

Integrating the Healthcare Enterprise

IHE/MESA XDS-I Tests Installation Guide

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1 Introduction

1.1 Contact

All technical comments or problems like bugs or unsolvable problems may be reported to Stephan Friese <sfriese@ele.etsmtl.ca>.

Do it before having looked around for hours in order to find your mistake. In almost every case something is not documented and for software the generic state is to include some errors.

1.2 General Notes

- The installation procedures described in this document are related to different XDS-I tests. Before installing a component, consult the test guide to check if the component is required.
- Spaces in pathnames are a pain. Most pathname manipulations are done in Java and spaces should cause no problems. Nevertheless, it is better to avoid them, especially when shell scripts are used.
- Slashes:
Some operating systems use backslashes to separate pathname components. Probably there are instructions in this guide that do not respect this fact. Simply replace forward slashes by backslashes if required.
In the configuration files (except shell scripts) you may use forward slashes independently of the operating system. If you insist on backslashes, do not forget to escape them - '\\' for one backslash.

2 Components

2.1 XDS-I Test Distribution

2.1.1 Installation

Get the distribution from the 'MESA Software Distribution' page. Choose a directory (avoid spaces in the pathname) under which you want to install all required components and extract the content of the compressed archive to this directory. From now on, we refer to the created directory

'xdsihome' as '**XDSITEST_HOME**'.

2.2 Java 2 Platform SE 1.4.2 SDK

If you have already an installation of the 'Java 2 Platform SE 1.4.2 SDK', you may use this one. It must not make use of the 'Endorsed Standards Mechanism'. If you are not sure, do a second installation. Note that version 1.5.x is probably not usable due to JAXP 1.3 used instead of 1.2.

2.2.1 Installation

Binaries can be downloaded at
<http://java.sun.com/j2se/1.4.2/download.html>.

Linux:

Download the self-extracting binary `j2sdk-1_4_2_XX-linux-i586.bin` to '`XDSITEST_HOME/download`', make it executable, change the current directory to '`XDSITEST_HOME/external`' and execute the binary.

Windows:

Download the off-line installation executable '`j2sdk-1_4_2_XX-windows-i586-p.exe`' to '`XDSITEST_HOME/download`' and execute it. Choose as installation directory '`XDSITEST_HOME/external`'.

2.3 DCMTK 3.5.3

2.3.1 Installation

Binaries can be downloaded at
<http://dicom.offis.de/dcmkt.php.en>.

Linux:

Download the compressed archive '`dcmkt-3.5.3-linux-i386.tar.bz2`' to '`XDSITEST_HOME/download`' and extract its content to '`XDSITEST_HOME/external`'. Rename the directory '`XDSITEST_HOME/external/dcmkt-3.5.3-linux-i386`' to '`XDSITEST_HOME/external/dcmkt-3.5.3`'.

Windows:

Download the compressed archive '`dcmkt-3.5.3-win32-i386.zip`' to '`XDSITEST_HOME/download`' and decompress it to '`XDSITEST_HOME/external`'. Rename the directory '`XDSITEST_HOME/external/dcmkt-3.5.3-win32-i386`' to '`XDSITEST_HOME/external/dcmkt-3.5.3`'.

2.4 XDS-I Test Applications

2.4.1 Installation

This component is included in the test distribution.

Open the file '`XDSITEST_HOME/xdsitest/classes/ca/etsmtl/ihe/xdsitest/util/setup.properties`' and set the only value to the absolute pathname of '`XDSITEST_HOME`'.

Shell initialization script '`setenv.sh/bat`':

There is a convenience script in order to set up all required environment variables used by different executables. In Linux it has to be sourced (automatically from the appropriate shell configuration file or manually from the command line), in Windows it has to be executed (You can create a shortcut to '`cmd.exe`' and specify in 'Properties' the value 'Start in: `XDSITEST_HOME\xdsitest`'). Everytime you create a new shell from this shortcut, simply type '`setenv`').

Open the file '`XDSITEST_HOME/xdsitest/setenv.sh`' (Linux) or '`XDSITEST_HOME/xdsitest/setenv.bat`' (Windows) and adapt the settings in the marked section near the top.

