Abstract

This document is the HMA-S EbRIM CIM Demonstrator Technical Note. It contains a description of the interfaces and the user manual.

Keywords

HMA-S, ESRIN, HMA, Earth Observation, EbRIM CIM, Demonstrator.

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The state of play of the standardization of the ground segment interfaces for EO missions is described in [RD01] and [RD02]. The figure below, taken from [RD01] highlights the existing space standards, mainly from the European Cooperation for Space Standardisation (ECSS), covering the overall earth observation process, and the interfaces where the harmonization work within the HMA projects is focused.

![Earth Observation Ground Segment Components](RD01)

The objective of "Heterogeneous Missions Accessibility" – HMA – is to establish harmonised access to heterogeneous earth observation (EO) missions’ data from multiple mission ground segments, including national missions and ESA Sentinel missions. In practice, the goal of HMA is to standardise the ground segment interfaces of the satellite missions for easier access to EO data. The HMA Architecture Working Group (AWG) has been coordinating the ground segment interface harmonisation activities initiated by the Ground Segment Coordination Body (GSCB). These activities, which were performed under ESA contracts such as HMA-I, HMA-T and most recently HMA-Follow On (HMA-FO) have produced interface specifications standardised through the OGC Consortium. The so-called “HMA Cookbook” [RD02] describes in detail the domains which have been subject to standardisation.

The ground segment interfaces covered by HMA-related projects and in various stages of standardisation at the Open Geospatial Consortium (OGC) include:

- Dataset (i.e. Product) metadata: OGC 06-080 and OGC 10-157,
- Catalogue access (datasets): OGC 06-131, OGC 10-189,
- Catalogue access (dataset series and services) OGC 07-038, OGC 08-197,
- Feasibility Analysis: OGC 10-135,
- Ordering: OGC 06-141,
- On-line data access: including EO WMS and EO WCS OGC 10-140 and related specifications OGC 09-110 (WCS 2.0 Core), OGC 09-147 (KVP binding), OGC 09-148 (XML/Post binding), OGC 09-149 (XML/SOAP binding), OGC 11-053 (CRS Extension), etc.
- Identity management: OGC 07-118 [AD05].

The HMA-S project is the continuation of the standardisation activities from HMA-T and HMA-FO. The HMA-S project aims to further advance the HMA standardisation activities and address in particular the following interfaces:

- Dataset metadata (Task 3),
- Catalogue access (datasets, dataset series and services) (Task 4 and 5),
- Feasibility analysis (Task 7),
- Ordering and product download (Task 4),
- Processing (Task 6),
- Identity Management (Task 2).

The objectives of the HMA-S demonstrators are on one hand to re-use existing applications to optimise the effort and maintain a set of open-source reference implementations within the scope of HMA. On the other hand, the demonstrators need to be made available as a standalone version for independent download and use; but also integrated into the HMA-S Test Bed for online access.

In response to these two challenges, Astrium and Spacebel are proposing demonstrators relying on previous implementation and relevant to the ongoing projects or specification to implement.

The Identity Management, EO metadata and ebRIM CIM demonstrators will be based on previous developments from HMA-T for Identity Management and ERGO (Buddata) and SMAAD for the EO metadata and the CIM EP Demonstrators.

The OpenSearch extensions and Web Processing Service demonstrator will reuse MapShup and the DREAM Multi-Mission Feasibility Analysis components.
1 INTRODUCTION

1.1 Purpose of the Document

This document is the “ebRIM CIM Catalog Service Demonstrator” Technical Note. It is prepared by Spacebel with support from Intecs as a deliverable of WP2300 of the HMA for Science (HMA-S) project. It is identified as HMA-S.SPB.D5000.2 and provides both a description of the native interfaces and the user manual for the demonstrator.

The main purpose of the present document is to provide guidance for understanding, deploying and configuring the ebRIM CIM Catalog Service Demonstrator in the context of HMA-S. It provides references and links to documents and software packages.

