



LINKED ENVIRONMENTS FOR ATMOSPHERIC DISCOVERY

MyLead Release V0.3 alpha Installation Guide

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1 Introduction

This document provides an overview of myLEAD system requirements and how to install the myLEAD system with its sub-components. The document covers:

- System Requirements:
 - System specifications
 - Prerequisite products
- Installation Instructions:
 - Prerequisite products
 - MyLead Server
 - MyLead Client Toolkit
 - MyLead Agent Service
- Test Instructions

1.1 myLEAD License

The file `doc/myLEAD-Licence.txt` within the source distribution directory contains the product license. Make sure that you read this license and accept its conditions before continuing.

2 System Specification

myLEAD is designed to work on – and has been tested under following platforms:

- Redhat Linux 3.2.3
- Gentoo Linux 3.3.5

2.1 Prerequisite Products

myLEAD is built on top of few existing products. The myLEAD system performs only under proper installation and configuration of these products.

- MySQL V. 5.0.3

Please see <http://www.mysql.com> to download software and information.

- MCS V .3.0

Please see <http://gaul.isi.edu/mcs/v3/> to download software.

- OGSA-DAI V. 3.1

Please see <http://www.ogsadai.org.uk> where either source or binary distributions are available.

- Globus Toolkit V. 3.0.x

Please visit <http://www.globus.org/toolkit> to download software and detail information.

- Java

Jdk 1.4.2. Please see <http://java.sun.com>.

- ANT Build tool

To compile myLEAD source distribution with included ant build file, you need: Jakarta Ant V.1.6.2 or higher. See <http://jakarta.apache.org/ant>

- Jakarta Tomcat Server V. 4.x

Please see <http://jakarta.apache.org/tomcat/index.html> to download software.

3 Installation Instructions

In this section the process of installation and building myLEAD V.1 is described. myLEAD release contains three components:

- Prerequisite products
- MyLead server
- MyLead client toolkit
- MyLead agent service

3.1 Installing Prerequisite Products

3.1.1 Installing MySQL database

Please refer to the installation instruction included with the MySQL package or the MySQL manual which is available at <http://www.mysql.com>.

Note: on certain linux platform, the client hostnames are not resolved correctly which may prevent a client from connecting to the database using JDBC. The typical error message is:

```
mysql error: [host] is not allowed to connect to this MySQL
server.
```

If this is the case, please connect to the mysql as root and do the following:

```
GRANT ALL PRIVILEGES ON *.* TO '[user]@[host]' identified by
'[password]'
```

where [user] is the username used to access the database, [host] is the same host shown in the error message above, and [password] is the password used by the [user] to connect to the database.

3.1.2 Installing Globus Toolkit v3.0.x

Please refer to the Globus Toolkit installation guide which is available from <http://www.globus.org>

Note: on certain flavors of linux, the installation of Globus Toolkit 3.0.x may encounter a problem, and the typical error message would look like the following:

```
make[1]:*** No rule to make target `blibdirs', needed by
`libz.a'. Stop.
```

```
make: *** [zlib-1.1.4/libz.a] Error 2
```

If this is the case, please refer to the following page for a solution.

<http://www.cs.indiana.edu/~machrist/wiki/GentooBuild.html>

3.1.3 Installing Jakarta Tomcat Server v.4.1

Please refer to <http://jakarta.apache.org/tomcat/tomcat-4.1-doc/RUNNING.txt> for the installation of Tomcat Server.

3.1.4 Installing OGSA-DAI v3.1

Please refer to <http://www.ogsadai.org/docs/R3.1/OGSA-DAI-USER-INSTALL.txt> for the installation of OGSA-DAI v3.1.

Note: the website for downloading xmldb.jar mentioned in the OGSA-DAI installation guide no longer exists; however, this jar file is included in the xindice distribution.

Note: if the version of java you are using is v1.4.2_05 or newer, you need to obtain the latest Xalan jar files from <http://xml.apache.org/xalan-j/downloads.html> and place them in the endorsed directory. If not, you may get an illegal access exception that may look like the following:

- `java.lang.IllegalAccessError: tried to access field org.apache.xpath.compiler.FunctionTable.m_functions from class org.apache.xml.security.Init`

The Xalan jar files include the following three:

- xalan.jar
- xercesImpl.jar
- xml-apis.jar

for myLEAD server, you should place the files in the following directory

```
<TOMCAT_HOME>/common/endorsed
```

where <TOMCAT_HOME> is the installation directory of the tomcat server. For running the client, you should place those files in the following directory

```
<JAVA_HOME>/jre/lib/endorsed
```

where <JAVA_HOME> is the installation directory of Java. However, on certain platforms the Java Run Time (JRE) may be installed in a separate directory, and if that is the case, the Xalan jar files should ALSO be placed in the following directory

<JRE_DIRECTORY>/lib/endorsed

for example, on a machine running Microsoft Windows XP, the <JRE_DIRECTORY> may look like the following:

C:\Program Files\Java\jre1.4.2_08

Note: if you are using the latest XML security jar file instead of the xmlsec.jar provided with the package, you may encounter an exception that looks like the following

- java.lang.VerifyError: Cannot inherit from final class

if that's the case, please download the source code of the latest XML Security library from <http://xml.apache.org/security/download.html>, unzip the packages, and remove the keyword "final" from the line "public final class" in the following java file:

```
src/org/apache/xml/security/signature/XMLSignature.java
```

After the modification, please recompile the package and place the modified xml security jar to the proper location as indicated in the OGSA-DAI installation guide.