2.4.2 Sending SOAP messages

On the command line ('`setenv`' used? - <0 Shell initialization script '`setenv.sh/bat`'>)) issue the command

```
java ca.etsmtl.ihe.xdsitest.soap.SoapSender <request file> <response file>.
```

2.5 *Apache Jakarta Tomcat 5.0.28*

2.5.1 Installation

Binaries can be downloaded at
<http://tomcat.apache.org/download-55.cgi>.

Linux:

Download the compressed archive 'jakarta-tomcat-5.0.28.tar.gz' to 'XDSITEST_HOME/download' and extract the content to 'XDSITEST_HOME/external'.

Windows:

Download the executable 'jakarta-tomcat-5.0.28.exe' to 'XDSITEST_HOME/download' and execute it. Choose as installation directory 'XDSITEST_HOME/external'. When you are required to choose a JVM, you have to point to the root of a SDK (in the configuration above 'XDSITEST_HOME/external/j2sdk1.4.2_XX').

2.5.2 Starting / Stopping the Web Container

If you are using the ebxmlrr registry, make sure the database server is started before. This server needs not to be restarted when the web container is restarted.

Linux:

In order to set up the environment, you may use the script 'setenv.sh' (see <0 [Shell initialization script 'setenv.sh/bat'](#)>).

To start the server (from 'XDSITEST_HOME/external/jakarta-tomcat-5.0.28'):
bin/startup.sh

To stop the server (from 'XDSITEST_HOME/external/jakarta-tomcat-5.0.28'):
bin/shutdown.sh

Windows:

The server can be started and stopped from the corresponding elements in the program group created during installation. You may also use the regular tools to manipulate Windows services.

2.6 *XDS-I Test Web Application*

2.6.1 Installation

Copy the file 'XDSITEST_HOME/xdsitest/misc/web/xdsitest.war' to 'XDSITEST_HOME/external/jakarta-tomcat-5.0.28/webapps'. Start and stop the web container. Open the file 'XDSITEST_HOME/external/jakarta-tomcat-5.0.28/webapps/xdsitest/WEB-INF/classes/ca/etsmtl/ihe/xdsitest/util/setup.properties' and set the only value to the absolute pathname of 'XDSITEST_HOME'.

2.7 *ebxmlrr Registry*

2.7.1 Installation

This component requires PostgreSQL the setup of which is described in the next section.

Copy the file 'XDSITEST_HOME/external/ebxmlrr-2.1-final1/ebxmlrr_xdsi.war' to 'XDSITEST_HOME/external/jakarta-tomcat-5.0.28/webapps'.

2.7.2 Initializing the Database

This section describes the initialization sequence for the database used by the registry. It must be performed during the initial installation and may be repeated in case you wish to start over with a clean registry. In the later case you have to reset the database first.

Execute SQL scripts as described in <**Error! Reference source not found. Error! Reference source not found.**> and send SOAP messages as described in <**Error! Reference source not found. Error! Reference source not found.**>.

Initialization sequence:

- 0) (optional - reset)
Execute SQL script 'XDSITEST_HOME/external/ebxmlrr-2.1-final1/conf/cleanup.sql'.
- 1) Execute SQL script 'XDSITEST_HOME/external/ebxmlrr-2.1-final1/conf/database.sql'.
- 2) Execute SQL script 'XDSITEST_HOME/external/ebxmlrr-2.1-final1/conf/intrinsicData.sql'.
- 3) Send SOAP message 'XDSITEST_HOME/external/ebxmlrr-2.1-final1/conf/SubmitObjectsRequest_ObjectTypeScheme.xml'.
- 4) Send SOAP message 'XDSITEST_HOME/external/ebxmlrr-2.1-final1/conf/SubmitObjectsRequest_AssociationTypeScheme.xml'.
- 5) Send SOAP message 'XDSITEST_HOME/xdsitest/misc/registry/initialize.xml'.

2.8 PostgreSQL >= 7.4

If you want to use an existing PostgreSQL daemon/service, you can skip this step.

2.8.1 Installation

Binaries can be downloaded at
<http://www.postgresql.org/ftp/binary/>.

Linux:

The PostgreSQL RDBMS is member of almost every Linux distribution. If you don't have it with version 7.4 or higher, use your update/package manager to get it, or get the sources and configure-make-install.

