YOUR_NAMING_AUTHORITY". Replace *YOUR_NAMING_AUTHORITY* with the assigned naming authority prefix sent to you.
5. Now start your handle server (as the dspace user):

```
[dspace]/bin/start-handle-server
```

Note that since the DSpace code manages individual Handles, administrative operations such as Handle creation and modification aren't supported by DSpace's Handle server.

Installing a Handle server on a separate machine

The Handle server you use must be dedicated to resolve Handles from DSpace. You cannot use a Handle server that is in use with other software already. You can use CNRI's Handle Software -- all you have to do, is to use a plugin for it, that is shipped with DSpace. The following instructions were tested with CNRI's Handle software version 7.3.1. You can do the following steps on another machine then the machine DSpace runs on, but you have to copy some files from the machine on which DSpace is installed.

1. Download the CNRI Handle Software: <http://www.handle.net/download.html>. In the tarball you'll find an INSTALL.txt with installation instructions -- follow it.
2. After installing the CNRI Handle Software you should have two directories: one that contains the CNRI software and one that contains the configuration of your local Handle Server. For the rest of this instruction we assume that the directory containing the CNRI Software is */hs/hsj-7.3.1* and the directory containing the configuration of your local server is */hs/srv_1*. (We use the same paths here as CNRI's INSTALL.txt.) In your DSpace installation directory you'll find the following two files: *[dspace-install]/lib/log4j-1.2.14.jar*, *[dspace-install]/lib/DSpace-handle-plugin.jar*. Copy them into */hs/hsj-7.3.1/lib*.
3. Create the directory */hs/srv_1/logs*.
4. Create the following two files in */hs/srv_1*.

log4j-handle-plugin.properties

```
log4j.rootCategory=INFO, A1
log4j.appender.A1=org.apache.log4j.DailyRollingFileAppender
log4j.appender.A1.File=/hs/srv_1/logs/handle-plugin.log
log4j.appender.A1.DatePattern='.'yyyy-MM-dd
log4j.appender.A1.layout=org.apache.log4j.PatternLayout
log4j.appender.A1.layout.ConversionPattern=%d %-5p %c @ %m%n
log4j.logger.org.apache.axis.handlers.http.HTTPAuthHandler=INFO
```

Change the path in the third line, if necessary.

handle-dspace-plugin.cfg

```
dspace.handle.endpoint1 = http://example.org/dspace/handlerresolver
```

If you are using XMLUI take a look in [dspace-install]/config/dspace.cfg, change the URL above to the value of your dspace.url and add /handlerresolver to the end of it. If you are using JSPUI take a look in [dspace-install]/config/dspace.cfg, change the URL above in the value of your dspace.url and add /json/hdlresolver to the end of it. If you run more than one DSpace Installation, you may add more DSpace Endpoints. Just increase the number at the end of the key one by another.

5. Edit /hs/srv_1/config.dct file to include the following lines in the "server_config" clause:

```
"storage_type" = "CUSTOM"
"storage_class" = "org.dspace.handle.MultiRemotedSpaceRepositoryHandlePlugin"
```

6. Copy /hs/hsj-7.3.1/bin/hdl-server to /hs/srv_1/start-hdl-server
7. Edit /hs/srv_1/start-hdl-server:
 - a. Find the last line that begins with HDLHOME=
 - b. Below that line add the following one: HDLHOME="/hs/hsj-7.3.1/"
 - c. Find a line that contains exec java ... net.handle.server.Main ...
 - d. Add "-Dlog4j.configuration=file:///hs/srv_1/log4j-handle-plugin.properties -Ddspace.handle.plugin.configuration=/hs/srv_1/handle-dspace-plugin.cfg" right in front of net.handle.server.Main.
8. If your handle server is running, stop it.
9. From now on you should start this handle server using /hs/srv_1/start-hdl-server

Please pay attention: The Handle Server will only start, if it is able to connect to at least one running DSpace Installation. It only resolves the handles of the DSpace Installations that were running when it was started.