Replication Manager
Installation Manual

Version 1.0.43
Replication Manager Installation Manual

Replication Manager, Installation and configuration instructions

This document describes the installation and configuration of the Replication Manager software, part of the CDI/RSM ordering system of SeaDataNet.

S. Brégent

Public

History

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<th>Version</th>
<th>Authors</th>
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The current document can be found at:
https://www.seadatanet.org/Software/Replication-Manager

Reference documents


https://www.seadatanet.org/Software/Replication-Manager
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1. Introduction

The Replication Manager replaces the Download Manager in the new SeaDataCloud ordering system.

What does not change:

The coupling table is still the way to organise data declaration, using moduses 1 to 3.

What’s new:

- the Replication Manager is a unique Tomcat web application (no more batches)
- it communicates with three other components: MARIS Import Manager (IM – New component) and Request Status Manager (RSM – already existing component) and the EUDAT (cloud)
- it manages CDIs and unrestricted data ingestion: unrestricted data are stored in a cloud
- it manages restricted data orders (no more orders on unrestricted data, as they are available on the cloud)
- it manages data versions


2. Requirements

2.1. Operating system

The Replication Manager can be installed on both the Windows and Linux platforms.

2.2. Java version

Check if Java is available by executing command ‘java –version’ in the Windows command line or in a Linux terminal.

Due to changes in the Java Oracle licence, the RM is not supported on Java Oracle 9 and higher.

It is supported with Java Oracle 8 (1.8u151 at least, but lower than 1.9).

One of the recommended Java SE JRE can be downloaded here:

The RM is now supported with OpenJDK 11 (default version in Debian current stable distribution “Buster”)

It can be downloaded here:
https://jdk.java.net/archive/
2.3. Tomcat

The Replication Manager requires at least Tomcat 8.5.31.
Download the Tomcat web server at https://tomcat.apache.org/download-80.cgi
The tomcat installation is not in the scope of this document. Please follow the Tomcat installation instructions from the official documentation:
https://tomcat.apache.org/tomcat-8.5-doc/index.html

2.4. Network access

The Replication Manager server should be accessible from the internet on port 8080 (default Tomcat port), 80 or 443.

The server shall be able to connect to:
IM: importmanager.seadatanet.org (IP 77.87.163.212), port 443
BODC vocabulary server: vocab.nerc.ac.uk, port 80
CSR list: seadata.bsh.de/isoCodelists/sdnCodelists/csrCodeList.xml

The server shall allow connections from:
IM: 77.87.163.227
Maris office (for helpdesk access): 83.163.127.252

2.5. Internet browser

The Replication Manager Dashboard can be accessed via a web browser.
Supported browsers:
- Google Chrome >= 59.0.3071
- Mozilla Firefox >= 52.2.0

2.6. Supported databases

The Replication Manager can handle data and/or coupling table from a database, see [2].
The drivers loaded by the Replication Manager are displayed on the log file at each start.
Available drivers are:

- Oracle: ojdbc14 v12.2.0.3.0
- MySQL: mysql-connector-java v5.1.26
- PostgreSQL: jdbc3 v9.1-901
- MS SQLServer: sqljdbc4 v4.0
- Jtds: jtds v1.2.6

Support for database 9 and 11 may require the use of an additional JVM parameter. See §6.1 in Troubleshootings chapter.

2.7. About the RM configuration

The chapter §3.4.2 describes how to configure the RMConfiguration file and where are stored information on data paths, workflow directories paths...

The choice of these paths require to understand how the Replication Manager works. It concerns the data managers (where are the data...) as much as the technical teams (how much disk space should be used...).

This information is described in the Replication Manager User Manual [2].

3. Installation

This section describes how to install the Replication Manager.

If data preparation is not already done, follow the Replication Manager User Manual [2] before performing installation.

3.1. Install Sheet

This sheet aim is to gather all important information about your RM installation. Please fill it during the installation, this will be useful for assistance.

ADMINISTRATIVE INFORMATION

Partner name Name of the Data Centre

EDMO code EDMO code of the Data Centre

Technical contact The person who will be notified by the monitoring system that the Replication Manager is no longer replying to the monitoring requests thus it is considered offline

Name: email:
Approbation contact (for data requests approbation). E-mail address of the contact at the Data Centre that will deal with data requests. Login is the SeaDataNet ID obtained from the AAA authority server.