1.2 Scope of the Document

This document is deliverable HMA-S.SPB.D5000.2 as identified in WP5300. It satisfies Task 5 I39.3.1 and I39.3.2 requirements in the Statement of Work (SOW) [AD03].

The present document provides the main concepts of the ebRIM CIM Catalog Service Demonstrator of HMA-S; it explains the role of the different components as well as the ways they can be deployed and configured. The present document does not cover the internal interfaces or the architecture of the individual components.

1.3 Readership of the Document

This document is intended to be read by the HMA-S project team and the ESA Technical Officer. The target audience also includes software architects, system integrators and system administrators involved.

1.4 Organisation of the Document

This document is organised as follows:

- Chapter 1 is the introduction to this document.
- Chapter 2 lists the applicable and reference documents.
- Chapter 3 describes the high level architecture of the Demonstrator and the main interfaces.
- Chapter 4 contains the installation instructions for the Demonstrator.
- Chapter 5 is the user manual for the online version of the Demonstrator.

1.5 Applicability of the Document

This document applies to Task 5 of the HMA-S project.
1.6 Abbreviations and Acronyms

<table>
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<tr>
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<th>Description</th>
</tr>
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<tr>
<td>ATS</td>
<td>Abstract test Suite</td>
</tr>
<tr>
<td>CIM</td>
<td>Cataloguing ISO Metadata</td>
</tr>
<tr>
<td>CITE</td>
<td>Compliance and Interoperability Testing and Evaluation</td>
</tr>
<tr>
<td>CTL</td>
<td>Conformance Test Language</td>
</tr>
<tr>
<td>DAIL</td>
<td>Data Access Integration Layer</td>
</tr>
<tr>
<td>EO</td>
<td>Earth Observation</td>
</tr>
<tr>
<td>ESA</td>
<td>European Space Agency</td>
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<tr>
<td>ETS</td>
<td>Executable Test Suite</td>
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<td>HMA</td>
<td>Heterogeneous Missions Accessibility</td>
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<tr>
<td>HMA-FO</td>
<td>HMA Follow-On</td>
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<td>HMA-I</td>
<td>HMA-Interoperability</td>
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<td>HMA-S</td>
<td>HMA for Science</td>
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<td>HTTP</td>
<td>HyperText Transport Protocol</td>
</tr>
<tr>
<td>HTTPS</td>
<td>HTTP Secure</td>
</tr>
<tr>
<td>ICD</td>
<td>Interface Control Document</td>
</tr>
<tr>
<td>SP</td>
<td>Service Provider</td>
</tr>
<tr>
<td>SSO</td>
<td>Single Sign-On</td>
</tr>
<tr>
<td>VM</td>
<td>Virtual Machine</td>
</tr>
<tr>
<td>XML</td>
<td>Extensible Markup Language</td>
</tr>
</tbody>
</table>

1.7 Definitions

None
2 APPLICABLE AND REFERENCE DOCUMENTS

2.1 Applicable Documents

The following documents are applicable to the project. In the current document, these documents are referenced as listed below.

[AD01] HMA-S Project Management Plan, HMA-S.ASU.D100.1, Issue 1, Revision 0, 25/02/2013.


[AD03] Statement of Work LTDP-GSEG-EOPG-SW-12-0007, Heterogeneous Missions Accessibility for Science, Issue 1, Revision 0, 13/09/2012.


[AD05] OGC 13-084r1, OGC I15 (ISO19115 Metadata): This document corresponds to the updated OGC 07-038r3 document modified as part of the WP 5100 of the HMA-S project.

[AD06] OGC 07-038r3, OGC Cataloguing of ISO Metadata (CIM) – Using the ebRIM profile of CS-W, Version 0.1.12, 14/12/2009.

[AD07] OGC 08-197r4, INSPIRE Conformance Class of OGC Cataloguing of ISO Metadata (CIM) using the ebRIM profile of CS-W 11/10/2011. This document corresponds to SMAAD-CON-D5300.2.

[AD08] Technical Guidance for INSPIRE Discovery Services, IOC Task Force for Network Services, 18-03-2011


2.2 Reference Documents

The following documents provide background reference. In the body of the text these documents are referenced as listed below.


