

# **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 Renaud Berube <[renaud.berube.1@ens.etsmtl.ca](mailto:renaud.berube.1@ens.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.
- This installation uses NIST XDS public registry and repository for registering metadata and KOS files. Since the registry and the repository are online, there is not plan to support any offline version of the test kit.
- The XDSI test kit only accepts XDSI profile's transaction.
- 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 for Java components you may use forward slashes independently of the operating system. If you insist on backslashes, do not forget to escape them – '\ ' for one backslash.

## 1.3 Command Line

Several manipulations are done on the command line. There is a convenience script 'setenv.sh/bat' in 'XDSITEST\_HOME' that may be used to set up all required environment variables. 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'. Everytime you create a new shell from this shortcut, simply type 'setenv').

In order to customize the script, open the file 'XDSITEST\_HOME/setenv.sh' (Linux) or 'XDSITEST\_HOME/setenv.bat' (Windows) and adapt the settings in the marked section near the top.

For Windows, using the command lines to replace the GUI help is recommended if some problems occur.

# 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 Development Kit 6***

If you have already an installation of the 'JDK 6', 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 the usage of older versions is explicitly made impossible. The reason is due to Sun's errors made by integrating JAXP and TrAX in the platform version 1.4 in quite a rush.

### **2.2.1 Installation**

Binaries can be downloaded at  
<http://java.sun.com/javase/downloads/index.jsp>.

#### Linux:

Download the self-extracting binary `jdk-6uX-linux-i586.bin` to '`XDSITEST_HOME/download`', make it executable, change the current directory to '`XDSITEST_HOME/external`' and execute the binary. Rename the directory '`XDSITEST_HOME/external/jdk1.6.0_XX`' to '`XDSITEST_HOME/external/jdk-1.6.0`'.

#### Windows:

Download the off-line installation executable '`jdk-6uX-windows-i586-p.exe`' to '`XDSITEST_HOME/download`' and execute it. Choose as installation directory '`XDSITEST_HOME/external/jdk-1.6.0`'.

## **2.3 *DCMTK 3.5.3***

### **2.3.1 Installation**

Binaries can be downloaded at  
<ftp://dicom.offis.de/pub/dicom/offis/software/dcmtdk/dcmtdk353/>.

#### Linux:

Download the compressed archive '`dcmtdk-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/dcmtdk-3.5.3-linux-i386`' to '`XDSITEST_HOME/external/dcmtdk-3.5.3`'.

#### Windows:

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

## **2.4 *Apache Jakarta Tomcat 6.0***

### **2.4.1 Installation**

Dependencies:

- 2.2 [Java 2 Platform SE Development Kit 6](#)

Binaries can be downloaded at

<http://tomcat.apache.org/download-60.cgi>

#### Linux:

Download the compressed archive 'apache-tomcat-6.0.18.tar.gz' to 'XDSITEST\_HOME/download' and extract the content to 'XDSITEST\_HOME/external'.

#### Windows:

Download the executable 'apache-tomcat-6.0.18.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 JDK (in the configuration above 'XDSITEST\_HOME/external/jdk-1.6.0').

## **2.4.2 Starting / Stopping the Web Container**

#### Linux:

In order to set up the environment, you may use the script 'setenv.sh' (see <1.3 [Command Line](#)>).

To start the server (from 'XDSITEST\_HOME/external/Tomcat 6.0'):  
bin/startup.sh

To stop the server (from 'XDSITEST\_HOME/external/Tomcat 6.0'):  
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.

## **2.5 XDS-I Test Web Application**

### **2.5.1 Installation**

Dependencies:

- 2.3 [DCMTK 3.5.3](#)
- 2.4 [Apache Jakarta Tomcat 6.0](#)

This component is included in the test distribution.

Copy the file 'XDSITEST\_HOME/xdsitest/misc/web/xdsitest.war' to 'XDSITEST\_HOME/external/Tomcat 6.0/webapps'. Start and stop the web container. Open the file 'XDSITEST\_HOME/external/Tomcat 6.0/webapps/webapps/xdsitest/WEB-INF/classes/ca/etsmtl/ihe/xdsitest/util/setup.properties' and set the only value to the absolute pathname of 'XDSITEST\_HOME'. You can then start the web container to execute the web applications.

## **2.6 XDS-I Test Command Line Applications**

### **2.6.1 Installation**

Dependencies:

- 2.2 Java 2 Platform SE Development Kit 6

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'.

## 2.6.2 Sending SOAP Messages

Issue on the command line ('setenv' used? – <1.3 [Command Line](#)>) the command:

```
java ca.etsmtl.ihe.xdsitest.registry.RegistryClient [options] <request file> <response file>
```

## 2.7 *ImageCtn*

### 2.7.1 Installation

Dependencies:

- 2.3 [DCMTK 3.5.3](#)

This component is included in the DCMTK.

In order to populate its database, issue on the command line ('setenv' used? – <1.3 [Command Line](#)>) the command (from 'XDSITEST\_HOME/data/imagectn'):

```
dbregimg *.dcm
```

### 2.7.2 Starting / Stopping the ImageCtn

Run this component only if you need to. **During test execution it should always be down because the test engine provides its own imagectn at the same presentation address.**

In order to set up the environment, you may use the script 'setenv.sh/bat' (see <1.3 [Command Line](#)>).

To start the server (from 'XDSITEST\_HOME/data/imagectn'):

```
imagectn -dhl (Add '-v' in order to monitor association negotiation and data flow.)
```

To stop the server:

```
interrupt the process
```