System Administrator Manual

1. Overview

This documentation will enable the system administrator to install and manage the system with ease.

This covers the database installation, application server installation, OpenMPIS installation, security audit and database backup.

2. Database Installation

The system administrator should first install MySQL 5 server.

For Windows XP:

1. Download MySQL 5.1 from http://dev.mysql.com.
2. Double-click the installer.
3. Configure the database server and set up the password.

For Debian 4:

1. Install MySQL 5.0 using APT.

   ```
   # apt-get install mysql-server-5.0
   ```

2. Set up the password.

   ```
   # mysqladmin -u root password admin123
   # mysqladmin -u root password admin123 -p -h localhost
   ```

3. Java Installation

The system administrator should install Java Development Kit next. With references from http://www.weiqigao.com/blog/2007/11/04/getting_sun_java_6_on_debian_4_0_with_apt_pinning.html.

For Windows XP:

1. Download JDK 6 from http://java.sun.com.
2. Double-click the installer.

For Debian 4:

1. Modify /etc/apt/sources.list.

   ```
   # vim /etc/apt/sources.list
   deb http://ftp.debian.org/etch main non-free contrib unstable
   …
   ```

2. Create /etc/apt/preferences.

   ```
   # vim /etc/apt/preferences
   Package: *
   Pin: release a=stable
   Pin-Priority: 700

   Package: *
   Pin: release a=unstable
   Pin-Priority: 600
   ```

3. Increase APT's cache limit.

   ```
   # vim /etc/apt/apt.conf.d/70debconf
   …
   APT::Cache-Limit “100000000”;
   ```

4. Update the package list.

   ```
   # apt-get update
   ```

5. Install JDK 6.

   ```
   # apt-get install sun-java6-jdk
   ```

6. Set JDK 6 as the default Java installation.

   ```
   # update-java-alternatives -s java-6-sun
   ```

7. Set the JAVA_HOME environment.

   ```
   # vim /etc/profile
   ```

```
…
JAVA_HOME=/usr/lib/jvm/java-6-sun
export PATH JAVA_HOME
…
```

8. Restart the machine or load the environment variables.

   # source /etc/profile

9. Check if Java works.

   # java -version

4. Application Server Installation

The system administrator should install the Tomcat application server with or without the Apache Web server.

For Windows XP:

1. Download Tomcat 6.0 from http://tomcat.apache.org.
2. Double-click the installer.
3. Configure the application server and set up the password.
4. Go to http://localhost:8080 to check if Tomcat works.

For Debian 4:

1. Install Tomcat 5.5.

   # apt-get install tomcat5.5

2. Disable Tomcat security to allow photo uploads.

   # vim /etc/init.d/tomcat5.5
   …
   TOMCAT5_SECURITY=no
   …

3. Go to http://localhost:8080 to check if Tomcat works.

Optional:

1. Install Apache 2 and JK Connector.

   # apt-get installation apache2 apache2-prefork-dev gcc autoconf libtool libapache2-mod-jk

2. Configure the connector.

   # vim /etc/libmodjk/worker.properties
   …
   workers.tomcat_home=/usr/share/tomcat5.5
   …
   workers.java_home=/usr/lib/jvm/java-6-sun
   …

3. Configure Apache.

   # vim /etc/apache2/conf/sites-enabled/000-default
   …
   JkMount /* ajp13_worker
   JkMount / ajp13_worker
   …

4. Edit the connector module loader.

   ```
   # vim /etc/apache2/mods-enabled/jk.load
   LoadModule jk_module /usr/lib/apache2/modules/mod_jk.so
   JkWorkersFile /etc/libapache2-mod-jk/workers.properties
   JkLogFile /var/log/apache2/jk-error.log
   JkLogLevel info
   JkLogStampFormat "[%a %b %d %H:%M:%S %Y] "
   JkOptions +ForwardKeySize +ForwardURICompat -ForwardDirectories
   JkRequestLogFormat "%w %V %T"
   ```

5. Restart Tomcat.

   ```
   # /etc/init.d/tomcat5.5 restart
   ```

6. Restart Apache.

   ```
   # /etc/init.d/apache2 restart
   ```

7. Go to http://localhost to check if Apache and Tomcat work.

5. Ant Installation

The system administrator should also install Ant.

For Windows XP:

1. Download Ant 1.7 from http://ant.apache.org.
2. Add the Ant path to the environment variables.
3. Check if Ant works on the MS-DOS prompt.

   C:\Documents and Settings\Rey>ant -version

For Debian 4:

1. Install Ant 1.6.

   # apt-get install ant

2. Check if Ant works.

   # ant -version

6. OpenMPIS Installation

The system administrator can now build and deploy OpenMPIS.