3 DEMONSTRATOR ARCHITECTURE

3.1 Component Types

The figure below shows the Component Types and their interfaces as used in the ebRIM CIM Catalog Service Demonstrator of HMA-S. The following conventions are used in the diagram below:

- Components Ey: identify external components not part of the downloadable HMA-S software.
- Components Hx.y: identify HMA-S Demonstrator components which are the output of HMA-S Task x.

![Diagram of Demonstrator Component Types and Interfaces](image)

Figure 1: Demonstrator Component Types and Interfaces

The ebRIM CIM Catalog Service Demonstrator of HMA-S complies with the revised OGC 07-038r3 [AD06] interfaces defined by HMA-S and identified as [AD05]. It is based on the components described in the following subsections:

3.1.1 H5.1 - CSW CIM EP Catalog Client

This component allows a user to search a catalog server compliant with the protocol IF-HMAS-CIM-EP [AD05]. The demonstrator is an Open-source client which:

- Shares DAIL/SSE source code for Catalog clients (same stylesheets).
- Same source code as Task 3 Catalog client, different configuration files.
• Has endpoints/bindings which are configurable by the user

In the context of HMA-S, this software package can be found, as open-source software, in the google code repository at the following location: [http://code.google.com/p/hma-catalog-client/](http://code.google.com/p/hma-catalog-client/).

![Diagram](image)

**Figure 2** Open-source HMA-S Client (prototype) accessing I15 Catalogue (Task 5) catalog - Search

### 3.1.2 H5.2 - CSW CIM EP Catalog Server

This component is a catalog server (Buddata) in which ISO19139 metadata files for services or collections can be imported and which exposes an interface compliant to the protocol IF-HMAS-CIM-EP [AD05].

In the context of HMA-S, this software package can be found, as open-source software, on the google code repository at [https://code.google.com/p/budda-ebxml-registry/](https://code.google.com/p/budda-ebxml-registry/).

The version of buddata used in the current demonstrator is version 3.0.

A set of ISO19139 metadata files will be available for download on the HMA-S FTP server accessible from the ESA HMA-S wiki page.
3.1.3 H5.3 - CSW CIM EP to ISO AP Bridge

CSW CIM EP to ISO AP Bridge (H5.3): This component is a CIM to INSPIRE bridge which was developed in the SMAAD project and implement the changes which were made in the INSPIRE Conformance Class (ICC) of CIM EP [AD07].

The software requirements specification, design document and test report for this component can be found in [AD09], [AD10] and [AD11].

In the context of HMA-S, this software package can be found, as open-source software, on the RSS Portal “Join and Share Area” (http://wiki.services.eoportal.org), by following the “Open Software” link identified under “HMA Collection Discovery to INSPIRE Discovery Conversion” or go directly to http://code.google.com/p/transforming-inspire-discovery-vs-hma-collection-discovery/.

3.1.4 E2 - EUMETSAT Product Navigator

The EUMETSAT Product Navigator (E2) is an external catalog server providing an 3.2.2 IF-OGC-CSW-ISO-AP interface which allows demonstrating the correct working of the bridge component H5.3.

3.2 Interfaces

The following interfaces were depicted on the component diagram in the previous section.

3.2.1 IF-HMAS-CIM-EP

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<th>Discovery Services</th>
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<td>Standard reference</td>
<td>OGC 07-006r1, OGC Catalog Services Implementation, Version 2.0.2.</td>
</tr>
<tr>
<td></td>
<td>OGC 07-110, OGC Catalog Services for the Web – ebRIM Registry Service, Part 1ebRIM Profile of CSW.</td>
</tr>
<tr>
<td>Description</td>
<td>This interface allows discovering and retrieving metadata about (EO) dataset series, datasets and services hereby providing sufficient information to assess the usefulness of a dataset series or service for the task at hand. It offers the binding information for accessing the service as well.</td>
</tr>
<tr>
<td>Format</td>
<td>Web services</td>
</tr>
<tr>
<td></td>
<td>SOAP 1.1 over HTTP 1.1</td>
</tr>
<tr>
<td>Comment</td>
<td>The Service Viewpoint of this HMA-compliant interface is described in detail in section 5.4.3 of [RD02].</td>
</tr>
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3.2.2 IF-OGC-CSW-ISO-AP