Name: 
Login: 
email: 

TECHNICAL INFORMATION about the server on which the RM is installed

Operating system

Java version

Tomcat version

Tomcat port

Server IP address and host name Public IP address and host name if any of the server on which the RM is installed

IP address: 
Host name: 

Proxy Is your network behind a proxy?

YES / NO

3.2. Backup current version

To be ready to move backwards if needed, be sure that you save the previous Replication Manager application.

- backup previous Replication Manager webapp directory
  <tomcat_webapps >/ReplicationManager in a safe place
- backup database file in a safe place:
  o click on the BACKUP button in the Summary page, Database section
  o backup the file created in the backup directory (the database file path is in the RMConfiguration.properties file, given with the parameter “embeddedDatabase_backupDirectory_path”)
3.3. Installation

Download the lastest release of the Replication Manager from
https://www.seadatanet.org/Software/Replication-Manager

Copy the Replication Manager war file (ReplicationManager.war) in your Tomcat webapps directory
(overwrite the previous one if exists). The application will be automatically deployed by Tomcat.

By default, the access is allowed only for localhost and MARIS. You will see in the §3.4.1 how to modify
security filters.

Open a web browser in the machine hosting the RM and check that the application is deployed
successfully using the Replication Manager About page:

http://localhost:<port>/ReplicationManager

If a problem occurs, check the Tomcat catalina.out log file (default path is
<tomcat_directory>/logs/catalina.out)

Check the configuration in the Replication Manager Summary page:

http://localhost:<port>/ReplicationManager/Summary

The result should be the page below:

**Replication Manager Dashboard**

<table>
<thead>
<tr>
<th>Summary</th>
<th>Batches in progress</th>
<th>Batches cancelled</th>
<th>Batches in production</th>
<th>LOCAL_CDI_IDS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Maintenance**

- Logs
- External resources
- Checks
- Database

**System**

OS: Inst. version 6.4.0-6-am54  |  Tomcat version: Apache Tomcat 8.5.61  |  JAVA: 1.8.0_221 | home/apt/.LocalSoftUIA5j8-k1.8.0_221/jre  |  RM API version: 1.0 (1.0.41-SNAPSHOT)  |  Octopus version: 1.0.2.0-98D9858

**Configuration**

**ERROR: RM configuration is INVALID**

**Figure 1 Default page (Summary) with configuration not set or invalid**

3.4. Configuration

The configuration is set in the application RMConfiguration.properties, web.xml and eventually
log4j2.xml files.
The modifications written in the RMConfiguration.properties, log4j2.xml and web.xml file are automatically reloaded by the server. The reload takes a few seconds and can be checked in the log:

```
*************** RMLISTENER CONTEXT DESTROYED ***************
[…]
*************** RMLISTENER INITIALIZATION ***************
```

### 3.4.1. Security configuration (web.xml file)

The web.xml configuration file is located in the RM WEB-INF directory:

```
<tomcat_webapps>/ReplicationManager/WEB-INF/web.xml
```

The RM uses IP filters to allow or refuse processing requests from clients.

See also [https://tomcat.apache.org/tomcat-8.0-doc/config/filter.html#Remote_Address_Filter](https://tomcat.apache.org/tomcat-8.0-doc/config/filter.html#Remote_Address_Filter)

The web.xml file contains

- filters definitions (<filter> tags)
- filters mappings(<filter-mapping> tags)

A filter is applied on each RM access:

- Dashboard pages (“dashboard” section)
- Logs (RM LOG and RM CHECKER LOG sections)
- Files harvesting (HARVESTING section)
- RM API calls (API section)

Three filters are defined and should be sufficient:

- **SDNSystem** (MARIS, EUDAT, localhost)
- **MARIS** (also contains localhost)
- **EUDAT** (also contains localhost)
- **Local**

*Local* contains only the localhost IP (ie allow only the machine on which the RM is installed).

You can add local IPs, or a mask representing your local network, separated by a pipe (|).

Each filter is identified by its name (<filter-name> tag).
Add your local IP address (or network mask) to all filters. Example: if your IP is 192.168.1.2, add it in local only filter as below:

```
<filter-name>local</filter-name><!-- local only; add you local IP or network mask here -->
<filter-class>org.apache.catalina.filters.RemoteAddrFilter</filter-class>
<init-param>
    <param-name>allow</param-name>
    <param-value>127.\d+\d+\d+\d+|::1|0:0:0:0:0:0:1|192.168.1.2</param-value>
</init-param>
</filter>
```

Then add also this IP in the MARIS, EUDAT ans SDNSystem filters.

