# Open Source tools for the implementation of WIS centres

## WMO metadata updater

Platform: PHP, HTML, javascript, XSLT
Website: <https://bitbucket.org/wmo/mdupdater>

The MDupdater is a webbased editor to maintain ISO19139 metadata files based on the WMO core profile 1.2. The MDupdater can update a configurable set of fields, grouped in various sections. The fields that can be updated can be configured in a configuration file using xpath. This makes the MDupdater easy to use, since only a subset of the many ISO19139 fields are editable. It also has a cartographic module for the editing of geospatial bounding boxes. Mdupdater supports simple access control using username and password. A user is attached to a country and the current implementation gives the user full access to all country metadata. Filesystem and database backends are supported for the storing of metadata files. Batch updating of selected fields, such as contact information is supported and it can also create new mdrecords based on templates or upload new metadata records either as single file or multiple ones as a ziipfile. PHP is used for the implementation of the MDupdater and a XSTL and javascript based framework takes care of automatically making the configured fields editable. A webserver with PHP support, such as apache is required for running mdudpdater.

MDupdater is a lightweight and easy to deploy metadata editor that allows a WIS centre to make metadata files accessible either to other WIS centres or to remote metadata maintainers through the web. MDupdater is not a fully-fledged ISO19139 editor, since the fields of the ISO19139 standard that should be editable are hardwired in the configuration. It can thus not edit arbitrary ISO 19139 files. It is best used in an environment where metadata editors are required to only maintain a well-known number of fixed metadata fields, such as abstract, title, contact, bounding box, temporal extend and keywords.

MDupdater has been developed from scratch by the WMO Secretariat to demonstrate the feasibility of maintaining WIS metadata files through the web. It is currently used by Bulgaria and Iran as part of the WIS centre implementations.

## JOAI

Platform: java, J2EE container.
Website: <http://www.dlese.org/dds/services/joai_software.jsp>

JOAI is an open source implementation of the Open Archives Initiative Protocol for Metadata harvesting. It has both a server and client functionality. This is, it makes metadata files available using OAI while also being able to retrieve metadata files using OAI from other OAI servers. JOAI is file system based. The metadata files that are made available by the server are contained in one or more folders. A periodic indexing process scans these directories can adds the files in the directory to the index of available files. Likewise, files that are removed from the folder are removed from the index after indexing. Specific folders can be assigned to OAI sets, allowing for different directories to be logically structured towards the outside. JOAI is administered through a web interface.

A drawback of JOAI is that the file system based approach has scaling issues, since the indexing takes some time if a large number (>50.000) metadata files are to be indexed. Rebuilding the index can take a significant time, making maintenance and error recovery difficult. Conceptually no indexing is required for the mere serving of metadata files. This feature is due to a search functionality that not required for WIS. Another drawback is that the developer support for the project is limited and none or very little further development seems to take place.

A java container such as tomcat is required for running JOAI.

JOAI can best be used as an OAI hub, harvesting metadata from various internal sources and making them available in a unified way. It can also be used to periodically retrieve metadata files from outside sources.

JOAI is an open source project. The Secretariat has added support for validating metadata files for correctness against the WMO CP 1.2 during the indexing.

## GeoNetwork

Platform: java, J2EE container.
Website: <http://geonetwork-opensource.org/>

Geonetwork is a web based tool for discovery and maintenance of metadata files. On the one hand, geonetwork has a powerful ISO19139 editor, allowing for all fields of the complex ISO19139 standard to be edited. On the other hand, geonetwork indexes metadata files allowing metadata records to be discovered in its search interface. Geonetwork is used by a large number of organizations to maintain and make available their metadata holdings. Geonetwork also has support for SRU, CSW and OAI, both as server and client. An elaborate access control system allows to assign detailed discovery and editing rights on metadata records to users, which can in turn be structured in groups. A plugin system allows for both the metadata editor and discovery interface to be customized.

Geonetwork requires a java container such as tomcat and a database. Self-contained versions come with a minimal database and java container included and can be run standalone.

A drawback of geonetwork is that the metadata editor is relatively complex, since it exposes all elements of the very complex ISO19139 standard. The ability to customize its appearance is also limited, preventing the creation of organizational portals that require modifications beyond basic customization.

However, geonetwork can be a cost-effective way to develop organizational metadata management capability and making the holdings available online.

## SRU2JDBC

Platform: java, J2EE container
Website: <http://sourceforge.net/projects/sru2jdbc/>

SRU2JDBC is an implementation of SRU in java that connects a SRU engine to any JDBC enabled database. A configuration file allows to map a SRU index, such as title or author, to database fields or queries in the underlying database.

SRU2JDBC thus allows to make any database SRU enabled and to hence participate a distributed search, given that there is a JDBC adapter available, which is the case for all major DB systems (Mysql, postgresql, MSSQL, Oracle etc.).

SRU2JDBC was created by the WMO Secretariat together with DWD, and is currently maintained and used by DWD.

## Recommended Text

The document discusses four open source tools that can be used for the implementation of WIS. The WMO metadata updater is an online editor. JOAI can be used to aggregate various OAI enabled sources in the organization and expose them externally. Geonetwork is both a powerful and complex metadata editor, as well as a discovery portal that supports some of the standards required for WIS. SUR2JDBC is a software that can be used to make a JDBC database SRU enabled.

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