<table>
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<tr>
<td>Reference to specification</td>
<td>OGC 07-045: CSW ISO Application Profile</td>
</tr>
<tr>
<td>Description</td>
<td>This service allows to discover and retrieve metadata for datasets, dataset series and services.</td>
</tr>
<tr>
<td>Format</td>
<td>SOAP 1.1 over HTTP 1.1</td>
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<tr>
<td>Comment</td>
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3.3 Persistent HMA-S Testbed

The Demonstrator components described in the current document can be downloaded individually by an interested user (See download links in section 3.1.X or can be accessed on-line as they are part of the persistent Testbed at ESRIN. The addresses where the components are accessible are included below:

<table>
<thead>
<tr>
<th>Component</th>
<th>Persistent Testbed URL</th>
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<tr>
<td>H5.1 CSW CIM EP Catalog Client</td>
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<tr>
<td>H5.2 CSW CIM EP Catalog Server (SOAP 1.1)</td>
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<td>CSW CIM EP Catalog Server (SOAP 1.2)</td>
<td><a href="http://hma-s-catalogue.esa.int/hmas/webservice/1.2">http://hma-s-catalogue.esa.int/hmas/webservice/1.2</a></td>
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<tr>
<td>H5.3 CSW CIM EP to ISO AP Bridge</td>
<td><a href="http://hma-s-catalogue.esa.int/InspireTM/cimep">http://hma-s-catalogue.esa.int/InspireTM/cimep</a></td>
</tr>
</tbody>
</table>

The above base URLs are to be agreed with ESA.
4 SOFTWARE INSTALLATION MANUAL

The purpose of the present section is to provide references to a set of different software packages that implements the architecture described in the previous chapter. It provides also installation and configuration information to make these packages fit together.

4.1 H5.1 - CSW CIM EP Catalog Client

The installation and configuration of this catalogue client is described in section 4.1 (H3.1 – EOP O&M Catalog Client) of [AD12].
4.2 H5.2 - CSW CIM EP Catalog Server

The CSW CIM EP Catalog can be installed using a graphical installer, or starting from the source code downloaded from the site: [http://code.google.com/p/buddata-ebxml-registry/source/checkout](http://code.google.com/p/buddata-ebxml-registry/source/checkout).

**Note:** The project on the google code is referred to as “Buddata ebXML Registry/Repository (or”Buddata ebRR”, in short). See: [http://code.google.com/p/buddata-ebxml-registry/](http://code.google.com/p/buddata-ebxml-registry/)

Additionally, in the graphical installation process, it is also referred as "ErgoRR" since historically it stems from the ESA “ERGO” project, whereas the suffix “RR” stands for Registry-Repository.

4.2.1 The graphical installer

4.2.1.1 Installation requirements

Prior to running the installation, the following software should be installed:

- JDK 1.7 ([http://www.oracle.com/technetwork/java/javase/downloads/index.html](http://www.oracle.com/technetwork/java/javase/downloads/index.html)). The JAVA_HOME environmental variable shall be set and JAVA_HOME/bin shall be added to the PATH environmental variable.
- Tomcat 6.0.x has to be pre-installed. Set the CATALINA_HOME environment variable to the tomcat installation directory.
- PostgreSQL 8.4.x, ([http://www.postgresql.org/download/](http://www.postgresql.org/download/))
- PostGIS 1.5.x, ([http://postgis.refractions.net/download/](http://postgis.refractions.net/download/))

On a Linux machine, after the PostgresSQL and PostGIS installation, create a PostGIS template manually (this template will be used by the deployer to generate new instances):

- Change to the postgres user
- Create the template database:
  
  $ createdb template_postgis

- Enable plpgsql on the newly created database with the command:
  
  $ createlang plpgsql template_postgis

- Run the postgis scripts on database "template_postgis" to enable spatial functionality.