### 3.4.2. RM Configuration file (RMConfiguration.properties)

This file is located in the `<tomcatWebApps>/ReplicationManager/WEB-INF/classes` directory. The `RMConfiguration.properties` file contains the RM configuration that shall be customised by each Data Centre.

If you need to change a parameter value in the `RMConfiguration.properties` file, just refresh the Dashboard Summary page after you have modified the file.

If you need to change some configuration elements outside the configuration file (create a directory, for example), you will need to launch the configuration checker manually, using the “RELOAD” button on the Dashboard Summary page.

The directories paths are important elements of this configuration. Directories must exist. The figure below shows what are these paths and how they can be organised.
All paths shall be absolute paths.
The resulting RMConfiguration.properties file is shown below.

In red: fields that you need to modify
In brown: fields that you may want to modify (optional)

```
# REPLIcATION MANAGER CONFIGURATION
# TEST MODE : 0 is production, 1 is test
#test_mode=1

# EDMO CODE
# edmo_code=xxxx

# POPULATE ENABLED: 0 is false, 1 is true
# This is now deactivated, populate authorization is controlled only by MARIS.
#enable_populate=0

# WORKFLOW ORGANIZATION

# readyToSend CDIs path: directory where the metadata CDIs zips will be stored for ingestion
#readyToSendCDIs_path=/home/ReplicationManager/workspace/readyToSendCDIs

# tmpDirectory: directory for temporary files (where data files are created)
tmpDirectory_path=/home/ReplicationManager/workspace/tmp

# queueDirectory_path: where cdi and data files are queued during ingestion process, waiting for uploading and archiving
#queueDirectory_path=/home/ReplicationManager/workspace/queue

# ARCHIVES
# archive_path: Path of the directory where CDIs and DATA files are archived after ingestion process.
```
# This directory will contain 2 sub-directories (automatically created):
# “CDIs” containing metadata files zips copy after their ingestion
# “DATA” containing corresponding data files zips copy after their ingestion
archive_path=/home/ReplicationManager/ARCHIVES

# PRODUCTION DATA FILES
# Path of the directory where versioned restricted data files are stored
Production_path=/home/ReplicationManager/PRODUCTION

# Optional: path to a directory to use for Harvest (where zips are stored to be downloaded by maris and Eudat)
# If you do not want the RM application to write in WEB-INF directory, set your path here
# three sub-directories will be automatically created: HARVEST_METADATA, HARVEST_DATA, HARVEST_ORDERS
harvest_root_path=

# RM DATABASE
# embedded database directory path (path is free, directory must be readable and writable by the RM, file extension shall be .odb - file will be created on first launch)
embeddedDatabase_path=/home/ReplicationManager/RMDatabase/rmDatabase.odb
# embedded database backup directory (path is free, directory must be readable and writable by the RM)
embeddedDatabase_backupDirectory_path=/home/ReplicationManager/RMDatabase/backups

# DATA ORGANIZATION
# data path : where original data files are stored (modus 1 and 3)
data_path=/home/ReplicationManager/RMData/data

# COUPLING TABLE
# Coupling table type : 0 if coupling table is in file or 1 if coupling table is in database
coupling_table_type=0
# for coupling in file only : coupling table file path
coupling_table_file_path=/home/ReplicationManager/RMData/coupling.txt
# for coupling in database only : database connexion
# coupling_table_connection=jdbc:oracle:thin:@195.178.224.89:1312:database_name
# coupling_table_user=user
# coupling_table_password=pass
# coupling_table_tablename=theTable

# The RM can update the external resources (BODC vocabs, CSR) periodically, setting these two following parameters.
# If externalResources_period_days is not set, no update will be performed, and externalResources_period_time won’t be read.
# Update period in days
# externalResources_period_days=1
# Update time in H24:MM format (examples: 03:30, 23:25, 15.00 ...), server time.
# externalResources_period_time=23:30

# Path where to store external resources: BODC vocabularies local files, CSR local file
externalResources_path=/home/ReplicationManager/conf/externalResources
# file containing translation between BODC and netCDF units (optional)
# unitsTranslationFile_path=/home/ReplicationManager/conf/unitsTranslation.xml