We describe the procedure to initialize a database cluster for RedHat derivatives. It is similar for other distributions (You need a system account - here it is 'postgres'. You need a data directory the pathname of that is either in the environment variable 'PGDATA' or you have to add the option '-D <data_directory>' to 'initdb' and 'pg_ctl'.).

All server manipulations are always done under the system account 'postgres'. Log into this account (Initially it comes without password. Do 'su', 'passwd postgres', 'exit'.) and check, whether there is

already a database cluster created.

```
su - postgres
cd /var/lib/pgsql      (if this is not postgres's home directory)
cd data
ls
```

If this directory is empty, create the cluster.

```
initdb                (add '-W' if you will use passwords)
```

In order to enable TCP/IP connections, do

```
echo '-i' > postmaster.opts.default  (listen for TCP/IP connections)
```

Look at the end of the file 'pg_hba.conf'. This file contains the client authentication configuration. The easiest method is to allow all users to connect to the server from the local host without password.

Uncomment, modify or keep some of the last lines in order to have

```
host all all 127.0.0.1 255.255.255.255 trust
host all all ::1      ffff:ffff:ffff:ffff:ffff:ffff:ffff:ffff trust
```

Windows:

Starting with version 8.0 the PostgreSQL RDBMS is available as native Windows binary. Download the compressed installer 'v8.0.4/win32/postgresql-8.0.4.zip' to 'XDSITEST_HOME/download', decompress it to a temporary location and execute the installer 'postgresql-8.0.msi'. Keep all settings except for some in the section 'Initialize database cluster'. Choose as encoding 'LATIN1' and choose a password.

Look at the end of the file 'pg_hba.conf' (start menu: 'Programs/PostgreSQL 8.0/Configuration files/Edit pg_hba.conf'). This file contains the client authentication configuration. The easiest method is to allow all users to connect to the server from the local host without password. Uncomment, modify or keep some of the last lines in order to have

```
host all all 127.0.0.1 255.255.255.255 trust
host all all ::1      ffff:ffff:ffff:ffff:ffff:ffff:ffff:ffff trust
```

2.8.2 Starting / Stopping the Database Server

Under normal conditions, the server needs never to be restarted. Simply make sure that it is running when needed and let it running.

Linux:

To start the server:

```
pg_ctl start -l pg.log
```

To stop the server:

```
pg_ctl stop
```

The startup and shutdown must always be done by user 'postgres'.

Windows:

To start the server:

```
start menu: 'Programs/PostgreSQL 8.0/start service'
```

To stop the server:

```
start menu: 'Programs/PostgreSQL 8.0/stop service'
```

You can also use any other tool to manipulate Windows services.

2.8.3 Creating User and Database for the Registry

The registry operates on the database 'xdsiregistry' owned by the user 'xdsitest'.

The server must be running.

Linux:

In order to create the user and the database, do (from any system account):

```
createuser -Ad xdsitest -U postgres -h localhost  
createdb -E UNICODE xdsiregistry -U xdsitest -h localhost
```

Windows:

Creation of users and databases can be done from the graphical administration tool (start menu: 'Programs/PostgreSQL 8.0/pgAdmin III'). The command line procedure described in the Linux section may be used alternatively.

Right-click on 'Servers/PostgreSQL Database Server 8.0/Users' and choose 'New User'. Under 'Properties' enter 'Username: xdsitest' and check 'User Privileges/User can create databases'.

Right-click on 'Servers/PostgreSQL Database Server 8.0/Databases' and choose 'New Database'. Under 'Properties' enter 'Name: xdsitest', choose 'Owner: xdsitest' and let 'Encoding' unchanged from 'UNICODE'.

In order to execute SQL scripts connected as user 'xdsitest', a new connection has to be configured. Right-click on 'Servers' and choose 'Add Server'. Under 'Properties' enter 'Address: localhost' and 'Description: connection_xdsitest'.

2.8.4 Executing SQL Scripts

Linux:

```
psql xdsiregistry -f <script> -U xdsitest -h localhost
```

Windows:

In the graphical administration tool select 'Servers/connection_xdsitest/Databases/xdsiregistry' and choose the menu item 'Tools/Query tool'. Open the script and execute the query (F5). The command line procedure described in the Linux section may be used alternatively.