  $ psql -d template_postgis -f /usr/share/postgresql-8.4-postgis/postgis.sql
  $ psql -d template_postgis -f /usr/share/postgresql-8.4-postgis/spatial_ref_sys.sql

  Note we assume that postgis extension has been installed in the following directory /usr/share/postgresql-8.4-postgis/. If not the above commands have to be updated accordingly.

4.2.1.2 Installation procedure

The graphical installer is provided as a “.jar” file which, on a Linux machine, can be launched from the console as follows:
$ java -jar ErgoRR-installer-x.y.0.jar
The installer guides you through the rest of the 12-step installation process.

**STEP 1:**

![ErgoRR Installer](image)

Figure 3: CSW CIM EP Catalog Server Installer - STEP 1

This window is a welcome page reminding the catalogue version, code authors and site of the project; click on the "Next" button.
STEP 2:

Figure 4: CSW CIM EP Catalog Server Installer - STEP 2

This is the license agreement which shall be accepted in order to continue with the installation process: tick “I accept the terms of this license agreement” and click the “Next” button
STEP 3:

![ErgoRR Installer: Prerequisites](image)

Please read the following information:

Prerequisites

1. JDK 1.7
   Make sure that you have set the JAVA_HOME environment variable.

2. Apache Tomcat 6
   Please make sure that you have set the CATALINA_HOME environment variable if you want to use an existing Apache Tomcat installation.

3. PostgreSQL 8.4

4. PostGIS 1.4 or 1.5

5. A PostGIS template in the PostgreSQL database

Figure 5: CSW CIM EP Catalog Server Installer - STEP 3

This screen provides an overview of the software you need to have installed prior to the installation of the catalogue server (prerequisites):

- JDK 1.7
- Apache Tomcat 6.0
- PostgreSQL 8.4
- PostGIS 1.4 or 1.5

Continue by clicking the "Next" button.
STEP 4:

**Figure 6: CSW CIM EP Catalog Server Installer - STEP 4**

Add the name of your deployment in the "Deploy/database name" field.

Insert the name of your host and port number (separated by a ":"). As this hostname is used by the server to generate http links to metadata returned to the client, "localhost" can **NOT** be used here.

Put the path to a directory on your file system where a repository can be setup in the "Repository path" field.

You can browse through your file system using the "Browse..." button next to the "Repository path" field.

**Notice:** Make sure that you have read/write access on this directory.

Select a type of installation via the "Installation type" dropdown. There are three options:
- "Stand-alone application"
- "Use existing tomcat"
Click “Next” to continue.

**STEP 5:**

**Figure 7: CSW CIM EP Catalog Server Installer - STEP 5**

This screen provides you the “option” to insert (or load) ebRIM metadata into your catalogue during the installation process.

Use the “Browse...” button to navigate to the folder that contains this metadata.

Use the “Delete...” button to remove metadata from the list.

Click “Next” to continue.
### Service Provider

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company name</td>
<td>My Company</td>
</tr>
<tr>
<td>Website</td>
<td><a href="http://my.website">http://my.website</a></td>
</tr>
<tr>
<td>Contact name</td>
<td>Name</td>
</tr>
<tr>
<td>Contact position</td>
<td>Catalogue support</td>
</tr>
<tr>
<td>Contact phone</td>
<td>+32</td>
</tr>
<tr>
<td>Address</td>
<td>32 My Street</td>
</tr>
<tr>
<td>City</td>
<td>My City</td>
</tr>
<tr>
<td>Area</td>
<td>My Area</td>
</tr>
<tr>
<td>Post code</td>
<td>1234</td>
</tr>
<tr>
<td>Country</td>
<td>Belgium</td>
</tr>
<tr>
<td>E-mail</td>
<td>my@email</td>
</tr>
<tr>
<td>Service hours</td>
<td>09:00 - 17:00 CET</td>
</tr>
<tr>
<td>Contact instructions</td>
<td>Please use email for all inquiries.</td>
</tr>
</tbody>
</table>

(Made with IzPack - http://izpack.org/)

---

**Figure 8: CSW CIM EP Catalog Server Installer - STEP 6**

This installer screen allows entering the service provider information. This information will also be used to build a Capabilities XML document for the CSW GetCapabilities operation.