# MARIS API
maris_api_url_test=https://importmanager.seadatanet.org/api_v1
maris_api_url_production=https://importmanager.seadatanet.org/api_v1
maris_cms_url_test=https://importmanager.seadatanet.org/v_import_manager_v5/content.asp?screen=4
maris_cms_url_production=https://importmanager.seadatanet.org/v_import_manager_v5/content.asp?screen=4
Database connection strings examples:

**Oracle connection example**
coupling_table_connection=jdbc:oracle:thin:@<server>:<port>:<service_name>
example: jdbc:oracle:thin:@195.178.224.89:1312:database_name

**MySQL connection example**
coupling_table_connection=jdbc:mysql://10.1.96.214:3306/dm_test
example: jdbc:mysql://localhost:3306/database_name

**MS-SQL Server connection example**
coupling_table_connection=jdbc:sqlserver://<server>:<port>;databaseName=<database_name>

**Sybase connection example**
coupling_table_connection=jdbc:jtds:sybase://<server>:<port>/<database_name>

**PostgreSQL connection example**
coupling_table_connection=jdbc:postgresql://<server>:<port>/<database_name>

### 3.4.3. Proxy configuration

If the Replication Manager needs to use a proxy to connect to the internet, you need to configure the proxy options that will be used by the java virtual machine in the Tomcat server.

Create a setenv.bat (windows) or setenv.sh (linux) file in the Tomcat bin directory, with the following content:

**Linux - setenv.sh**

```bash
#!/bin/sh
export JAVA_OPTS="$JAVA_OPTS -DhttpProxySet=true -Dhttp.proxyHost=proxy.example.org -Dhttp.proxyPort=3128"
echo $JAVA_OPTS
```

**Windows - setenv.bat**

```bash
set JAVA_OPTS=%JAVA_OPTS% -DhttpProxySet=true -Dhttp.proxyHost=proxy.example.org -Dhttp.proxyPort=3128
echo %JAVA_OPTS%
```

replace "proxy.example.org" by your proxy host name
replace "3128" by your proxy host port if different

If you use https, use https options instead or in addition to http:

- -Dhttps.proxyHost
- -Dhttps.proxyPort
3.4.4. Log configuration (log4j2.xml file)

The log4j2 configuration file is located in the RM WEB-INF/classes directory:
<tomcat_webapps>/ReplicationManager/WEB-INF/classes/log4j2.xml

The default RM log file path is the log directory in the default tomcat path:
<tomcat_directory>/logs/

You can customise using absolute paths, as shown below.

Eg: fileName="/home/RM/logs/replicationManager.log"

The default configuration creates a new log file as soon as the current one exceeds 250Mo.

The paths that can be customised are in red, below

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE xml>
<Configuration status="WARN">
  <Appenders>
    <Console name="Console" target="SYSTEM_OUT" follow="true">
      <PatternLayout>
        <pattern>%d{ISO8601}{GMT}Z-[RM]-%p %m (%c{3}-%l) %n</pattern>
      </PatternLayout>
    </Console>
  </Appenders>

  <!—Replication Manager log —>
  <RollingFile name="RollingFile" fileName="$sys:catalina.home/logs/replicationManager.log" filePattern="$sys:catalina.home/logs/replicationManager.log.%d{yyyy-MM-dd}.%i">
    <PatternLayout>
      <pattern>%d{ISO8601}{GMT}Z-[RM]-%p %m (%c{3}-%l) %n</pattern>
    </PatternLayout>
    <Policies>
      <TimeBasedTriggeringPolicy />
      <SizeBasedTriggeringPolicy size="250 MB" />
      <DefaultRolloverStrategy max="20"/>
    </Policies>
  </RollingFile>

  <!—Replication Manager checker log —>
  <RollingFile name="RollingFileChecker" fileName="$sys:catalina.home/logs/replicationManagerChecker.log" filePattern="$sys:catalina.home/logs/replicationManagerChecker.log.%d{yyyy-MM-dd}.%i">
    <PatternLayout>
      <pattern>%d{ISO8601}{GMT}Z-[RM]-%p %m (%c{3}-%l) %n</pattern>
    </PatternLayout>
    <Policies>
      <TimeBasedTriggeringPolicy />
      <SizeBasedTriggeringPolicy size="250 MB" />
      <DefaultRolloverStrategy max="20"/>
    </Policies>
  </RollingFile>

  </Appenders>

  <Loggers>
3.4.5. Configuration validation

Once the configuration is done, go to the RM dashboard Summary page and click on the “RELOAD” button:

http://<host>:<port>/ReplicationManager/

The Configuration in the Summary page shall be valid:

Configuration

RM configuration is valid

If the configuration is not valid

- check the error messages in the “Custom Parameters” table (status column)
- fix the parameter(s) value(s) in the RMConfiguration.properties file if needed
- check the files and directories
- click on RELOAD button

3.5. Checks

To check the RM status, use the following GET HTTP request:

http://RMhost:RMport/ReplicationManager/api/api_v1/status

The response should be like
To check the connection to the Import Manager, click on the Test Import Manager call button, in the Summary page. The result should be a pop-up like below:

![Testing Result]

4. Maintenance

Information about the system is available on the Summary page, “System” section:

- Operating system
- Tomcat version
- Java version
- RM version
- Octopus version

Several maintenance tools are available from the Summary page, “Maintenance” section:

- logs access
- BODC and other external resources versions and manual update launcher
- Check tools
- database tools

![Maintenance Tools]

Figure 3 Summary Page, Maintenance section
4.1. Log access

In the dashboard Summary page, the “Logs” section gives URLs to access to the current RM log and RM Checker log.

![Figure 4 Logs access](image)

The log paths are given in the log4j2 xml configuration file (§3.4.3).

Direct URLs are:

http://<host>:<port>/ReplicationManager/RMLog

http://<host>:<port>/ReplicationManager/RMLogChecker

Older logs can be accessed using URL parameters date and index:

- Date = the log file date
- Index: the log file number in this day

The logs pages are not auto-refresh. Click on F5 to refresh.

The log section RM logs list opens a page listing all the existing log files.

4.2. External resources

This section displays the BODC vocabularies version and the CSR list file last update date.

To update all, click on the “UPDATE” button.

Note that you should also define an automatic update using the externalResources_period_days and externalResources_period_time parameter in the RM configuration file (§3.4.2)
4.3. Checks

The RM dashboard Checks section offers the following functionalities:

- Local check : check coupling table lines and mapping files if exist)
- Local versus Central check: Launch comparisons between
  - coupling and central catalogue (check if all coupling table entries are present in the catalogue)
  - local embedded database and central catalogue (check if all catalog entries are present in the local embedded database)
- Population: populates the system (cf. §5.1)

WARNING: The population should be launched only on first RM installation!

4.4. Database

The objectDB database used by the RM is stored in a file.
This file can be backed up using the “BACKUP” button in this section.
The database file path is defined in the RMConfiguration file with parameter `embeddedDatabase_path`.
The backup directory is defined by the parameter `embeddedDatabase_backupDirectory_path`. 
5. Usage

This chapter presents briefly the RM usage. You will find more details in The Replication Manager User Manual (see Reference Document [2]).

5.1. Population

Once the RM is correctly configured, it has to be populated using metadata and data already existing before RM installation.

By default, to avoid accidents, the population is not allowed. It has to be allowed by the CDI support.

Once the population is allowed, you can run the process by clicking on the “POPULATE” button.

![Figure 6 Population button](image)

The population process is automatic. It

- Calling the IM to ask for a catalogue containing all restricted entries
- Download the catalogue from the IM
- Save metadata information in the RM embedded database
- Generate and store in ARCHIVE directory the restricted data files

The metadata CDI files and unrestricted data are stored on the cloud by the Import Manager.

During and after the Population process, you can see the local_cdi_ids already processed in the LOCAL_CDI_Ids page.

The population can end with errors. The list of errors is available from the sychro.csv file in the Summary page Checks section.

In all cases, the authorization must be asked again to the CDI support to launch a new population process.

5.2. New metadata and data submission

The “Ready To Send” directory is the directory defined by the “ReadyToSendCDIs_path” parameter in the RMConfiguration.properties file. This path can be read from the Summary page, in the “Custom Parameters table”.

sdn-userdesk@seadatanet.org – www.seadatanet.org

SeaDataNet - The pan-European infrastructure for marine and ocean data management
Zips shall be placed in the “Ready To Send” directory, so they become visible in the **Batches In Progress** page.

From this page, Data Centre Manager can select and submit batches. He can follow the workflow using “Batches cancelled”, “Batches in production” and “Local CDI Ids” pages.