3.1.5 Installing MCS v3.0

Please refer to <http://gaul.isi.edu/mcs/v3/> for the installation of MCS v3.0

3.2 myLEAD Server

The following abbreviations are used,

- <JAVA_HOME> - the path to which JDK is installed
- <ANT_HOME> - the path to which ANT is installed
- <TOMCAT_HOME> - the path to which Tomcat Server will be installed

3.2.1 Setting Environment Variables

To set an environment variables, please edit your shell file.

For example, to set an environment variable JAVA_HOME:

For csh users, type:

```
setenv JAVA_HOME "/1/jdk1.4.2_04"
```

For other users, type:

```
export JAVA_HOME "/1/jdk1.4.2_04"
```

3.2.2 Setting the PATH environment variable to include the Java and ANT executables

```
Export PATH=$PATH:$ANT_HOME/bin:$JAVA_HOME/bin
```

3.2.3 Installing MyLEAD Server

The MyLEAD server code consists of 5 files:

- leaddai.jar, which is the myLEAD library
- mcs_lead03.txt, which is the database schema definition file
- myLEADSP03alpha.tar.gz, which contains all the stored procedures used by myLEAD
- leadActivity.xsd, which is the XML schema, and
- log4j.properties, which is used by log4j

First, we need to create the database in mySQL by doing the following command:

```
mysql -u [user] -p
```

If the database mcs_lead already exists, we need to drop it first. Be careful now! As soon as we drop the database, all existing data are gone; therefore it is recommended to backup

the database first. For the very same reason, we chose not to include these commands in the file `mcs_lead03.txt`.

The commands for dropping an existing `mcs_lead` database and creating a new one are as follows:

```
DROP DATABASE IF EXISTS mcs_lead;
CREATE DATABASE mcs_lead;
```

Now let us load the database schema definition with the following command:

```
SOURCE /full/path/to/mcs_lead03.txt
```

Initially the database `mcs_lead` does not contain any user DNs, so it is time to create a DN with the following commands:

```
USE mcs_lead;
INSERT INTO mcs_writer(writer_dn, writer_name) values ('dr_lead',
'Dr. Lead');
```

Now let us exit from the `mysql` client, and then unzip the stored procedures and load them into the database. You may either load each stored procedure manually by the following command:

```
mysql -u [user] -D mcs_lead --password=[password] < spXXXXX.txt
```

or you may use the provided script `LoadStoredProc.sh` to batch load them. However, if you choose to use the script, you may need to modify it and change the username and password accordingly.

Next, we will copy the XML schema file `leadActivity.xsd` to the following directory:

```
<TOMCAT_HOME>/webapps/ROOT/schema/ogsadai/xsd/activities
```

Now, let us copy the myLEAD library `leaddai.jar` to the following directory:

```
<TOMCAT_HOME>/webapps/ogsa/WEB-INF/lib
```

Let us go into the following directory and modify a few files:

```
<TOMCAT_HOME>/webapps/ogsa/WEB-INF/etc
```

The first file we need to modify is `dataResourceconfig.xml`. In the section where `<activityMap>` are located, we need to insert the following for myLEAD:

```
<!-- myLEAD Related Operations -->
<activityMap name="leadActivity"
    implementation="edu.indiana.dde.mylead.dai.leadDaiImpl"
```

```
schemaFileName="leadActivity.xsd" />
```

A couple of sections down where it says `<roleMap>`, we need to change the value for configuration from `ExampleDatabaseRoles.xml` to `MCSDatabaseRoles.xml`

Also, near the end of this file where it says `<driverImplementation>`, instead of the default value which says:

```
<driverImplementation>org.gjt.mm.mysql.Driver</driverImplementation>
<driverURI>jdbc:mysql://localhost:3306/ogsadai</driverURI>
```

We should change these two lines to the following:

```
<driverImplementation>com.mysql.jdbc.Driver</driverImplementation>
<driverURI>jdbc:mysql://localhost:3306/mcs_lead</driverURI>
```

Make a copy of the file `ExampleDatabaseRoles.xml` and rename it to `MCSDatabaseRoles.xml`. Delete the second and the third `<Database>` elements in this file and change the first by changing "ogsadai" in the database name to "mcs_lead". Also change the userid and password to the correct ones that would have access to `mcs_lead`.