Click "Next" to continue.
STEP 7:
In this step the directory of installation is requested. The following screenshot is shown. Confirm (CATALINA_HOME) or choose a different tomcat instance directory
Click “Next” to continue

Figure 9: CSW CIM EP Catalog Server Installer - STEP 7
STEP 8:

In this step you can configure the access of the Catalogue to your PostgreSQL database.

- Put the URL (including port number) of your database in the "URL" field.
- Put the user name of your database in the "User" field.
- Put the password of your database in the "Password" field and re-type the same password in the "Repeat password" field.
- Provide a name for a PostGIS template in the "Postgis template name" field.
- You can tick the option "Drop database if exists" if you want this option.

Please make sure you have the right password for the database and database user you have selected.

Click "Next" to continue.
**STEP 9:**

**Database confirmation**

Check this box to create the database and insert the default model.

- Write to the database

*Figure 11: CSW CIM EP Catalog Server Installer - STEP 9*

This screen shows that a database will be created and some default information will be added to the database.

Please leave the "Write to the database" checkbox selected, unless you don't want this action to happen (not advised!).

Click "Next" to continue.
**STEP 10:**

In this screen you can select the packages you can install on your server. The options available depend on the choice made at STEP 4.

- "Back-end only"
- "Deploy in existing Apache Tomcat"
- "Deploy the Graphical User Interface"

If an installation with tomcat has been previously selected (either bundled or existing), the "Deploy the Graphical User Interface" is also available.

Click "Next" to continue.
**STEP 11:**

![Figure 13: CSW CIM EP Catalog Server Installer - STEP 11](image)

This screen shows the progress of the installation.
Click "Next" to continue after the progress bars are full.
STEP 12:

![ErgoRR Installer: Done!](image)

(Made with IzPack - http://izpack.org/)

Figure 14: CSW CIM EP Catalog Server Installer - STEP 12

This is a simple screenshot providing the “Done” message to confirm the correct installation.

4.2.2 Installing from sources

This section provides the directions to build and deploy the Catalogue starting from the sources.

4.2.2.1 Installation requirements

In addition to the requirements listed in the previous section (see 4.2.1.1), including the steps for the creation of the postGIS template, the following software packages are needed:

- Maven 2.x
- Ant 1.6+
Maven is used while development and for building the project. Ant is used for deployment, database setup and data initialization.

Notice that it is assumed that tomcat is already installed and the CATALINA_HOME directory set.

4.2.2.2 Installation procedure

- Make sure that the required software is installed properly
- Checkout the source “ErgoRR” from google code (http://code.google.com/p/buddata-ebxml-registry/source/checkout) and put it all under one directory.

The maven projects are:
- ErgoRR-backend < Contains all the backend logic used by ErgoRR-web and ErgoRR-backend-client
- ErgoRR-commons < common classes
- ErgoRR-jaxb < JAXB bindings
- ErgoRR-persistence < persistence layer
- ErgoRR-web < web application
- ErgoRR-client < client API through SOAP interface
- ErgoRR-backend-client < client API connecting directly to backend

- Configure: Copy conf/ergorr-template.properties to conf/ergorr.properties and edit the configurations if needed. The ‘deployName’ property will become the database name and the deployed WAR application name for the instance.
- Build the root pom file. It will build all the modules:
  o mvn clean install
- Start up Tomcat.
- Run these ant tasks in the following order
  o ant db-build
  o ant db-load-model
  o ant deploy

Note: If you are having issues with the Ant tasks, check the properties defined on the top of the build.xml file. One possible problem might be that your Maven repository directory is not in USER_HOME/.m2/repository

Note: After an instance has been deployed on Tomcat, it sometimes throws an exception because of classpath loading problems. In that case a restart is required.