---

**Replication Manager Dashboard**

- **Summary**
- **Batches in progress**
- **Batches cancelled**
- **Batches in production**
- **LOCAL_CDI_IDs**

---

**Batches in readyToSend directory**

<table>
<thead>
<tr>
<th>ZIP creation date</th>
<th>Name</th>
<th>Number of metadata files</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-02-19 17:07:57</td>
<td>ZG27ZL_1_kopp.ep</td>
<td>4</td>
</tr>
<tr>
<td>2019-02-19 17:07:57</td>
<td>bspite_OFPOINT_5.ep</td>
<td>6</td>
</tr>
<tr>
<td>2019-02-19 17:07:57</td>
<td>bspite MED_1.ep</td>
<td>1</td>
</tr>
<tr>
<td>2019-02-19 17:07:57</td>
<td>bspite MED 10.ep</td>
<td>10</td>
</tr>
<tr>
<td>2019-02-19 17:07:57</td>
<td>bspite_O1.ep</td>
<td>3</td>
</tr>
<tr>
<td>2019-02-19 17:07:57</td>
<td>CDI_MED_1.ep</td>
<td>2</td>
</tr>
<tr>
<td>2019-02-19 17:07:57</td>
<td>CDI_MED_2.ep</td>
<td>2</td>
</tr>
<tr>
<td>2019-02-19 17:07:57</td>
<td>CDI_MED 1R.ep</td>
<td>3</td>
</tr>
<tr>
<td>2019-02-19 17:07:57</td>
<td>CDI_MED 2R.ep</td>
<td>3</td>
</tr>
<tr>
<td>2019-02-19 17:07:57</td>
<td>CDI_MED 3R.ep</td>
<td>3</td>
</tr>
</tbody>
</table>

**Current batch**

**Figure 7 Batches ready to send**

Choose the CDIs batches that you want to submit (by clicking on the rows), then click on the “Submit” button.

The batch will start the automatic workflow:

- Local preparation -> in queue
- Ingestion -> Current batch (one at a time)
- Workflow ended -> cancelled or in production

At any time, click on the batch name to display a detailed page.

---

**5.3. Restricted data requests process**

Incoming restricted data requests will automatically be processed by the RM.

Logs shall be accessed in log file (no information in the dashboard).
6. Troubleshooting

6.1. Can not load coupling table in an Oracle database

This problem has been observed on a machine using openJDK 8 and Oracle 11.

The following error is appears in the Replication Manager log:

```java
java.sql.SQLException: ORA-00604: error occurred at recursive SQL level 1
ORA-01882: timezone region not found
```

The problem is known in Oracle:

https://www.ibm.com/support/pages/connect-oracle-9i-and-11g-using-ojdbc6jar-driver

Solution:

Add a JVM argument in the command line:

```bash
-Doracle.jdbc.timezoneAsRegion=false
```

Create a setenv.bat (windows) or setenv.sh (linux) file in the tomcat bin directory, with the following content:

```bash
echo Setenv Configuration
set JAVA_OPTS="-Doracle.jdbc.timezoneAsRegion=false"
echo JAVA_OPTS: %JAVA_OPTS%
```

Warning: you may have created this file for proxy configuration (§3.4.3).

In this case, keep the proxy information and add the oracle parameter:

```bash
echo Setenv Configuration
set JAVA_OPTS="-DhttpProxySet=true -Dhttp.proxyHost=proxy.example.org -Dhttp.proxyPort=3128 -Doracle.jdbc.timezoneAsRegion=false"
```

replace "proxy.example.org" by your proxy host name

replace "3128" by your proxy host port if different

6.2. 403 errors with CORS request

If you experiment 403 ("Forbidden") HTTP responses, you may change the CORS configuration in the Tomcat web.xml file like this:

```xml
<!-- CORS filter -->
<filter>
  <filter-name>CorsFilter</filter-name>
  <filter-class>org.apache.catalina.filters.CorsFilter</filter-class>
  <init-param>
    <param-name>cors.allowed.origins</param-name>
    <param-value>*</param-value>
  </init-param>
  <init-param>
    <param-name>cors.allowed.methods</param-name>
    <param-value>GET,POST,HEAD,OPTIONS,PUT</param-value>
  </init-param>
  <init-param>
    <param-name>cors.allowed.headers</param-name>
  </init-param>
</filter>
```
<param-value>Content-Type,X-Requested-With,accept,Origin,Access-Control-Request-Method,Access-Control-Request-Headers</param-value>
</init-param>
<param>
    <param-name>cors.exposed.headers</param-name>
    <param-value>Access-Control-Allow-Origin,Access-Control-Allow-Credentials</param-value>
</init-param>
</filter>