For Windows XP:

1. Download OpenMPIS from http://openmpis.googlecode.com.
2. Extract the compressed file.
3. From the MS-DOS prompt, go to the extracted directory.
4. Configure nbproject/private/private.properties.

```
…
### Windows XP ###
j2ee.platform.classpath=C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\annotations-api.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\catalina-ant.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\catalina-ha.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\catalina-tribes.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\catalina.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\el-api.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\jasper-el.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\jasper.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\jsp-api.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\servlet-api.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\tomcat-coyote.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\tomcat-dbcp.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\tomcat-i18n-es.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\tomcat-i18n-fr.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\lib\\tomcat-i18n-ja.jar:C:\\Program Files\\Apache Software Foundation\\Apache Tomcat 6.0.18\\bin\\tomcat-juli.jar
…
```

5. Edit src/sqlmapconfig.properties to reflect the correct MySQL username and password.

```
#  vim src/sqlmapconfig.properties
…
username=root
password=admin123
```

6. Edit src/mail.properties to enable or disable mail functionalities and set up the proper mail server options.

```
# vim src/mail.properties
### Enable email sending ###
mail.enable=false

### Enable debugging ###
mail.debug=false

### The administrator's email address ###
mail.administrator=rvincent@asti.dost.gov.ph
```

```
### The administrator's user ID ###
id.administrator=1

### Gmail SMTP server ###
### Use secure SMTP ###
mail.transport.protocol=smtps
### The outgoing mail server host ###
mail.smtps.host=smtp.gmail.com
### The outgoing mail server port ###
mail.smtp.port=465
### Enable use of authentication ###
mail.smtps.auth=true
### The email address on the mail server ###
mail.smtp.user=rvbabilonia@gmail.com
### The password for this email account
mail.smtp.user.password=
```

7. Run Ant to compile the package and set up the database schema. Assuming that the directory is in drive D:

   ```
   D:\openmpis>ant
   ```

8. Go to http://localhost:8080/manager to deploy openmpis/dist/openmpis.war.
9. Go to http://localhost:8080/openmpis to check if OpenMPIS works.

For Debian 4:

1. Download OpenMPIS from http://openmpis.googlecode.com.
2. Extract the compressed file.

   ```
   # tar xzvf openmpis-<version>.tar.gz
   ```

3. Go to the extracted directory.

   ```
   # cd openmpis
   ```

4. Configure nbproject/private/private.properties.

   ```
   # vim nbproject/private/private.properties
   …
   ### Debian 4 ###
   j2ee.platform.classpath=/usr/share/tomcat5.5/common/lib/commons-collections3.jar:/usr/share/tomcat5.5/common/lib/commons-el.jar:/usr/share/tomcat5.5/common/lib/jasper-compiler.jar:/usr/share/tomcat5.5/common/lib/jasper-runtime.jar:/usr/share/tomcat5.5/common/lib/naming-factory.jar:/usr/share/tomcat5.5/common/lib/servlet-api.jar:/usr/share/tomcat5.5/common/lib/commons-dbcp.jar:/usr/share/tomcat5.5/common/lib/commons-pool.jar:/usr/share/tomcat5.5/common/lib/jasper-compiler-jdt.jar:/usr/share/tomcat5.5/common/lib/jsp-api.jar:/usr/share/tomcat5.5/common/lib/naming-resources.jar
   …
   ```

5. Edit src/sqlmapconfig.properties to reflect the correct MySQL username and password.

   ```
   #  vim src/sqlmapconfig.properties
   …
   username=root
   password=admin123
   ```

6. Edit src/mail.properties to enable or disable mail functionalities and set up the proper mail server options.

   ```
   # vim src/mail.properties
   ### Enable email sending ###
   mail.enable=false

   ### Enable debugging ###
   mail.debug=false

   ### The administrator's email address ###
   mail.administrator=rvincent@asti.dost.gov.ph

   ### The administrator's user ID ###
   id.administrator=1

   ### Gmail SMTP server ###
   ### Use secure SMTP ###
   mail.transport.protocol=smtps
   ### The outgoing mail server host ###
   mail.smtps.host=smtp.gmail.com
   ### The outgoing mail server port ###
   mail.smtp.port=465
   ### Enable use of authentication ###
   mail.smtps.auth=true
   ### The email address on the mail server ###
   mail.smtp.user=rvbabilonia@gmail.com
   ### The password for this email account
   mail.smtp.user.password=
   ```

7. Run Ant to compile the package and set up the database schema.

   ```
   # ant
   ```

8. Copy openmpis.war to the webapps directory.

   ```
   # cp dist/openmpis.war /var/lib/tomcat5/webapps/ROOT.war
   ```

9. Go to http://localhost:8080/ or http://localhost to check if OpenMPIS works.

7. Security Audit

The system administrator should ensure system security. He should perform penetration tests, SQL injection tests and cross-site scripting tests regularly. He should also read the system logs from time to time.

The system administrator should also install a firewall and block all unnecessary ports.

8. Database Backup

The system administrator should also automate the back up of the database. One way to do this is to use Cron.

```
# vim /etc/crontab
…
00 18 * * * root /usr/bin/mysqldump –databases openmpis -uroot -padmin123 >> /home/rey/backup/openmpis-`date -I`.sql
```