4.2.2.1 Graphical User interface

- Checkout the source “ErgoRRGUI” from google code (http://code.google.com/p/buddata-ebxml-registry/source/checkout)
- The gui-build.xml allows to build and deploy ErgoRRGUI using ant.
  It assumes that an instance of the ErgoRR catalogue is already built and installed.
NOTE: The gui-build.xml reads the catalogue properties in ..../ErgoRR/conf/ergorr.properties

- Execute the following commands:
  - ant -f gui-build.xml build
  - ant -f gui-build.xml deploy (assumes CATALINA_HOME set)
- To clean the temporary folders created in the ErgoRRGUI directory:
  - ant -f gui-build.xml clean (removes "build" and "dist" sub-directory)

### 4.3 H5.3 - CSW CIM EP to ISO AP Bridge

The installation instructions for this component can be found in [http://code.google.com/p/transforming-inspire-discovery-vs-hma-collection-discovery/source/browse/trunk/readme.txt](http://code.google.com/p/transforming-inspire-discovery-vs-hma-collection-discovery/source/browse/trunk/readme.txt) and are repeated below:

1. modify build.properties
   - target.inspire.url: URL of an INSPIRE DS that has to be wrapped by a CIM EP facade
   - target.cim.url: URL of a CIM EP service that has to be wrapped by an INSPIRE facade
   - proxy.host: proxy to be used (if no proxy leave empty)
   - proxy.port: port of proxy to be used (if no proxy leave empty)
2. modify the capabilities document(s) inspireCapabilities and/or cimepCapabilities as desired
3. modify log4j.xml as desired (optional)
4. build via ant with build.xml (see [http://ant.apache.org/](http://ant.apache.org/))
5. deploy in tomcat (e.g. copy the generated war file from target folder to <tomcat>/webapps)
5 USER MANUAL

5.1 Using the Online HMA-S Demonstrator

The purpose of the present section is to show how to use the HMA-S Demonstrator installed at ESA, which is an integrated installation of the afore-mentioned components.

The URL to access the HMA-S T5 Demonstrator installed at ESRIN is provided in section 3.3.

5.1.1 Using the Online Catalog Client

In the deployed prototype, the client is preconfigured with a services.xml file pointing to both the I15 Catalog Server and the CSW CIM EP to ISO AP bridge. If the current displayed catalog is not the desired one, the user can select another one by clicking on the service name as depicted below.

![Figure 15: Select the Catalog Server (1)](image1)

![Figure 16: Select the Catalog Server (2)](image2)
To search the catalogue, first select the correct “Tab”. To find collections or dataset series, you should select the “Series” Tab. To find services, you should select the “Service” Tab.

**Figure 17:** HMA-S Catalog Client showing search results.
Figure 18: HMA-S Catalog Client showing detailed metadata for a record.
Select the “I15 Bridge ISO AP (Task 5)” Catalogue. And search for “series” with the word “humidity” in the abstract. You should get the results as depicted below.

Figure 19: HMA-S Catalog Client showing I15 Bridge ISO AP (Task 5) search results.
These results correspond to what the GetRecords operation returns.

Select the button “Show metadata”. You will see the full ISO metadata returned by the catalog. These results correspond to what the GetRecordById operation returns.

5.1.2 Using the CSW CIM EP Catalog GUI

The CSW CIM EP Catalog Server provides the administrators and users with a GUI to help them in configuration and access tasks. It is available at the following URL:

http://<host_address>:<port_address>/<buddata_catalogue>GUI

In turn, the user shall concatenate the name of the Catalogue installation with the suffix “GUI”. For example, if the name “ergoRR” has been chosen for the Catalogue installation (the default name), the associated GUI can be accessed as “ergorrGUI”.

To access the Catalogue GUI, the user needs to enter his/her credentials, as a couple username/password.