Note: by default, the Tomcat server uses port 8080. If you decide to use a different port number for some reason, you must update all references to the port number in the following files to reflect the change:

- `dataResourceConfig.xml`, and
- `registrationList.xml`

Note: we have also provided a file `log4j.properties` which can be used by the Tomcat server for debugging. Place this file somewhere and set the following environment variable:

```
setenv CATALINA_OPTS -Dlog4j.properties.file=[path-to-log4j.properties]
```

where `[path-to-log4j.properties]` is the path to the `log4j.properties` file.

3.2.4 Launching myLEAD Server

Go to `<TOMCAT_HOME>/bin` directory. If the server is already running, you need to stop it by issuing the following command:

```
./shutdown.sh
```

Start the Tomcat server by doing the following:

```
./startup.sh
```

Open up a web browser and type in the following URL:

```
http://[host]:[port]/ogsa/services/ogsadai/DAIServiceGroupRegistry?wsdl
```

where [host] is the host name of the myLEAD server, and [port] is the port number used by the Tomcat server. This should bring up a WSDL document.

3.3 Installation of the myLEAD Client Service

3.3.1 Setting Environment Variables

The myLEAD client requires two environment variables to be set:

- MYLEAD_HOME, and
- CLASSPATH

Please see section 3.2.3 for details on how to set them.

3.3.2 Copying Required Files

The myLEAD client requires the following jars to be pointed to by the CLASSPATH environment variables:

- axis.jar
- cog-axis.jar
- cog-jglobus.jar
- commons-discovery.jar
- commons-logging.jar
- cryptix32.jar
- cryptix-asn1.jar
- cryptix.jar
- jaxrpc.jar
- jce-jdk13-117.jar
- log4j-core.jar
- ogsadai.jar
- ogsa.jar
- puretls.jar
- saaj.jar

- `wSDL4j.jar`
- `xalan.jar`
- `xercesImpl.jar`
- `xmlParserAPIs.jar`
- `xmlsec.jar`
- `xpp3-1.1.3.4.N.jar`
- `leaddai.jar`
- `junit.jar`

In addition, place `log4j.properties` somewhere and set the environment variable `MYLEAD_HOME` to that directory.

3.4 Installation of the myLEAD Agent Service

The following abbreviations are used:

- `<JAVA_HOME>`
- `<ANT_HOME>`
- `<MYLEAD_HOME>`

3.4.1 Configuration of the MyLead Agent Service

MyLead Agent Service accesses mylead server, RLS, and notification broker. The information regarding remote services is configured in `mylead.properties`. `mylead.properties` contains,

- `mylead.serverURL`: location of the mylead server. You can set a URI of the OGSA-DAI service group registry.
- `mylead.notificationBrokerURL`: location of the WS notification/eventing broker.
- `mylead.agentURL`: location of current mylead agent.
- `mylead.agentNotifListenerPort`: port number that mylead agent consumes the notification.
- `mylead.notifconsumerURL`: location of the mylead agent for notification broker. This URL should include the port number for consuming the notification. Please note that this is not a agent service URL for service requester.
- `mylead.rlsURL`: location of the RLS service.
- `mylead.adminDN`: mylead requires administrator's user id, also known as administrator's DN. This is used for administrative activities for example creating new user account or modifying it. Also this adminDN must be valid.
- `Mylead.sizeofconnectionpool`: the number of connections between agent service and mylead server. Default value is 5. All of mylead requests share connections which are initiated when mylead agent service is launched.

For example,

```
mylead.serverURL=http://myleadserver.mylead.edu:10081/ogsa/services/ogsadai/DAIServiceGroupRegistry
mylead.notificationBrokerURL=notifserver.test.edu:12346
mylead.agentURL=agent.mylead.edu:10081
mylead.agentNotifListenerPort=19999
mylead.notifconsumerURL=agent.mylead.edu:19999
mylead.rlsURL=rlsn://rls.mylead.edu:39281
mylead.adminDN=myleadadmin
mylead.sizeofconnectionpool=5
```

If you don't want to process any notification, please configure mylead.agentNotifListenerPort as 0.

Please note that there should NOT be a space within a line of configuration.

3.4.2 Run the MyLead Agent Service

In the mylead agent directory, type,

```
./run.sh mylead -handle [mylead service URL] -port [mylead service port]
```

For example,

```
./run.sh mylead -handle http://test.mylead.edu:10081 -port 12345
```

3.4.3 Compile MyLead Agent Service

MyLead is an open source project. If the developers require to compile mylead agent service,

```
ant prepare
ant
```

4 Testing the Installation

The myLEAD v 0.3 alpha provides testing suite. Testing suite is included in mylead agent package and you can download standalone version as well. If you try standalone version, please configure mylead.properties first. You can follow same instruction in 3.3.1.

To run mylead installation testing suite,

```
./run.sh installtest
```

It will test connections to,

- Mylead agent
- Mylead server
- RLS server
- WS Notification/Eventing broker