Two predefined users are configured:

- **Administrator** (access to all GUI capabilities); credentials: admin/admin
- **End-user** (access only to the EO/CIM client capabilities); credentials: user/user

Once entered the GUI, a “Control Panel” on the left area of the browser is shown to the user, listing the following tasks:
Figure 21: CSW CIM EP Catalog GUI - Functionalities

- **Catalogue Configuration**: allowing to set configuration parameters for the Catalogue (entry available only when accessing as administrator)
- **Internal Network Configuration**: allowing to set the internal network parameters to access the Catalogue (entry available only when accessing as administrator)
- **Catalogue Clients**: allowing the set the capabilities of the Catalogue and to search for EO or CIM compliant metadata
- **Harvest**: allowing to enter new EO or CIM metadata in the Catalogue (registry) (entry available only when accessing as administrator)
- **Catalogue Log**: allowing to visualize the log of the activities performed on the Catalogue
- Additionally, the "Control Panel" allows to log out and to display information on the Catalogue (authors and license).

### 5.1.2.1 Catalogue configuration

The Configuration task displayed in the "Control Panel" of the Catalogue GUI (available only when accessing as Administrator) provides two entries:

- **Misc** - allowing to set the following Catalogue parameters (to apply the changes, click on the "Apply" button at the end of the page):
  - the repository folder, where the metadata harvested into the Catalogue are saved
- the service provider information, used by the Catalogue to fill the "Capabilities" file, returned in response to a GetCapabilities operation
- the encoding, for the encoding of the SOAP files exchanged between the client and the Catalogue; additionally, the language, for the creation of rim names
- the SOAP exceptions, to make the Catalogue to return detailed exception reports in the SOAP response in case of fault
Figure 22: CSW CIM EP Catalog GUI - Configuration Misc
Database - allowing to set the following database parameters (to apply the changes, click on the “Apply” button at the end of the page):

![Database GUI](image)

### Figure 23: CSW CIM EP Catalog GUI - Configuration Database

**Notice that** each entry of the configuration settings is deeply described in the "Help" section on the right area of the browser.

#### 5.1.2.2 Internal Network Configuration

The GUI allows to set the local network configuration parameters needed by the Catalogue GUI to interact with the Catalogue Service it is installed with.

Indeed, during the Catalogue Server installation, the user is requested to provide the host:port information needed for the Catalogue Service to be accessed by external clients. However, this information is not used by the Catalogue GUI, since it needs the local host and port parameters (remember that the Catalogue GUI and the Catalogue Service are installed on the same tomcat instance!).
The first time the Catalogue GUI is accessed by the Administrator user, it requires to enter the local network parameters. Once saved, they are then used by the GUI application to access the Catalogue Service.

The following figure shows the "Internal Network Configuration" entry when default parameters are entered:

![Internal Network Configuration](image)

**Figure 24: CSW CIM EP Catalog GUI - Internal Network Configuration**

### 5.1.2.3 Catalogue Clients

The Catalogue GUI provides two clients for searching and retrieving metadata from the Catalogue. However these capabilities are not described since outside the scope of the current document.

### 5.1.2.4 Metadata harvesting

This is a main capability provided by the Catalogue GUI.

The Harvest feature (available only when accessing as administrator) provides two ways for harvest an ISO 19139 metadata file into the Catalogue:
- Harvest from Local disk
- Harvest from URL

The "Harvest from Local disk" allows to harvest an ISO 19139 metadata file stored on the local disk. A unique XML metadata file can be provided or a zip file containing more XML metadata files.

Figure 25: CSW CIM EP Catalog GUI - Harvesting from local disk

The "Harvest from URL" allows to harvest an ISO 191939 metadata file by providing an http URL (accessible on the network).
5.1.2.5 Log Manager

The Catalogue Manager feature allows to check the log of the Catalogue, so that the user can trace the activities performed.
The user can set the following parameters:

- the number of the log rows to be visualized in the Catalogue Log window
- the level of the log messages to be visualized in the Catalogue Log window

Additionally, the user can:

- update the log window, in order to refresh it with the latest log messages
- clear the log window